









# THE NEW INTERNATIONAL YEAR BOOK

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A COMPENDIUM OF THE WORLD'S  
PROGRESS

FOR THE YEAR

1931

EDITOR

HERBERT TREADWELL WADE

FUNK & WAGNALLS COMPANY  
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## PREFACE

THE NEW INTERNATIONAL YEAR BOOK, of which the present volume is the 30th issue, along with the NEW INTERNATIONAL ENCYCLOPÆDIA, during the year 1931 passed from the ownership of its founders into the control of FUNK AND WAGNALLS COMPANY. It is most appropriate that these two long-established reference works thus should become essential and important elements in an extensive list of publications that range from the weekly *Literary Digest* to the permanent *Standard Dictionary* and henceforth should bear the imprint of an international publishing organization. In the YEAR BOOK no change of editorial policy or plan has been involved, so that this 1931 annual comes to the ever-increasing number of world-minded readers as a comprehensive summary of one of the most interesting periods known to history.

At no time since the World War had any single nation been sufficient unto itself, but in 1931 this was specially emphasized in matters of national policy as well as in world economics. The now familiar financial depression was quite as evident in the East Indies, as it was in Europe and America in 1931. No one nation was strong enough to resist economic currents, as witness "the flight from the pound" of GREAT BRITAIN, a nation which united under a National Government to meet and face unprecedented conditions at home and abroad. With the abandonment of the gold standard and of free trade, came the epoch-marking Statute of Westminster, fixing the constitutional status of the British Dominions. In INDIA was recorded a truce between Gandhi and Lord Irwin leading to the Indian Round-Table Conference at London, only to be broken later. GERMANY continued a storm centre with the Hitler movement provoking widespread concern, and various financial and economic decrees were promulgated. In FRANCE, national anxieties prevailed, notwithstanding the flow of gold to Paris, and the visit of Premier Laval to Washington. In SPAIN must be marked the establishment of a republic after years of political threats and uprisings, while the UNION OF SOVIET SOCIALIST REPUBLICS, approached the completion of the Five-Year Plan, with a changed attitude of Stalin toward capitalism.

ASIA continued to present problems of grave concern to the world with CHINA in chaos and the government of Chiang Kai-Shek overthrown. An aggressive JAPAN was active in MANCHURIA in the face of remonstrance by the United States and the Council of the League of Nations. In AUSTRALIA, as a result of a general election, the Labor Government was ousted, while the Labor Party in NEW ZEALAND suffered substantial losses in the elections. The PHILIPPINE ISLANDS continued their agitation for independence and separation from the United States, while in HAWAII were manifested various forms of disorder. In South and Central America revolution was noted, as in CHILE, CUBA, SALVADOR, PARAGUAY, and HONDURAS, but on the other hand, the restoration of constitutional government in BOLIVIA and PERU could be recorded. In the Chaco new clashes occurred.

Looking at the European political situation broadly, the never-ending question of REPARATIONS had a new feature in the MORATORIUM proposed by President Hoover, while the LEAGUE OF NATIONS continued its formal activity. A feature of the year was the general tendency towards higher tariffs and restrictions of exchange, which acted to increase the economic disarrangement. Increased taxation prevailed and financial problems seemed greater than at the time of the World War.

## PREFACE

In the UNITED STATES, economic depression did not prevent active discussion of foreign and domestic political questions. Inevitably America came into contact with world problems in matters of world concern, while its position as a creditor nation in the midst of universal depression was far from enviable. In NICARAGUA and HAITI the United States inaugurated the withdrawal of its armed forces, and in the Far East was attempting to make its policy felt in an atmosphere which lacked international agreement. Notwithstanding disturbed foreign interests and a reduced foreign commerce and diminished gold resources, domestic politics, preliminary to a Presidential Campaign, held the attention of the American people. In connection with attempts to relieve financial depression and UNEMPLOYMENT, discussion in the national legislature was more general than definite, with few clearly defined issues between the great parties. Attempts were made to develop a policy that would meet the ever-increasing deficit in national finances. During 1931 nearly all of the State legislatures were in session and the usual grist of legislation ground included much both in the nature of unemployment relief and increased taxation. As a result of the times, social legislation and WELFARE WORK were more prominent than ever, though often without definite policy on the part of public or private authorities. PROHIBITION continued to be a topic of never-dying interest, discussed with varying degrees of heat and intelligence, not infrequently associated with collateral topics as in the consideration of CRIME made by the Wickersham Commission in its final report.

The Editors of the 1931 YEAR BOOK have not merely recorded the leading events but have endeavored to correlate the chronicle in a comprehensive picture. Each year the YEAR BOOK is able to call attention to new and special features. There is presented for the first time a CHRONOLOGY of important events the world over. Such a list, with its chronological arrangement has the further advantage of serving as an index, for under the country concerned or in the special field of knowledge involved, there also is adequate discussion of the event or circumstance. An increased NECROLOGY deals with those who died in 1931, while the article on the CENSUS includes the correct figures of population of cities and towns as revealed in the United States Census of 1930. Most of the contributors familiar to our readers again are represented by articles. A competent jurist discusses LAW and its progress, while new contributors of high professional qualifications write on NAVAL PROGRESS and on PAINTING, SCULPTURE, and ART EXHIBITIONS.

As usual, the YEAR BOOK in its articles on BANKS AND BANKING, BUSINESS REVIEW, FINANCIAL REVIEW, PUBLIC FINANCE, and TAXATION summarizes the important features of the year, particularly as they concern the United States. In SURGERY and MEDICINE the alleviation of such diseases as angina pectoris, poliomyelitis, influenza, and the common cold is treated. The YEAR BOOK through the interest of many correspondents is able to present the usual interesting summary of the activity of the UNIVERSITIES AND COLLEGES, while various learned, philanthropic, and other organizations contribute the summaries that indicate progress in the advancement of their special work. The reader, seeking the usual reviews in LITERATURE, THEATRE, SCIENCE, ENGINEERING, PHILOSOPHY, and HISTORY, will not be disappointed, and the bibliography found so valuable in earlier YEAR BOOKS has been extended. This year the illustration of the YEAR BOOK has been increased twofold so as to supplement the text by appropriate picture and diagram. As usual the Editor is under obligations to many government and other agencies whose cordial coöperation and assistance contributes in no small degree to the established character of this work.

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## KEY TO PRONUNCIATION

<b>æ</b>	as in <i>ale, fate</i> . Also see <b>ē</b> , below.	<b>ð</b>	as in the Spanish <i>Almodovar, pulgada</i> , where it is nearly like <i>th</i> in English <i>then</i> , this.
<b>æ</b>	" " <i>senate, chaotic</i> .	<b>g</b>	" " <i>go, get</i> .
<b>ā</b>	" " <i>glare, care, and as e in there</i> . See <b>ē</b> , below.	<b>g</b>	" " the German <i>Landtag</i> , and <i>ch</i> in <i>Feuerbach, buch</i> ; where it is a guttural sound made with the back part of the tongue raised toward the soft palate, as in the sound made in clearing the throat.
<b>ā</b>	" " <i>am, at</i> .	<b>h</b>	" <i>j</i> in the Spanish <i>Jijona, g</i> in the Spanish <i>gila</i> ; where it is a fricative somewhat resembling the sound of <i>h</i> in English <i>hue</i> or <i>y</i> in <i>yet</i> , but stronger.
<b>ā</b>	" " <i>arm, father</i> .	<b>hw</b>	" <i>wh</i> in <i>which</i> .
<b>ā</b>	" " <i>ant, and final a in America, armada, etc.</i> In rapid speech this vowel readily becomes more or less obscured and like the neutral vowel or a short <i>u</i> ( <i>ū</i> ).	<b>κ</b>	" <i>ch</i> in the German <i>ich, Albrecht</i> , and <i>g</i> in the German <i>Arensberg, Mecklenburg</i> ; where it is a fricative sound made between the tongue and the hard palate toward which the tongue is raised. It resembles the sound of <i>h</i> in <i>hue</i> , or <i>y</i> in <i>yet</i> ; or the sound made by beginning to pronounce a <i>k</i> , but not completing the stoppage of the breath. The character <b>κ</b> is also used to indicate the rough aspirates or fricatives of some of the Oriental languages, as of <i>kh</i> in the word <i>Khan</i> .
<b>α</b>	" " <i>final, regal, where it is of a neutral or obscure quality</i> .	<b>ñ</b>	" " in <i>sinker, longer</i> .
<b>α</b>	" " <i>all, fall</i> .	<b>ng</b>	" " <i>sing, long</i> .
<b>α</b>	" " <i>eve</i> .	<b>n</b>	" " the French <i>bon, Bourbon</i> , and <i>m</i> in the French <i>Étampes</i> ; where it is equivalent to a nasalizing of the preceding vowel. This effect is approximately produced by attempting to pronounce "onion" without touching the tip of the tongue to the roof of the mouth. The corresponding nasal of Portuguese is also indicated by <b>n</b> , as in the case of <i>São Antão</i> .
<b>ē</b>	" " <i>elate, evade</i> .	<b>sh</b>	" " <i>shine, shut</i> .
<b>ē</b>	" " <i>end, pet</i> . The characters <b>ē, ā, and d</b> are used for <b>ā, æ</b> in German, as in <i>Baedeker, Gräfe, Handel</i> , to the values of which they are the nearest English vowel sounds. The sound of Swedish <b>d</b> is also sometimes indicated by <b>ē</b> , sometimes by <b>ā</b> or <b>d</b> .	<b>th</b>	" " <i>thrust, thin</i> .
<b>ē</b>	" " <i>fern, her, and as i in sir</i> . Also for <b>ē, oe</b> , in German, as in <i>Göthe, Goethe, Ortel, Oertel</i> , and for <i>eu</i> and <i>oeu</i> in French, as in <i>Neufchâtel, Crèvecœur</i> ; to which it is the nearest English vowel sound.	<b>th</b>	" " <i>then, this</i> .
<b>e</b>	" " <i>agency, judgment, where it is of a neutral or obscure quality</i> .	<b>zh</b>	" <i>z</i> in <i>azure</i> , and <i>s</i> in <i>pleasure</i> .
<b>i</b>	" " <i>ice, quiet</i> .	An apostrophe ['] is sometimes used to denote a glide or neutral connecting vowel, as in <i>tā'b'l</i> (table), <i>kāz'm</i> (chasm).	
<b>i</b>	" " <i>quiescent</i> .	Otherwise than as noted above, the letters used in the respellings for pronunciation are to receive their ordinary English sounds.	
<b>i</b>	" " <i>ill, fit</i> .	When the pronunciation is sufficiently shown by indicating the accented syllables, this is done without respelling; as in the case of very common English and other words which are correctly accented. Pronunciation is discussed fully in THE NEW INTERNATIONAL ENCYCLOPÆDIA and in the NEW STANDARD DICTIONARY.	
<b>ō</b>	" " <i>old, sober</i> .		
<b>ō</b>	" " <i>obey, sobriety</i> .		
<b>ō</b>	" " <i>orb, nor</i> .		
<b>ō</b>	" " <i>odd, forest, not</i> .		
<b>o</b>	" " <i>atom, carol, where it has a neutral or obscure quality</i> .		
<b>oi</b>	" " <i>oil, boil, and for eu in German, as in Feuerbach</i> .		
<b>ou</b>	" " <i>food, fool, and as u in rude, rule</i> .		
<b>ou</b>	" " <i>house, mouse</i> .		
<b>ū</b>	" " <i>use, mule</i> .		
<b>ū</b>	" " <i>unite</i> .		
<b>ū</b>	" " <i>cut, but</i> .		
<b>ū</b>	" " <i>full, put, or as oo in foot, book</i> . Also for <b>ū</b> in German, as in <i>München, Müller</i> , and <b>u</b> in French, as in <i>Buchez, Budé</i> ; to which it is the nearest English vowel sound.		
<b>ū</b>	" " <i>urn, burn</i> .		
<b>y</b>	" " <i>yet, yield</i> .		
<b>h</b>	" " the Spanish <i>Habana, Córdoba</i> , where it is like a <i>v</i> made with the lips alone, instead of with the teeth and lips.		
<b>ch</b>	" " <i>chair, cheese</i> .		

# THE NEW INTERNATIONAL YEAR BOOK

**ABBEY, EDWIN A., MEMORIAL.** See PAINTING.

**ABKHAZ AUTONOMOUS REPUBLIC.** See TRANSCAUCASIAN SOCIALIST FEDERATED SOVIET REPUBLIC.

**ABORTION IN LIVESTOCK.** See LIVESTOCK; VETERINARY MEDICINE.

**ABYSSINIA.** See ETHIOPIA.

**ACADEMIES IN SOUTH AMERICA.** See SPANISH-AMERICAN LITERATURE.

**ACADEMY, FRENCH (ACADÉMIE FRANÇAISE).** The oldest of the five academies which make up the Institute of France and officially considered the highest; founded in 1635, reorganized in 1816. The membership is limited to 40. The list of the Immortals at the beginning of 1931, in order of their election, was as follows: Paul Bourget; Gabriel Hanotaux; Henri Lavedan; René Bazin; Maurice Donnay; Raymond Poincaré; Eugène Brieux; René Doumic; Marcel Prévost; Henri de Régnier; le maréchal Louis Lyautey; Pierre de la Gorce; Henri Bergson; le maréchal Joseph Joffre (q.v.); Louis Barthou; Mgr. Alfred Baudrillart; Jules Cambon; Henry Bordeaux; Joseph Bédier; André Chevrillon; Pierre de Nolhac; Georges Goyau; Henri Brémond; Edouard Estaunié; Henri Robert; Camille Jullian; Georges Lecomte; Emile Picard; Albert Besnard; Louis Bertrand; Auguste de Caumont, duc de la Force; Paul Valéry; Abel Hermant; Émile Mâle; Louis Madelin; Maurice Paléologue; le maréchal Henri Pétain; André Chaumeix; and Charles le Goffic.

At the meeting of the academy on June 11, 1931, the chairs formerly occupied by the late Marshal Joffre and Georges de Porto-Riche were filled by the elections of Gen. Max Weygand and Pierre Benoit. General Weygand, vice president of the *Conseil Supérieur de la Guerre*, was one of the leading Allied commanders during the World War. On the outbreak of the war he was appointed chief of general staff to Marshal Foch, and in August, 1916, was made a general of brigade. He won distinction during the Polish campaign against Russia in 1920, launching an effective offensive in the autumn that saved Warsaw from threatened capture by the Bolshevik army. In 1924 he became a member of the *Conseil Supérieur de la Guerre*, and also served from May to October of that year as high commissioner in Syria. On his return to Paris he was made commandant of the *Centre des Hautes Études Militaires*, and in January, 1930, was appointed French chief of staff. Pierre Benoit, the novelist, gained renown after the World War

through such works as *Königsmark*, *Pour don Carlos*, *Le Lac Salé*, and *La Chaussée des géants*, in which critics found a romantic strain to induce forgetfulness of the sorrows of the war. *L'Atlantide*, published in 1919, received the academy's *grand prix du roman*. His other works include: *Les suppliantes*; *L'Oublié*; *Mademoiselle de la Ferté*; *La Châtelaine du Liban*; *Les puits de Jacob*; *Le roi lépreux*; and *Azelle*.

**ACADEMY OF ARTS AND LETTERS, AMERICAN.** A society founded in 1904 by members of the National Institute of Arts and Letters, its charter of incorporation being approved by Act of Congress Apr. 17, 1916. It corresponds to the French Academy, its membership being limited to 50 chairs, and vacancies caused by death are filled by election by the members from the National Institute on the basis of lifetime achievement in literature, painting, sculpture, architecture, and music.

The membership of the academy as of Nov. 12, 1931, consisted of the following in the order of their election: Robert Underwood Johnson, Henry van Dyke, Edwin Howland Blashfield, George de Forest Brush, Bliss Perry, Abbott Lawrence Lowell, Nicholas Murray Butler, Owen Wister, Herbert Adams, Augustus Thomas, Cass Gilbert, Robert Grant, Frederick MacMonnies, William Gillette, Paul Elmer More, Gari Melchers, Elihu Root, Brand Whitlock, Hamlin Garland, Paul Shorey, Charles Adams Platt, Archer Milton Huntington, Child Hassam, David Jayne Hill, Lorado Taft, Newton Booth Tarkington, Charles Dana Gibson, John Charles Van Dyke, Royal Cortissoz, Henry Hadley, Charles Downer Hazen, George Pierce Baker, Wilbur L. Cross, Herman A. MacNeil, John Russell Pope, Edwin Arlington Robinson, James Earle Fraser, John Huston Finley, William Mitchell Kendall, Edwin Markham, Robert Frost, Irving Babbitt, James Truslow Adams, Edith Wharton, and George Grey Barnard.

At the annual meeting on Nov. 12, 1931, the following new members were elected: Gamaliel Bradford, Charles Martin Loeffler, William Lyon Phelps, and Adolph Alexander Weinman. Ignace Jan Paderewski, the Polish pianist and statesman, was elected a corresponding member. The academy's gold medal for good diction over the radio was awarded to John Holbrook of the New York division of the National Broadcasting Company, being presented to Mr. Holbrook by Hamlin Garland. In the afternoon there was opened in the art gallery of the academy an exhibition of the works of Paul Wayland Bart-

lett, the sculptor, who was a member of the academy, and in the evening the fifth concert of all American music was held in the auditorium.

The officers of the academy in 1931 were: President, Nicholas Murray Butler; chancellor and treasurer, Wilbur L. Cross; secretary, Robert Underwood Johnson; directors, Herbert Adams, Royal Cortissoz, Hamlin Garland, Robert Grant, Cass Gilbert, Archer Milton Huntington. Administrative offices are at 633 West 115 Street, New York City.

**ACCIDENTS.** See RAILWAY ACCIDENTS; WORKMEN'S COMPENSATION.

**ACHESON, EDWARD GOODRICH.** An American chemist and inventor, died in New York City, July 6, 1931. He was born in Washington, Pa., Mar. 9, 1856, and received an elementary school education. In 1880 he became assistant draftsman in the laboratories of Thomas A. Edison at Menlo Park, N. J., where he took part in the development of the incandescent lamp and later installed the first electric-lighting systems in different European cities. His inventions, derived in large measure from the electric furnace, include the widely used abrasive, carborundum, a carbide of silicon, manufactured by the Carborundum Company of Niagara Falls, N. Y., and Acheson graphite, an artificial product that far surpassed the natural one in purity and industrial usefulness, manufactured by the International Graphite Company, also of Niagara Falls. In 1906-07 he succeeded in "deflocculating" or reducing graphite to an exceedingly fine, non-coalescing state, the lubricants made from it with grease, oil, or water being respectively called "Gredag," "Oildag," and "Aquadag." He also invented a method of manufacturing silicon by heating silica (sand) with coke in an electric furnace, and of treating clay to increase its plasticity (Egyptianized clay). He was a recipient of the Rumford Medal of the American Academy of Arts and Sciences, the Perkin Medal, and the John Scott Medal of the Franklin Institute. In 1909 the University of Pittsburgh conferred upon him the honorary degree of Doctor of Science, and in 1914, having been elected an honorary member of the Swedish Technological Society, he was made an officer of the Royal Order of the Polar Star of Sweden. He donated \$25,000 in 1928 to the American Electrochemical Society (of which he was a past president) to establish the Edward Goodrich Acheson prize. This prize was to be awarded biennially to the person contributing most to the advancement of the objects of the society.

**ACHESON MEDAL.** See CHEMISTRY, INDUSTRIAL.

**ADAMS, EDWARD DEAN.** An American banker, died in New York City May 20, 1931. He was born in Boston, Mass., Apr. 9, 1846. Following his graduation from Norwich University in 1864, he entered the banking house of Richardson, Hill & Co., Boston, becoming a partner in 1870. In 1878 he removed to New York City, where until 1893, he was a member of the firm of Winslow, Lanier & Co., bankers. He then became American representative of the Deutsche Bank, Berlin, in which capacity he acted until the outbreak of the World War. He was one of the first bankers to be interested in the development of hydro-electric power and from 1890 to 1899, was president of the Cataract Construction Company, and allied companies at Niagara Falls.

He was engaged in the organization and reorganization of numerous railroad companies, including the Central Railroad of New Jersey, the New York, Ontario & Western Railway, and the Northern Pacific Railway, and was chairman of the board, president, or director, at different periods, of more than 40 corporations engaged in engineering enterprises. Among the honors bestowed on him were Royal Order of the Crown of Prussia (second class, 1909); Médaille de la Reconnaissance Française (1921), in recognition of his services as a director of the American Committee for Devastated France; and the John Fritz Gold Medal (1926).

**ADISON'S DISEASE.** See MEDICINE, PROGRESS OF.

**ADELBERT COLLEGE.** The men's college of liberal arts and sciences at Western Reserve University (q.v.).

**ADELPHI COLLEGE.** A nonsectarian college of arts and sciences for women in Garden City, N. Y., incorporated in 1896. Adelphi was located in Brooklyn, N. Y., until the autumn of 1929 when it was transferred to its new home in Garden City, where it has a campus of about 70 acres and three buildings. The enrollment for the autumn term of 1931 was 524 students. The faculty numbered 48. The endowment was \$891,165, while the income for 1930-31 was \$250,020. The library contained 30,135 volumes. President, Frank Dickinson Blodgett, LL.D.

**ADEN, a'den or a'den.** An important, fortified coaling-station and transshipment point on the water route to the East, situated on a volcanic peninsula on the southwestern coast of Arabia about 100 miles east of the Strait of Bah-el-Mandeb; belonging to Great Britain since 1839. The area of the peninsula is 75 square miles and that of Aden protectorate, including the hinterland, the peninsula of Little Aden, and the island of Perim, 9000 square miles. Population of Aden and Perim in 1921, 54,923, largely Mohammedan.

The chief commercial centre of the Arabian peninsula, Aden's total imports of merchandise commodities in 1930-31 amounted to 54,648,000 rupees (about \$19,728,000 at par), compared with 69,099,000 rupees (\$25,013,000) in 1929-30. Exports aggregated 37,059,000 rupees (about \$13,378,000), as against 51,470,000 rupees (about \$18,632,000) in 1929-30. Cotton piece goods, grain, hides and skins, tobacco, coal, and provisions are the principal commodities of trade. Salt and cigarettes are manufactured locally. Merchant vessels entering the port of Aden in 1930-31 numbered 1577 of 5,805,530 net tons. Entrances at Perim numbered 556. In 1928-29, the gross revenue of the Aden settlement was 775,808 rupees (about \$283,100).

Attached to Aden are the Kuria Muria Islands, ceded by the Sultan of Muscat for use as a landing for the Red Sea cable. On Aug. 15, 1929, control of the military government was transferred from the Viceroy of India to the Resident and Commander-in-Chief at Aden. Internal administration remained in the hands of the government of India. Resident and Commander-in-Chief in 1931, Lieut.-Col. B. R. Reilly, appointed March, 1931.

**ADIRONDACK MOUNTAINS, GEOLOGY OF.** See GEOLOGY.

**ADJAR AUTONOMOUS REPUBLIC.** See TRANSCAUCASIAN SOCIALIST FEDERATED SOVIET REPUBLIC.

**ADMIRALTY ISLANDS.** See **BISMARCK ARCHIPELAGO.**

**ADULT EDUCATION, AMERICAN ASSOCIATION FOR.** An organization founded in 1926 to serve as a national clearing house of information concerning adult education activities. The association is not an operating organization; it has no programme of instruction; it employs no teachers; it administers no teaching enterprise. Its main effort is directed toward supplying a medium of exchange for teachers and administrators who are in direct contact with adults and their demands. The association seeks, also, to publish and to assist in the publication of material useful to those who are working in the field of adult education, and to conduct studies of problems fundamental to adult education. Among the agencies which are actively promoting adult education, and with which the association is in close contact are the following: The public schools; libraries; museums; extension services of departments of the Federal government and of colleges, universities, and professional schools; corporation schools; workers' schools and classes; fraternal and religious associations; child-study and parent-education groups; and almost an infinite variety of clubs and other organizations.

During 1931 the American Association for Adult Education concentrated much of its attention upon the problems growing out of the economic depression and the consequent widespread unemployment. In December, 1930, the association invited a group of educators and other persons particularly interested in educational problems to attend a conference on unemployment held in New York City. In preparation for the conference several well-known economists were asked to submit papers, stating their views as to the magnitude and character of the unemployment problem. These papers, together with a transcript of the discussions that took place at the meeting, were published by the association under the title, *Unemployment and Adult Education*, edited by Morse A. Cartwright. The association also conducted a study of programmes of training and education for workers at their jobs and for their jobs. A comprehensive report, written by Nathaniel Peffer who made the study, was to be published by the association. Other forthcoming publications included results of a study of university correspondence courses, and an analysis and appraisal of adult education activities in rural districts and small towns.

The National Advisory Council on Radio in Education, which was established as a result of an investigation of educational broadcasting made for the association in 1930, held its first annual assembly in New York City in May, 1931. Upon that occasion the first of a series of radio lectures, entitled "Men of America," was delivered under the auspices of the National Advisory Council. Series of radio lectures upon economics and upon psychology were also sponsored by the council. The sixth annual meeting of the American Association for Adult Education was held in May, 1931, at the New School for Social Research, New York City. The following officers were elected for one year: President, Felix Warburg; vice presidents, Ethel Richardson Allen, L. D. Coffman, Dorothy Canfield Fisher, C. H. Judd, Everett Dean Martin; chairman, James E. Russell; secretary, Margaret E. Burton; treasurer, Chauncey J. Hamlin.

Headquarters are at 60 East Forty-second Street, New York City. See **LIBRARY PROGRESS.**

**ADVANCEMENT OF SCIENCE, AMERICAN ASSOCIATION FOR THE.** This organization was founded in 1848 to advance science, to give a stronger and more general impulse and more systematic direction to scientific research, and to procure for the labors of scientific men increased facilities and a wider usefulness. In 1931 its membership included more than 19,800 individuals interested in the advancement of science and the progress of knowledge and education. There were also 132 autonomous and independent associated scientific societies, of which 98 were officially affiliated with the association, 26 being local academies of science. The association has 15 sections representing the main current subdivisions of science: Mathematics, physics, chemistry, astronomy, geology and geography, zoological sciences, botanical sciences, anthropology, psychology, social and economic sciences, historical and philological sciences, engineering, medical sciences, agriculture, and education.

The eighty-ninth (annual) meeting of the association was held in New Orleans, La., Dec. 28, 1931, to Jan. 2, 1932, with an attendance of about 2500 scientists from all parts of the United States and Canada. There also were 35 scientific organizations meeting with the association. At the meetings of its sections more than 1300 papers and addresses were presented by speakers. The science exhibition also was well developed, with exhibits by commercial firms, individuals, and scientific organizations. One of the most important demonstrations was that of the cosmic ray, which Dr. Robert A. Millikan, director of the Norman Bridge Physical Laboratory of the California Institute of Technology, regards as proof of a "creative" evolution of the universe.

The annual prize of \$1000 for the paper read at the annual meeting describing "a noteworthy contribution to science" was awarded to Dr. Carl Caskey Speidel of the University of Virginia, who had established through his researches the "out-growth" theory of nerves as opposed to the "chain" theory. This theory proved once and for all that the nerves do not grow as a result of cells forming a chain but that each nerve grows out of a single cell in a central nervous system. A tribute also was paid to Thomas Alva Edison as scientist and inventor at a special memorial meeting.

Since a majority of its associated societies hold regular summer meetings of their own, the association inaugurated in 1931 a new plan of national summer meetings. The first meeting was held in Pasadena and Los Angeles, Calif., June 15-20, the institutional hosts being the California Institute of Technology, the Mount Wilson Observatory of the Carnegie Institution of Washington, and the Huntington Library and Art Gallery. The presidential address on "Race and Progress" was delivered by Dr. Franz Boas, who assumed office at the opening session. The summer meeting in 1932 was to be held in Syracuse, N. Y., June 20-25, and the winter meeting in Atlantic City, N. J., December 27-31.

The official organ of the association is a weekly journal, *Science*. In addition, the association issues the *Scientific Monthly*, an illustrated magazine of timely articles of general interest by eminent men of science, and publishes at four-year intervals a volume of *Summarized Pro-*

ceedings, including a directory of members. The permanent endowment of the association, the income from which is employed to advance scientific research, amounted on Sept. 30, 1931, to \$168,326; grants are made annually to individuals or scientific organizations to promote research. Two regional divisions are under the auspices of the association: The Pacific division, including the Pacific States, Alaska, and the Hawaiian Islands; and the Southwestern division, including Arizona, New Mexico, Colorado, western Texas, and northern Mexico. These divisions are autonomous, holding annual and other meetings and engaging in special projects in their respective fields.

The president of the association in 1931 was Franz Boas, professor of anthropology at Columbia University. The president-elect for 1932 was John J. Abel, professor of pharmacology at the Johns Hopkins University. The other officers who were to serve until 1932 were: Permanent secretary, Charles F. Roos; general secretary, Burton E. Livingston; and treasurer, John L. Wirt. Headquarters are in the Smithsonian Institution Building, Washington, D. C.

**ADVENT CHRISTIAN CHURCH.** See ADVENTISTS.

**ADVENTISTS.** The Advent Movement had its origin in America with William Miller, who believed not only in the coming of Christ in person, power, and glory, but that such an advent was at hand and that the date might be fixed with some definiteness. The movement, however, began in England and on the Continent, under the leadership of the Rev. Hugh McNeile and the Rev. Edward Irving, in England, and the Rev. Joseph Wolfe, D.D., LL.D., in Prussia. A Prophetic Conference was held in Albury Park in 1836, at the residence of Henry Drummond, Esq., afterwards a member of the British Parliament, with "eight days of serious study of the prophecies," at which the Rev. Hugh McNeile presided. The first general gathering in America of those interested took place in Boston in October, 1840, the movement at that time being wholly within the existing churches, but in April, 1845, a conference was held in Albany, N. Y., at which the adherents of the Adventist doctrine were organized and a declaration of principles adopted, embodying the views of Mr. Miller. For the next ten years this organization included practically all the Adventists, but gradually separate bodies developed, beginning with the Advent Christian Church, in 1855, and including the Seventh-Day Adventists, organized in 1860; Life and Advent Union, in 1864; The Church of God (Adventists), in 1866; and The Churches of God and Christ Jesus, in 1888.

**ADVENT CHRISTIAN CHURCH.** This church which is congregational in church government holds simply to the general imminence of Christ's return but takes the position that the day cannot be determined. Statistics reported for 1931, covering 43 conferences, showed 469 churches, 485 ordained ministers, 81 licensed ministers, 27,940 church members, 332 Sunday schools, 19,102 Sunday-school members. 93 Senior Young People's Societies of Loyal Workers, with 2181 members, and 19 Junior Young People's Societies with 325 members. The denomination maintains three publication societies and two educational institutions: Aurora College in Aurora, Ill., and the New England School of Theology in Boston. Periodicals published include *The World's Crisis*

(Boston), *Messiah's Advocate* (Oakland, Calif.), and *Present Truth Messenger* (Live Oak, Fla.). Among the philanthropic institutions of the denomination are the American Advent Christian Home and Orphanage in Dowling Park, Fla., and the Vernon Home for ministers and missionaries in South Vernon, Mass. The biennial general conference of the Advent Christian Church was held in Aurora, Ill., June 12-17, 1930. The officers in 1931 were Irving F. Barnes, D.D., president; C. O. Farnham, D.D., T. P. Stephens, Burr A. L. Bixler, Lee E. Baker, vice presidents; C. H. Hewitt, secretary; F. C. Webster, treasurer.

**SEVENTH-DAY ADVENTISTS.** This denomination, which is the largest of the Adventist group, embraces 12 union conferences in the United States and Canada. It believes that the seventh day of the week, from sunset on Friday to sunset on Saturday, is the Sabbath established by God's law and that immersion is the only proper form of baptism. The local church is congregational in government, although under the general supervision of the conference. The statistical report of the denomination for 1930 indicated 2227 churches in the North American division, 935 ordained ministers, and 120,560 church members; Sabbath schools numbered 2759 and the membership, 124,581. The foreign divisions, including the African, Australasian, Central European, Far Eastern, Inter-American, Northern European, South American, Southern Asia, Southern European, and Union of Socialist Soviet Republics divisions, consisted of 4514 churches, 1127 ordained ministers, 193,693 church members, and 7207 Sabbath schools, with an enrollment of 258,162. Throughout the world there was an increase in membership of 14,698 over 1929; the work was conducted in 141 countries by 71 union-conference, 160 local-conference, and 270 mission-field organizations, employing 21,461 evangelistic and institutional laborers. The movement maintains in the United States and Canada 107 educational institutions, which in 1930 had an enrollment of 17,759 students. There are also 94 educational institutions maintained in foreign countries, with an enrollment of 13,971 students. The denomination has 19 publishing houses in North America and 48 in other countries. During 1930 denominational literature was issued in 146 languages, and evangelistic work was conducted in 141 countries, total contributions from all sources for this work amounting to \$8,144,449 for the North American division and to \$3,968,160 for the other divisions. The headquarters of the General Conference of Seventh-Day Adventists are at Takoma Park, Washington, D. C.

**AERONAUTICS.** With other fields of engineering at a standstill or seriously handicapped by economic conditions, it was encouraging and interesting to note that in almost all branches of aeronautics progress was to be recorded. There was an extension of existing transportation routes in all quarters of the world and in general increased patronage or at least indications that there would be a considerable gain when conditions were once more normal. In Europe, government subsidies were granted to transportation routes to stimulate their development and operation, and everywhere the manufacture of aircraft was considered on a more wholesome basis. Many firms suddenly developed and with inadequate resources and technical skill were forced to yield to better organized concerns.



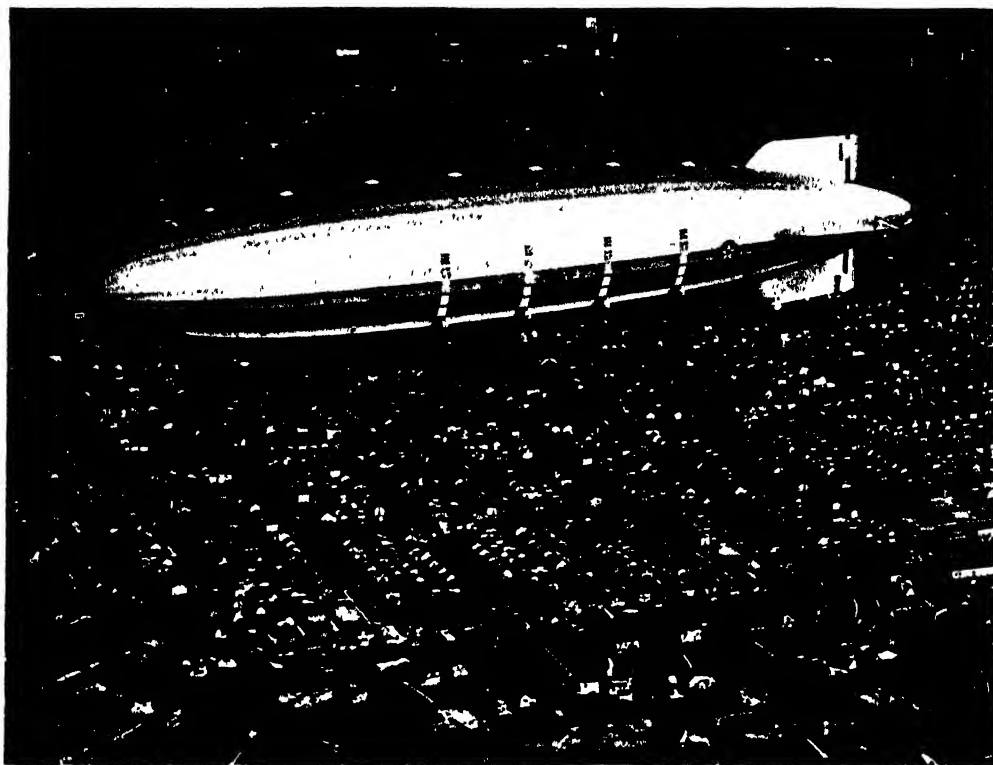
*Wide World Photos*

MAJOR JAMES H. DOOLITTLE  
Winner of the Bendix Air Race, 1931



*Wide World Photos*

PROFESSOR AUGUSTE PICCARD AND PAUL KIPFER  
Before the Start of their Record Balloon Flight



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THE U. S. S. "AKRON" IN FLIGHT



SIKORSKY AMPHIBIAN AIRPLANE "AMERICAN CLIPPER"

Pan American Airways System



The *Graf Zeppelin* continued its activity while a new and larger airship built at Akron, O., for the U. S. Navy was put in commission, a fact that indicated that the American Navy still had confidence in this type of craft. Competitions of one kind or other led to improved airplanes and it was noteworthy that the speedy and powerful planes as developed in competition, either found their way into military service or influenced military design. Larger aircraft with increased comfort, speed, and capacity were placed in service and air travel in all parts of the earth made progress and was more and more appreciated. Such comparatively novel developments as the autogiro made trips across the American continent while instrumental equipment of one kind or another applied to aircraft made flying safer and speedier.

**WORLD ALTITUDE RECORD.** The world's altitude record for a balloon ascent, made on June 30, 1921 by Suring and Berson of Germany of 10,800 meters (35,424 feet), was broken on May 27 by Professor Piccard of Brussels University who, starting from Augsburg, Germany in a balloon, reached a height of 15,781 meters (51,775 feet) or nearly 10 miles. The balloon used had a diameter of 30 meters (98.425 feet) and a capacity of 14,000 cubic meters (494,400 cubic feet) but only about one-seventh of the envelope was inflated as provision was made for expansion to compensate for the decreased atmospheric pressure during the ascent. Professor Piccard and an assistant, Paul Kipfer, were in a hermetically sealed aluminum sphere, in place of the customary wicker car, with a lid screwed on tightly from within. Several small windows of thick glass were provided. Before the start from Augsburg, the sphere, in which the two aeronauts were seated, was knocked from its temporary support and, as a result of the jar, a slight crack developed. This was stopped with cotton

last had it not been for the malfunctioning of the defective valve. The balloon was in the air from early in the morning till 8 o'clock in the evening when a descent was made above Ober-gurgl in the Oetzwald Tirol and a landing was made on Gross Gurgl Ferner where a group of peasants climbed the mountain and brought the two aeronauts down. Professor Piccard regretted that the accident had prevented as much scientific observation as had been planned and that the results were not as encouraging as were anticipated. The aeronauts were able to see the moon under unusual conditions, it appearing brilliant even at noontime, and they ascertained the greater intensity of the cosmic rays in the upper atmosphere as compared with those on the earth's surface. Considerable data, however, were accumulated for systematic examination. At the highest altitude it was stated that a temperature of 67° to 76° Fahrenheit below zero or 100 degrees of frost was recorded.

**NATIONAL BALLOON RACES.** The National Balloon competition carrying with it the Paul W. Litchfield Trophy and the privilege of entering the International Balloon Race, was started at Akron, Ohio on July 19 with six competitors. It was won by Lieut. T. G. W. Settle, U. S. N. the chief inspector on the construction of the *U. S. S. Akron*, who had flown previously in competitions of this kind. The race was interfered with by rain and thunderstorms, and natural gas with far less lifting power than hydrogen was used. The distance flown by the winner, 195 miles, may be compared with the 768 miles of Roland J. Blair made in the 1930 competition. The official check by the National Aéronautic Association of the logs of pilots in the National Balloon Race, with the distances scaled by the U. S. Geological Survey from data given on the landing certificates submitted by each pilot, indicated the following results:

Place	Entrant	Pilot and aide	Place of landing	Distance
1.	U. S. Navy	T. G. W. Settle Wilfred Bushnell	18 mi. ESE of Buffalo, N. Y. 6 mi. NNE of E. Aurora, N. Y. 7 mi. SW of Alden, N. Y.	195 mi.
2.	Goodyear Zeppelin Corp.	F. A. Trotter R. J. Blair	9 1/4 mi. NW of Buffalo, N. Y. 11 1/2 mi. E of Welland, Ohio 3 1/2 mi. NE of Stevensville, Ont.	185 mi.
3.	Detroit Balloon Club	E. J. Hill A. G. Schlosser	8 mi. E of Erie, Pa. 8 mi. E of Westleyville, Pa.	110 mi.
4.	U. S. Army	K. S. Axtater H. H. Couch	1 mi. E of Custards, Pa. 10 mi. S of Meadville, Pa. 5 mi. W of Cochranston, Pa.	80 mi.
5.	Goodyear Zeppelin Corp.	L. P. Furcolow J. B. Rieker	4 mi. N of Ravenna, Ohio 5 mi. S of Mantua, Ohio 10 mi. NE of Kent, Ohio	18 mi.
6.	U. S. Army	F. M. Fogelsonger John A. Tarro	2 1/2 mi. NE of Brimfield, Ohio	11 mi.

waste and vaseline but required constant attention during the flight. A serious effect of this accident was to cause a leakage in the reserve supply of oxygen, which was only stopped after a certain quantity of the gas had been lost. The balloon in the first 25 minutes rose to a height of 15,000 meters (49,212.5 feet) but this caused an excessive vibration of the sphere and impaired the operation of the valve strings. It would have been possible to have reached an even greater height, say 17,000 meters, by throwing out bal-

**GORDON BENNETT BALLOON RACE.** In 1931 there was no contest for the Gordon Bennett Balloon Race, which ordinarily would have been held in the United States, as that country in 1930 was successful in this annual competition. The Contest Committee of the National Aéronautic Association decided to propose to the Fédération Aéronautique Internationale at the conference to be held Jan. 15, 1932, that the 1932 Gordon Bennett Balloon Race should be held in Europe in place of the United States.

planes was a Rolls-Royce R which had been developed from that design in 1929 and which enabled the Supermarine S6 to achieve a world's speed record of 357 miles per hour. Two types were developed, one employed in the Schneider race developing 2300 h.p. per hour, and the other, the so-called "Sprint" engine for the high speed record, developing 2600 h.p. These engines were developed during the year so that they would realize the designer's plan to run at full throttle for at least an hour. From a test run of 20 minutes at the end of April, by the middle of July these machines were improved so that 30 minutes without a breakdown was accomplished and finally on August 12, an hour's run was accomplished.

It was reported during the year that Italy was manifesting considerable interest in high speed planes and that work was being done on the development of a plane which would fly at a speed of 450 miles per hour. Flight Lieutenant Bellini who perished in a crash on Lake Garda on September 10 was reported to have made a speed of 453 miles per hour and would have been a competitor in the Schneider competition had he survived.

The accompanying table from *Aviation*, New York, November, 1931, gives the comparative specifications of five speed planes that made notable records in the United States and Great Britain during the year.

Plane and engine	Span (ft.-in.)	Chord (in.)	Length (ft.-in.)	Weight empty (lb.)	Gross weight (lb.)	Wing loading (lb. per sq. ft.)	Power loading (lb. per h.p.)	High speed *	Wing area (sq. ft.)
Gee Bee, Wasp Junior, 535 h.p. ....	23-6	50.4	15-1	1,400	2,280	30.20	4.26	269.	75
Laird, Wasp Junior, 535 h.p. ....	21-0	42.0	19-6	1,580	2,482	22.16	4.68	258.	112
San Franciscan, Menasco, 260 h.p. ....	21-4	60.0	16-6	800	942	14.50	3.60	200.	65
Wedell-Williams, Wasp Junior, 535 h.p.	26-0	60.0	21-0					255.	
S.6B, Rolls-Royce R, 2,300 h.p. ....	30-0	68.0	27-9	4,030	5,995	41.30	2.60	408.8	145

\* Approximate in some cases. Estimated from best data available.

**WORLD'S SPEED RECORD.** After the Schneider Race in Great Britain, Flight Lieut. G. H. Stainforth, R. N., on September 29, in flying over the 3-kilometer course at Calshot made an average speed of 408.8 miles per hour in four flights, one lap being covered at 415.2 miles per hour with a light wind. The record as accepted by the Federation Aéronautique Internationale, 655 kilometers (406.997 miles), was achieved in one of the planes, a S.6B Supermarine plane, previously built for the Schneider Races and equipped with a special Rolls-Royce engine which developed 2600 h.p. or about 300 h.p. more than was possible in the engines used in the Schneider competition. The machine was supplied with a Fairey-Reed propeller, and a refined fuel containing both tetra-ethyl lead and a high percentage of wood alcohol was employed. After this performance it was thought likely that there would be few, if any, future contests of this nature, as the Schneider competition had apparently outlived its usefulness, though the various events had marked the development of high speed and reliable engines and planes.

Attempts to beat the world landplane speed record of Bonnett of France (Dec. 11, 1924) of 278.48 m.p.h. were made during 1931 but without success. Lowell R. Bayles, who had made a notable flight at the National Air Races at Cleveland, on December 1 flew at Detroit and at first it was thought that he had made a record

of 301.2 m.p.h. in four flights over a 1.8 mile course, but a recheck of his flying time gave but 281.75, m.p.h. lacking a mile and a half of the mileage necessary to secure the recognition of the Federation Aéronautique Internationale. In his next attempt on December 5 he was killed in a crash while flying at low altitude at a speed estimated at about 300 m.p.h.

**ENDURANCE RECORD.** The Diesel engine first applied to an airplane in 1928 scored a notable achievement during the year when the duration record for airplane flight in closed circuit was made in a Bellanca monoplane powered by a Packard Diesel, 225 h.p. engine. This duration record, 84 hours, 32 minutes, was made by Walter E. Lees, and F. A. Brossy at Jacksonville Beach, Florida, May 25 to 28, 1931. This was the longest flight ever made without refueling and demonstrated the efficiency of the Diesel motor and its future application for commercial flight. Here was demonstrated not only reliability of power plant but also its aerodynamic efficiency and fuel economy.

The most notable long distance flight of the year was that of Wiley Post and Harold Gatty, pilot and navigator respectively, of the Lockheed-Vega monoplane, the *Winnie Mae* of Oklahoma, who flew around the world, a distance of 15,474 miles in 8 days, 15 hours, and 51 minutes. This flight was begun at Roosevelt Field, New York, on June 24 and was completed on July 10. The

first stage was to Harbor Grace, a distance of 1132 miles. The remaining thirteen stages into which the journey was divided were as follows:

Harbor Grace to Chester .....	2,195
Chester to Hanover .....	534
Hanover to Berlin .....	154
Berlin to Moscow .....	991
Moscow to Novo-Sibirsk .....	1,579
Novo-Sibirsk to Irkutsk .....	1,055
Irkutsk to Blagovestchensk .....	1,009
Blagovestchensk to Khabarovsk .....	361
Khabarovsk to Solomon Beach .....	2,500
Solomon Beach to Fairbanks .....	520
Fairbanks to Edmonton .....	1,450
Edmonton to Cleveland .....	1,600
Cleveland to New York .....	394

The flying time was 107 hours and 2 minutes or 146 miles per hour, the total elapsed time for the journey was 207 hours and 51 minutes. This was 13 days shorter than the trip of the *Graf Zeppelin* and 15 days less than the previous airplane record of Mears and Collyer who shipped their plane across the Atlantic and Pacific Oceans. The importance of the performance may be realized when it is recalled that the first trip around the earth by air was made by U. S. Army planes in 1924 (See YEAR BOOK for 1924) and required 175 days or 14 days, 15 hours of flying time. The *Winnie Mae* was powered by a 525-horse power Pratt & Whitney Wasp engine and was completely equipped for this trip which

was made with no extraordinary preparations. The plane itself weighed more than 3 tons with equipment and the two aviators.

The non-stop distance record was broken in a notable flight made by Russell Boardman and John Polando who flew, on July 28, from Floyd Bennett Airport, N. Y., arriving at Istanbul (Constantinople), Turkey, in 49 hours and 19 minutes, a distance of 5012 miles. This record was accepted officially by the Federation Aéronautique Internationale and supplanted the non-stop record of Dieudonne Coste and Maurice Bellonte made in September, 1929, from Le Bourget, France, to Coulart, China, a distance of 7905.14 kilometers (4948.590 miles). Boardman and Polando flew in a Bellanca monoplane, the *Cape Cod*, powered with a 300-horse power Wright engine and weighing 7500 lbs. as it left the ground carrying 25 gallons of oil, and 728 gallons of gasoline, all of which was consumed.

In an attempt to break the Coste-Bellonte record, a non-stop flight of 6000 miles from Paris to Tokyo was planned by Marcel Doret and Joseph Le Brix. Due to engine failure during a storm their Dewoitine monoplane crashed in mid-Siberia about 700 miles east of Moscow and was almost completely destroyed. Le Brix and a companion, Rene Mesmin, were killed but Doret escaped by his parachute. Interest was attached to this flight because the monoplane had established on June 7-10, 1931 at Istres, France a new world record of 10,372.05 kilometers (6444.88 miles) for distance in a closed circuit without refueling. These aviators were in the air 70 hours and 10 minutes in an effort to break the world's non-refueling endurance flying record previously established by Lees and Brossy as noted elsewhere. Although failing in this, they were able to supplant the former closed circuit distance of 5564 miles made by Paillard and Mermoz.

**WOMEN'S RECORDS.** The year 1931 witnessed the establishing of several new and important feminine records. Mme. Maryse Bastie of France, who had achieved a world record for duration without refueling of 37 hrs. 55 min. in a flight at Le Bourget, Sept. 2, 3, 4, 1930, flying in a Klemm airplane with a Salmson 40-h.p. engine, succeeded in making an air line distance record for a light airplane of the third category of 2976.910 km (1849.763 mi.) in a flight from Le Bourget to Russia, June 28-29, 1931. A record for duration with refueling was made at Los Angeles, Calif., Jan. 4-9, 1931, by Miss Evelyn (Bobbie) Trout and Miss Edna May Cooper in a Curtiss-Robin monoplane with Challenger 170-h.p. engine. They remained in the air 123 hours. Miss Ruth Nichols in a Lockheed Vega monoplane with a Pratt and Whitney Wasp 420-h.p. engine at Jersey City Airport, N. J., Mar. 6, 1931, achieved an altitude record of 8761 meters (28,743 ft.). In the same plane at Carleton, Mich., Apr. 13, 1931, she also made a maximum speed record of 338.987 km. per hour (210.636 m.p.h.). In a similar plane Miss Amelia Earhart in the previous year had made a record accepted by the Federation Aéronautique Internationale. At Detroit, June 25, 1930, Miss Earhart made a record for 100 kilometers of 281.470 k.p.h. (174.897 m.p.h.), and on the same day, with a pay load of 500 kilograms, she made a record for 100 kilometers of 275.904 k.p.h. (171.438 m.p.h.). A record for altitude in a light plane in the third category also came to the United States when

Miss Mae Haizlip in a Buhl Bull Pup with a Szekely 85-h.p. engine at St. Clair, Mich., June 13, 1931 climbed to 5516 meters (18,097 ft.).

**SCHNEIDER TROPHY COMPETITION.** The Schneider Trophy Competition for 1931 did not arouse the usual interest in view of the fact that the French and the Italian teams were forced to withdraw on account of accidents they had suffered and the refusal of the British to consent to a postponement for six months. Two planes belonging to Great Britain flown by Flight Lieut. J. N. Boothman and by Flight Lieut. G. H. Stainforth achieved new and notable records and secured the Trophy permanently for Great Britain, whose aviators had won it twice in succession. Lieutenant Boothman flew a Supermarine S.6B seaplane seven times over the 50 kilometer (31.07 miles) course at Calshot, near the Isle of Wight, at an average speed of 340.08 miles per hour, which was more than 11 miles per hour faster than the speed achieved in 1929, when the competition was won by the late Lieut. H. R. B. Waghorn. In the first two laps of Lieutenant Boothman's flight a new record for 100 kilometers (62.1 miles) of 342.9 miles per hour was made in place of the previous record of 331.75 miles per hour. In a second plane of the same type, Lieut. G. H. Stainforth made a world's speed record over a 3-kilometer course, averaging 379.05 miles per hour for four laps, or more than 21 miles better than the record established by Squadron Leader A. H. Orlebar in 1929.

The Supermarine monoplanes were notable for the high-powered S.6B Rolls-Royce engines which differed in a few important improvements from those used in 1929. They produced 2300 h.p. or about 20 per cent more than the 1800 h.p. made by the earlier models. An improved water-cooling system occupied the entire upper and lower surface of the wings, and the upper surface of the floats, so that there was available sufficient radiator surface to permit the plane to be flown with the engine at full throttle. The planes were provided with larger floats thus affording a greater fuel capacity and so designed as to reduce air resistance and afford additional lift.

**NATIONAL AIR RACE MEETING.** The National Air Race Meeting of 1931 was held at Cleveland, O., August 29 to September 7. In addition to the events at the Cleveland Municipal Airport, a Transcontinental Handicap Air Derby from Santa Monica, Calif., to Cleveland, and a Transcontinental Free-for-all Speed Derby—the Bendix Trophy Race—from Los Angeles, Calif., to Cleveland, were flown. The former included a Women's Division in which first place and \$3000 was won by Phoebe Omlie in a Monocoupe plane with Warner engine. First place in the Men's Division, with a \$3000 cash prize, was won by D. C. Warren in a D. H. Moth plane with Gypsy engine. In the Bendix Trophy Race, Maj. James H. Doolittle took first prize and \$7500, flying in a Laird monoplane with Wasp engine and making the trip in 9 hours, 10 minutes, 21 seconds, or a speed of 223.038 m.p.h.

The most important event of the forty or more on the programme was the Men's Free-for-all Thompson Race of 100 miles or 10 laps over a 10-mile course. It was won by Lowell Bayles of Springfield, Mass., from a field of eight contestants and carried with it a \$7500 money prize. Bayles flew in a Gee Bee plane with Wasp Jr. motor and recorded 25 minutes, 23.88 seconds for

the 100 miles or a speed of 236.239 m.p.h. The Women's Free-for-all Cleveland Trophy Race of 50 miles or 5 laps over a 10-mile course was won by Maud Tait flying in a Gee Bee Y plane with a Wasp C engine and scoring 15 minutes, 59.62 seconds or 187.574 m.p.h. This carried with it a first prize of \$3750.

In connection with the Transcontinental Competition for the Bendix Trophy at the National Air Races, Maj. James H. Doolittle flew from Burbank, Calif., on September 4 in a Laird plane with Wasp Junior engine with supercharger and after landing at the Cleveland Airport to check in for the competition and to refuel, proceeded to the Newark, N. J., Airport, making a record flight of 2450 air miles in 11 hours, 16 minutes, and 10 seconds, which was 1 hour and nearly 9 minutes better than the record set by Capt. Frank Hawks in his notable flight of Aug. 13, 1930. Major Doolittle then returned to Cleveland and took part in the Thompson Trophy Race but was forced out on the seventh lap due to an overheated engine. On October 20, Major Doolittle flew from Ottawa to Mexico City, a distance of 2510 miles in 12 hours and 36 minutes with refueling stops at Washington, D. C., Birmingham, Ala., and Corpus Christi, Tex. His actual flying time was 11 hours and 45 minutes.

**NATIONAL AIR TOUR.** The National Air Tour for the Edsel B. Ford Reliability Trophy was flown from July 4 to July 25, starting from Detroit, and out of 20 entries, 14 planes competed and 10 finished, having covered 4838 miles. The winner of the 1930 Tour, Harry Russell, again won first place flying in a Ford Trimotor equipped with two Wright J-6 and one Wright Cyclone motors, with a total horse power of 1175. The gross weight of the plane was 13,000 lbs. and its empty weight, 7844 lbs., thus affording a useful load of 5156 lbs. The total points scored amounted to 63,764.3, and the average speed of the flight was 143.20 miles per hour, the average speed being computed on the laps scored in each case showing the actual average flying speed.

Second place was also taken by a Ford Trimotor piloted by J. A. Smart and equipped with three P. & W. Wasp engines of 1200 horse power, and having a gross weight of 13,500 lbs., and an empty weight of 7960 lbs., giving a useful load of 5540 lbs. The points scored were 53,813, and the average speed was 143.20 miles per hour. Third place was won by the Cessna plane piloted by Eddie Schneider, equipped with a Warner motor of 110 h.p., and having a gross weight of 2260 lbs., and weighing empty 1267 lbs., with a useful load of 993 lbs. The points scored by this plane totaled 44,343.7, and the average speed was 120.99 miles per hour.

The Great Lakes Trophy for light planes was also contested on this tour and was won by L. R. Bayles, flying a Granville Gee Bee plane and scoring an average speed of 141 miles per hour. His plane was equipped with a Warner motor of 110 h.p., and had a gross weight of 1400 lbs., and an empty weight of 912 lbs., giving a useful load of 488 lbs. The points scored by this plane were 44,106.3.

**NOTABLE FLIGHTS.** The year witnessed a number of unusual flights on the score of distance, speed, or over new or unexplored regions marked perhaps by fewer catastrophes to the aviators who were seeking records or to develop new routes. New routes and possible speed perform-

ances in future commercial flying were tested in some cases in addition to the power, efficiency, and reliability of equipment. Among the many notable achievements of the year the following may be referred to briefly.

Colonel and Mrs. Charles A. Lindbergh flying from Washington, D. C., on July 29 in a specially constructed Lockheed Sirius seaplane proceeded north and across northern Canada, Alaska, Bering Sea, along the east coast of Siberia and reached the northernmost islands of Japan in 86 hours of flying time for a flight of 7830 miles. They were forced to land off one of the remote islands of the Kuirile group on account of fog and a wet spark plug developed so that with the rough water it could not be cleaned until a sheltered place was reached. Colonel and Mrs. Lindbergh received aid from a Japanese vessel and were received in Tokyo on August 26. The death of Mrs. Lindbergh's father forced the interruption of their trip.

An interesting transatlantic flight was that of Otto Lillig and Holger Hoiris, who flew from Harbor Grace, Newfoundland, on June 24 landing at Krefeld, Germany, the following day; thence they proceeded to Copenhagen where they landed on June 26 and were received with enthusiasm by the Danes. They flew in a Bellanca monoplane.

On July 15, two Hungarian aviators, Capt. George Endres and Capt. Alex Maygar, flew from Harbor Grace, Newfoundland, in the Lockheed-Sirius monoplane *Justice for Hungary* and on the following day with fuel exhausted they were forced down within 25 miles of Budapest, their objective, a distance estimated at about 3240 miles.

In an attempt to beat the record of Post and Gatty, Clyde Pangborn and Hugh Herndon, Jr., in a Bellanca monoplane with a 425-horse power Wasp engine, flew across the Atlantic, leaving New York on July 28. Reaching Moscow on July 31 they made their way successfully across northern Europe and Siberia making several stops, but at Khabarovsk, Siberia were forced, by delays due to a damaged wing, to abandon their attempt at the record. They proceeded to Japan, however, and announced they would try for the \$25,000 prize offered by the Tokyo newspaper *Asahi* for a non-stop flight from Japan to the United States. Alleged lack of discretion as shown in taking photographs and flying over fortified areas without official permission, brought on a conflict with the Japanese government and the plane was seized and they were duly apprehended and fined, though the matter was later adjudged. On October 3 they left Samushiro Beach near Tokyo and on October 5 landed at Wenatchee, Wash., after a flight of 4458 miles in 41 hours 13 minutes.

The British aviator, J. A. Mollison, on July 29, flew from Wyndham, West Australia and arrived at Croydon, near London, on August 6, a distance of 10,000 miles in 8 days, 20 hours, and 19 minutes, beating by two days the record made by Flight Lieut. C. W. A. Scott whose time was 10 days and 25 hours. Mollison was delayed by thunder storms over Europe and fog over the English Channel, and it is interesting to compare his time with that of Post and Gatty who flew around the world, a distance of 5000 miles more, in 4 hours less time.

Captain Wolfgang von Gronau, a German aviator, who had crossed the Atlantic in 1930 in a twin-engine seaplane, in 1931 made another im-

portant transatlantic flight in the Dornier flying boat *Gruenland-Wal*, from Westerland, Germany, on August 8, to Chicago, U. S. A., by way of Iceland, Greenland, Labrador, and Canada in order to ascertain data for the establishment of mail routes through the sub-Arctic regions. Stops were made en route and Chicago was reached on September 1. This flight included the first crossing of Greenland and totaled nearly 4700 miles.

Another record flight of the year was from England to the Cape of Good Hope, 7800 miles (October 30 to November 5) in 4 days, 6 hours, 40 minutes, made by Miss Peggy Salaman and A. Gordon Store who, flying in the Puss Moth plane *Good Hope*, reduced the record for this journey by 25 hours and 23 minutes. The flight was helped by good weather and adequate preparations at the various aerodromes across Africa so that night flying was possible. The flying time was 64 hours as against 56 hours for Lieutenant Commander Glen Kidston in his trip in the previous April which took 154 hours for the 7000 miles.

One of the successful long distance trips of the year was across Siberia by Miss Amy Johnson of England, who, leaving London on July 28, landed at Tokyo on August 6, completing a trip which she had begun in January but was forced to discontinue through a forced landing near Warsaw. Flying time for this trip, which she accomplished from London via Berlin, Moscow, Irkutsk, Harbin (Manchuria), and Seoul (Korea), was about 78 hours and 50 minutes.

The record for flight from England to Australia then was reduced by about an hour by C. A. Butler, flying October 31–November 9, in a Comper-Swift light airplane with 75-h.p. Popjoy engine. The plane weighed 546 lbs. or 100 lbs. lighter and with 25 less horse power than any plane that had previously made this flight. Butler's record was 9 days, 2 hours, 29 minutes.

The British aviator, Squadron Leader Bert Hinkler made the first west-to-east flight across the Southern Atlantic Ocean and the first solo ocean crossing since Lindbergh, when he flew from Natal, Brazil, to Bathurst in Gambia on the west coast of Africa, November 26–27. This also was the first transatlantic flight in a light plane, his machine being a Toronto built De Haviland Puss Moth monoplane with a 120-h.p. Gypsy engine, which differed from standard models only in extra fuel tanks and navigating equipment. The 1931 ocean trip was made in 22 hours with 160 gallons of gasoline. It will be remembered that Hinkler set the record for the England–Australia flight at 15½ days in 1928. In this journey from New York to England he flew 10,500 miles mostly in over-water flights of 1000 miles and longer.

An American aviator, Capt. Frank M. Hawks, during the year made a unique series of record-breaking flights over America and Europe. He landed at Cherbourg, France, Apr. 5, 1931, with a plane which he immediately put into commission and flew to Paris, making the 210 miles in 56 minutes on April 6. On April 13, he flew from Brussels to Amsterdam, 72 miles in 24 minutes, returning on April 15 in 19 minutes. On April 22, he breakfasted in London and flew to Rome for luncheon making the trip of 950 miles in 5 hours and 24 minutes, or an average speed of 167 miles an hour. He returned to London in time for tea, making the round trip of 1900 miles in 9 hours

and 44 minutes, or an average speed of about 190 m.p.h. A trip from Paris to London on April 23, 218 miles, was made in 59 minutes or a speed of 220 m.p.h., and was followed a week later by flights to and in Ireland. On May 12, Captain Hawks flew from London to Berlin, a distance of about 600 miles, in 2 hours and 57 minutes, or an average speed of 204 m.p.h., and on May 27 he left Le Bourget Aerodrome at Paris at 8.20 A.M. and reached Croydon Airport near London in 1 hour and 15 minutes, flying the 218 miles at a rate of 173.6 m.p.h. After breakfast he flew to Berlin, about 600 miles, in 3 hours and 15 minutes where he lunched, and arrived at Paris, 568 miles, in time for dinner, making the trip at a rate of 188.1 m.p.h. The total elapsed time for this trip, approximately 1386 miles, was 9 hours and 51 minutes. Captain Hawks then made a series of equally notable trips around France and other European cities, and shipping his airplane by steamer returned to America by way of Canada. On July 3 he flew from Quebec to Montreal for breakfast, 160 miles, in 50 minutes and from Montreal to Toronto for luncheon in 1 hour and 45 minutes; from Toronto to Ottawa, for tea, 225 miles, in 1 hour and 6 minutes, and returned from Ottawa to Montreal, 115 miles, in 32 minutes, making 850 miles in the flying time of 4 hours and 18 minutes. On his return to New York, Captain Hawks flew the 350 miles in 1 hour and 45 minutes, thus making a new record.

On July 23, 1931, Captain Hawks after breakfast in New York flew to Havana for luncheon and returned in time for dinner in New York, making a new record on the trip down of 8 hours, 8 minutes and 30 seconds, and for the return, 7 hours and 31 minutes. The round trip, including an hour and 25 minutes for luncheon and four fuel stops, totaled 2806 miles, requiring 17 hours, 2 minutes, and 30 seconds. Flying from New York to Chicago on August 12, he made the journey in 4 hours and 6 minutes, breaking the record of a week previous of Captain Hall. Proceeding to South Dakota, he enjoyed the honor of being named Chief Flying Hawk by the Sioux Indians and returned on the following day to New York City, surpassing his Chicago to New York record by 20 minutes, and making the 1546 miles from Hot Springs, S. D., to Roosevelt Field in 8 hours, 48 minutes.

On August 26 Captain Hawks broke nine city-to-city records from Atlanta to New York, making the Richmond to Washington flight of 103 miles in 30 minutes; Washington to Philadelphia, 128 miles, in 44 minutes, and Philadelphia to Newark, 72 miles, in 21 minutes. This record was beaten late in the year by Lou Reichers, who flew from Newark to Havana with one passenger in 6 hours, 41 minutes flying time for a distance of 1400 miles. He flew a Lockheed Altair plane with retractable landing gear and a Cyclone engine.

Captain James G. Hall, a former U. S. Army aviator, on June 19 flew the 1300 miles from Vancouver, B. C. to Agua Caliente, Mexico in 7 hours and 48 minutes, beating by 1 hour and 26 minutes the previous record held by Col. Roscoe Turner. He used a Lockheed Altair plane with retractable landing gears. Captain Hall established a New York to New Orleans record, flying 1184 miles with a passenger in 7 hours and 14 minutes without a stop. Captain Hall also broke the New York to Havana record on July

18, covering the 1400 miles in 8 hours and 35 minutes without a stop. On August 5 he flew from Roosevelt Field, New York, to Chicago in 4 hours and 12 minutes.

**AIRWAYS IN THE UNITED STATES.** According to the Aeronautics Branch of the U. S. Department of Commerce, at the end of the year 1931 there were in operation 50,339 miles of airways, of which mail airways amounted to 43,735 miles. The total average of airplane-miles schedules was 107,705 miles with United States contract mail, and 40,673 for non-mail service, making a total of all services of 158,378 miles. The air mail carried was approximately 9,000,000 pounds, while some 450,000 passengers were carried, some 116,000,000 passenger miles being recorded, these figures showing an increase over 1930.

The number of air transport services in operation in the United States on Dec. 15, 1931 were as follows: Domestic routes, 111; mail, 66; passenger, 94; express, 63. Foreign routes, 17; mail, 15; passenger, 11; express, 7. All routes, 126; mail, 79; passenger, 103; express, 70.

During the year slightly more than 2000 miles of new U. S. Mail Routes were added to the schedules, in the main extensions to existing contracts, and the usual practice was for passenger accommodations to go with the mail service, thus working for a permanent basis for air transport on the mail routes. There was a further development of lower cost air transportation and this seemed to stimulate travel. A rate of 6 cents per mile, which had been made by some companies in 1930, had become the average on most lines in 1931, and had every evidence of continuing under existing conditions. In fact a reduction of the fare between New York and Los Angeles from \$200 to \$160 or 7.5 cents to 6 cents a mile was announced for 1932. All of the leading transportation companies introduced various improvements, such as automatic pilots, and communication devices, while terminal facilities were materially improved. The airports were developed at various centres though here again financial conditions made the rate of increase slower than it should have been under normal circumstances. On Dec. 31, 1931, there were 2075 airports and landing fields in the United States distributed as follows: Municipal airports, 656; commercial airports, 675; Department of Commerce intermediate fields, 364; army airdromes, 52; naval air stations (including Marine and Coast Guard), 13; State operated fields, 4; marked auxiliary fields, 310; fields for miscellaneous Government activities, 1. Of the total number, 680 airports and landing fields had night lighting equipment. In addition there were 352 proposed airports.

**BRITISH AIR MAIL.** The British Air Mail Service during 1931 had a striking development and about two and a quarter million letters were dispatched by air, or an increase over 1930 of about a half a million letters, or approximately 10,000 letters a week. The total weight of the letter mail sent by air in 1930 was 52.4 tons or an increase of 29 per cent over 1930 and 74 per cent over 1929. Air parcel mail dispatched during 1931 aggregated 62½ tons or 10 tons more than the letter mail, but the figure was somewhat less than in 1930. The total weight of all British air mail, letters and parcels, for 1931 was 115 tons compared with 106 tons in 1930 and 88 tons in 1929.

**AIR ROUTES IN ASIA.** By the end of 1931 the advantages of air transportation in Asia, both for mail and for passengers, were fully recog-

nized and substantial financial support was being granted by Great Britain, France, and the Netherlands to air transport companies in order to assure scheduled and regular communication between Europe and India, French Indo-China, and Netherland East Indies. Through service and rates were established. It was recognized that self-support was not necessary for these transportation lines and that government assistance must be extended, for rapid conveyance of mails was an important trade advantage while passenger patronage was worthy of considerable encouragement. India, Indo-China, and the Netherland East Indies could be reached by air in less than one half or one quarter of the time required by the fastest means of surface transport, so that to secure speed, safety, and comfort through improved and efficient aircraft, the governments concerned were seeking to encourage and establish air lines. In 1931 between Europe and the Orient, 24,492 miles of established service were maintained with weekly service in some cases, and in the case of the German-Russian companies a daily service. Local transportation companies in the various Eastern countries were carrying on an improved service, and the total mileage of the scheduled routes for the more important countries was as follows: China, 1535 miles; Japan, 1888 miles; Netherland East Indies, 2698 miles; Persia, 2050 miles, and Siam, 503 miles. In the U. S. S. R., local service was maintained by the "Dobrolet" (Volunteer Aviation Company) to the amount of 16,257 miles, with a network of 27 services or more than double the amount available in 1928 when the five-year plan was adopted. The longest route was from Moscow to Irkutsk, 2920 miles with flights made on even dates in both directions. In the U. S. S. R., there was a total mileage of 16,257 miles. The grand total mileage of local service in Asia by the end of the year maintained 24,931 miles which, with the foreign service, made a grand total of 49,432 miles in Asia.

**AIRCRAFT INDUSTRY IN THE U. S.** In 1931, the American Aircraft Industry was estimated by the President of the Aeronautical Chamber of Commerce of America to have produced 2394 airplanes valued at \$19,626,766 and 3766 engines valued at \$14,609,949, making a total value of \$33,236,715. These figures may be compared with the 1929 production of 6034 airplanes and 7378 engines valued at \$70,053,130. This was, of course, the high water mark in the industry so far as production was concerned, but most of this very large production remained unsold at the end of the year. Examining the 1931 production in more detail, it was estimated that of the 2394 airplanes manufactured, 812 or 33.9 per cent were military, valued at \$12,971,028, and of the 3766 engines, 1800 or 47.8 per cent were military, valued at \$10,417,718. The commercial planes built in 1931 were estimated at 1582 or 66.1 per cent and were valued at \$6,655,738, while the commercial engines totaled 1976 or 52.2 per cent, valued at \$4,192,231. In other words, out of a total estimated production of \$33,236,715 in 1931, \$23,658,569 or 70.6 per cent represented sales to the United States War and Navy Departments, and \$10,848,969 or 30 per cent represented sales to private and business owners and aerial operators and operators of schedule transport lines. Estimating the commercial airplane production in 1931 at 1582 units there were 704 light airplanes with a value, including engines, of \$1,360,583;



299 cabin planes for business and aerial service use valued at \$1,680,274, and 65 multi-engined transports valued at \$1,478,206.

According to the U. S. Department of Commerce the number of aircraft, licensed and unlicensed, in the United States and its possessions on Dec. 31, 1931, was 10,780. Of the 17,739 pilots' licenses, 6881 were in the transport grade, 1586 limited commercial, 46 industrial and 9226 in private. The licensed pilots included 532 women, classified as follows: Transport, 42; limited commercial, 56; industrial, 1, and private, 433. The 9016 mechanics in the country include five women. Of the aircraft, 7553 were licensed, and 3227 unlicensed.

New York State had 1227 aircraft on Dec. 31, 1931, more than any other State, and California ranked second with 1186 planes. California had 3327 pilots as compared with 1820 in New York, and 1644 mechanics as against New York's 860. New York led in licensed planes with 973, California following with 959 and Illinois third with 511. New York had 254 unlicensed craft, California 227, and Illinois 223.

The National Advisory Committee for Aeronautics continued its experimental work in which the important investigations begun in the high pressure wind tunnel at Langley Field, Va., were further advanced by the construction of a tunnel capable of handling full-sized airplanes up to 45 ft. span and speed up to 150 m.p.h. This was the largest wind tunnel yet to be built. The equipment at Langley Field also was augmented by the completion of the largest towing basin available in any experimental or other air station. In this seaplane testing basin full-sized floats could be studied.

During the year, a number of important auxiliary devices were developed by various scientists which aimed to make flying safer and more even. Dr. Irving Langmuir of the General Electric Company devised apparatus for guiding airplanes through fog along a path of light beacons invisible to the eye of the pilot. He employed photoelectric cells which were able to take light sent out by the beacons through the fog which rendered these marks invisible to the human eye. Another interesting device was an instrument developed at the National Bureau of Standards by F. G. Kear and G. H. Wintermute, in which were received simultaneous visual range beacon signals and voice reports on the weather. The voice signals were filtered out and sent to the head phones of the aviator.

AUTOGIRO. Commercial application and further experimental work by inventors marked the year 1931, and the autogiro not only found a market and use but figured in a number of long flights. The Autogiro Company of America, which controlled in the United States the Cierva patents, licensed three companies, Pitcairn, Kellett, and Buhl, to undertake such construction and about 60 autogiros were built during the year. A cabin autogiro was developed by the Kellett Company and one with a pusher was brought out by the Buhl Aircraft Company. A machine with feathering rather than articulated vanes marked a new type of rotor-wing craft, which was developed by E. Burke Wilford, and showed a departure from previous designs. On April 12, the U. S. Department of Commerce granted an unrestricted, improved type certificate or license to the autogiro model PCA-2. The development of the autogiro in the United States had been due in large

measure to Harold F. Pitcairn and this was recognized on April 5 in the award to him by the National Aeronautic Association of the Collier Trophy for 1930. This award is made "for the greatest achievement in aviation in America, the value of which has been demonstrated by actual use of it the preceding year." In England, the Cierva Autogiro Company, Ltd., brought out two new types of machine during the year, one of which was an enclosed cabin two-seater, and was developing both a light single seater sports model and a large passenger-carrying machine. At the end of the year an autogiro had been completed in Germany.

The U. S. Navy acquired for experimental purposes an autogiro and equipped it with floats, while the British and French navies during the year were seeking to develop autogiro flying boats. Both types were planned to operate in rough water and thus extend the function of the ordinary type of flying boat so that the reconnaissance system based on the use of airships might be improved and simplified.

GLIDERS. An important achievement in connection with a motorless plane or glider was the crossing of the English Channel on July 19 by Lissant Beardmore, a Canadian, who was towed to the height of 9000 ft. by an airplane and was able to glide successfully across this body of water in one hour and a half. This crossing by a motorless sail-plane occurred 22 years after the first crossing of the Channel by Bleriot in his airplane driven by a motor. On the following day, July 20, Robert Kronfeld, an Austrian glider expert, crossed the Channel both ways the same day in a motorless plane, winning \$5000 offered by the *Daily Mail*.

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#### AEROPLANES. See AëRONAUTICS.

**AFGHANISTAN**, af-gân'-i'stân'. An independent kingdom of central Asia, serving as a buffer state between India and the Soviet Union. The estimates of the area vary from 245,000 to 270,000 square miles, while the population is roughly estimated at about 11,000,000. King in 1931, Muhammed Nadir Khan, who was called to the throne Oct. 16, 1929. Capital, Kabul, with a population of about 100,000.

Other important towns are Kandahâr (40,000). Herât (121,000), and Mazar-i-Sharif (40,200). The Afghan is the dominant race and the chief tribes are the Durrani and the Ghilzais, numbering about 2,200,000. There were about 70 Europeans in the country in 1931. The prevailing languages are Persian and Pushtoo and the dominant religion is Islam. Free elementary and secondary schools exist in various parts of the country, but the number of literate persons comprised a relatively small part of the total.

**PRODUCTION, ETC.** The largely mountainous country contains a number of fertile plains and valleys where irrigated crops of cereals, fruits, and vegetables are raised. Pears, apples, almonds, peaches, quinces, apricots, plums, pomegranates, grapes, figs, and cherries constitute a staple food of the population and much preserved fruit is exported. The native fat-tailed sheep is the principal domestic animal. Native industries, chiefly of the cottage type, supply the local demand for cloth, soap, boots, and other articles; carpets and rugs are woven for export. Army supplies are made at a state-owned factory in Kabul. Copper, lead, iron, coal, lapis lazuli, and some gold are found, the first named in large quantities. There is little mining activity, however. Afghanistan's trade with India averages about \$15,000,000 annually in normal times. The principal exports are wool, silk, cattle, hides, tobacco, timber, fruits, and vegetables, cereals, asafetida and other drugs, and spices. Imports in 1931 came chiefly from the Soviet Union. Cotton goods, sugar, leather, hardware, and silver treasure are the chief imports from India. The two leading trade routes to India are from Kabul to Peshawar by way of the Khyber Pass and from Kandahâr, centre of a rich fruit-growing region, to the railway terminal at Chaman, India. There are no railways in Afghanistan and transport is by caravan, or by motor over the rough roads connecting Kabul with the chief cities. A 40-year contract for the establishment of air lines from Herât to Kandahâr and Kabul, with branch lines to the northwest frontier of India, was obtained by the Junkers company of Germany in 1931. The lines would connect at Herât with the Teheran-Meshed Persian service, which extends to Europe. A Soviet weekly air service connects Kabul with Termez in Soviet Central Asia.

Constitutional government in the country, which was interrupted during the civil strife of 1929, was reestablished with the crowning of Muhammed Nadir Khan (born April 10, 1885). There are legislative and state assemblies and a Cabinet presided over by the King. The country is divided into five major and four minor provinces, each administered by a governor. In 1930 the Afghan consul general at Delhi announced that annual revenue approximated \$23,400,000. Other estimates placed it as low as \$5,000,000. The army, which was under reorganization in 1931, consisted of about 25,000 regular troops and a small air force. In addition, the war-like Afghan tribes constitute a large reserve of irregular troops.

**HISTORY.** Two years of civil war and insurrection, inaugurated by the revolt against King Amanullah in 1929, was succeeded in 1931 by peace and apparent contentment throughout most of the country. Opening the annual National Assembly at Kabul July 6, the King reported that his authority had been established throughout the country and that taxes were everywhere being paid. Nadir Khan had obviously profited from the unfortunate results of ex-King Amanullah's effort to modernize his wild subjects over-night. The King pursued a wisely tempered policy of progressive conservatism which appeared to have won the approval of the fanatical tribesmen. His last open opponent was eliminated with the expulsion from northern Afghanistan of Ibrahim Bey, so-called "Robin Hood of Bokhara." Some of the semi-



independent tribes along the Indian border continued their sporadic raids into Indian territory, however, despite the King's injunction against it (see INDIA under *History*). In his address to the National Assembly, King Nadir Khan announced that he had accepted an unconditional gift from Great Britain of a non-interest-bearing loan of £175,000, together with 10,000 rifles and 500,000 cartridges.

**AFRICA.** The various divisions of Africa in this volume are discussed under their own heads. See articles on the respective countries and territories, including ETHIOPIA; KENYA; EGYPT; MOROCCO; TUNIS; SOUTH AFRICA, UNION OF, etc. See also the articles ANTHROPOLOGY; ARCHAEOLOGY; PHILOLOGY, MODERN; and EXPLORATION.

**AGNES SCOTT COLLEGE.** An institution for the higher education of women in Decatur, Atlanta, Ga., founded in 1889. The enrollment for the autumn of 1931 was 475. The faculty numbered 51 members, and the officers of administration, 14. The endowment amounted to \$1,256,000, while the gross income for the year was approximately \$335,000. There were 23,250 volumes in the library. During 1931 steady progress was made on building development; among the buildings under construction were the Auditorium and Fine Arts Building. President, James Ross McCain, Ph.D., LL.D.

**AGNEW, WILLIAM HENRY.** An American clergyman and educator, died in Rochester, Minn., Feb. 13, 1931. He was born in Westphalia, Kan., Oct. 12, 1881, and was graduated from St. Louis University in 1905. Having been a member of the Society of Jesus for a number of years, he was ordained priest in the Roman Catholic Church in 1915. He served as dean of the department of science and mathematics at Loyola University, Chicago, Ill., for four years, and in a similar capacity at St. Louis University for one year. From 1919-20, he was professor of natural theology at St. Louis University, before becoming president of Loyola University in 1921. During 1927-28 he was rector of the Sacred Heart Church in Chicago, and at the time of his death was president of Creighton University, Omaha, Neb. At various times, he was chaplain of public institutions in Chicago and New York. He lectured widely at religious and educational institutions and was at one time editor of *The Queen's Work*, a magazine.

**AGORA IN ATHENS.** See ARCHAEOLOGY.

**AGRAMONTE, ARISTIDES.** A Cuban bacteriologist, died in New Orleans, La., Aug. 17, 1931. He was born in Camagüey, Cuba, June 3, 1869, and was brought to the United States in infancy. After attending the College of the City of New York during 1885-87, he entered the College of Physicians and Surgeons of Columbia University, from which he was graduated in 1892. He practiced in New York City until the outbreak of the Spanish-American War, when he became an assistant surgeon in the United States Army. He remained in Cuba after the war, being appointed professor of bacteriology and experimental pathology at the University of Havana.

In 1901 he was a member of the U. S. Army Board that discovered the transmission of yellow fever by the mosquito. He also served as chairman of the Board of Infectious Diseases and as a member of the National Board of Health of the Republic of Cuba. In 1922 he was made Secretary of Public Health in the

cabinet of President Zayas, and prior to his death had been made head of the department of tropical diseases at the Louisiana State University medical school and president of the Pan American Medical Association. He was a laureate of the Institut de France, for which he received the Bréant Prize, and had published more than 100 monographs and articles on hygiene and tropical medicine.

**AGRARIAN CONFERENCES.** See BULGARIA under *History*; AGRICULTURE under *World Agriculture*.

**AGRICULTURAL EXPERIMENT STATIONS.** Experiment stations in the United States, its territories, and insular possessions continued to deal with a wide range of intensive and productive agricultural research. About \$18,000,000 was available for the support of the stations, the Federal Government furnishing \$4,340,000 which included \$90,000 for each State and \$20,000 for Hawaii. Stations maintained by the Department of Agriculture in Alaska, Hawaii, Porto Rico, Guam, and Virgin Islands received appropriations totaling \$250,200.

Research projects active at the stations totaled over 7000; the Adams fund supported more than 400 and the Purnell fund more than 1300. Coöperation of the stations with the Department of Agriculture in more than 1000 projects covering national, regional, and local problems economized effort, coordinated different investigations, and prevented duplication of work. The *Experiment Station Record*, an important factor in the progress of agricultural research, reviewed during the year nearly 1300 station and departmental publications. Changes occurred in the directorships of the Arizona, Maine, New York Cornell, Porto Rico Insular, Virgin Islands, and Wisconsin Stations. The personnel, including those doing some teaching, exceeded 3600, of whom over 1900 devoted their time exclusively to station work.

Under an Act of Congress extending benefits of the Hatch Act to Alaska, a station was established in connection with the Alaska Agricultural College and School of Mines and was merged with a station operated by the U. S. Department of Agriculture at Fairbanks since 1907. The Kalsin Bay Station of Kodiak Island was closed June 15, and the Department work centred at Matanuska and at Sitka. In Hawaii, a consolidation of experiment station work under the joint supervision of the Department of Agriculture and the University of Hawaii, provided for by Act of Congress passed May 16, 1928, brought about increased efficiency and economy. A similar measure approved Mar. 4, 1931, also extended the benefits of the Hatch and supplementary acts to Porto Rico, and provided for the coordination of experiment station work in the island. The Virgin Islands Station was reorganized and received funds for expanding its work.

New buildings erected in 1931 included an agricultural engineering building at the Kentucky Station; the Dalrymple Memorial animal pathology plant at the Louisiana Station; a horticultural building at the Maryland Station; a dairy husbandry building, the first unit for an agricultural quadrangle, at Virginia Polytechnic Institute; and a refrigeration plant at the Florida Station. The Wisconsin Station was erecting a new animal research laboratory.

The Kansas Station and College received increased biennial appropriations aggregating \$2,-

751,600, largely for research, and for construction of a new dairy barn and dairy plant. An appropriation of \$900,000 as an unemployment relief building fund was to be used at Pennsylvania State College for a dairy husbandry building to cost \$500,000 and a home economics unit to cost \$400,000. The Minnesota Legislature provided for the erection and equipment of a farm crops field house at the University Farm, and for an office building and laboratory and more land for the fruit farm near Zumbra Heights. The Nebraska Station received appropriations for building the animal husbandry building, and the Oklahoma Station, for a meat laboratory and a horse barn.

The New York College of Agriculture of Cornell University, for the ensuing year, was provided State appropriations exceeding \$1,750,000 and the Home Economics College \$300,000. The building being constructed to house the departments of agricultural economics and farm management and of rural sociology was to cost nearly \$600,000. Plans were completed for a home economics building to cost about \$985,000. The budget of the New York State Station for the fiscal year 1931-32 totaled \$503,480, an increase of \$126,655 over 1930-31, and included \$80,000 for greenhouse equipment.

The State of New Jersey received as a gift from James Turner of Montclair for administration as a dairy research station, 1100 acres of crop and pasture land in Sussex County, 270 Guernsey and 55 Holstein cattle, elaborate buildings and equipment. In Montana a sheep station was developed at Fort Ellis near Bozeman.

The U. S. Department of Agriculture coöperating with the University of Tennessee opened a dairy experiment station at Lewisburg, Tenn., to serve the industry in the blue grass limestone region. In Florida, the Department opened the Florida Citrus Products Laboratory at Winter Haven, in buildings, grounds, and facilities furnished by the citrus industry of the State; and at Olustee, near the Osceola National Forest, was erecting twelve buildings for the Naval Stores Experiment Station, which was expected to be completed by Mar. 1, 1932. New stations were established in Washington for study of soil erosion in the Washington-Oregon-Idaho wheat belt and in Iowa for similar study in the rich loessial Corn Belt soil area in the Missouri River Valley.

Director James T. Jardine of the Oregon Station was appointed chief of the Office of Experiment Stations, U. S. Department of Agriculture, to the vacancy existing since the death of Edwin W. Allen in November, 1929, and assumed his new duties in September, 1931. Leland O. Howard, former chief of the Bureau of Entomology, Department of Agriculture, was awarded the 1931 Capper gold medal and \$5000 for distinguished service to American agriculture. The award, given annually by Senator Arthur Capper, of Kansas, was won in 1930 by Stephen M. Babcock (q.v.), professor emeritus of agricultural chemistry of the Wisconsin Station and University, who died July 1, 1931. In Canada, Frank T. Shutt retired as Dominion chemist and assistant director of Dominion Experimental Farms, terminating public service of 44 years.

**NECROLOGY.** Experiment station workers dying during 1931 included W. J. Morse, director of the Maine Station; Albert Dickens, professor of horticulture, at the Kansas Station; M. E. Jaffa,

professor emeritus of nutrition, and W. A. Lippincott, professor of poultry husbandry, both of the California Station; F. A. G. Muir, consulting entomologist of the Hawaiian Sugar Planters' Station; M. P. Sweeney, associate chemist of the New York State Station; and George Severance, head of the department of farm management and economics, and H. F. Holtz, associate in soils, both of the Washington Station. Among the pioneers of agricultural research dying were J. H. Comstock, former head of the entomology department of Cornell University; C. C. Georgeson, ex-director of the Alaska Stations; W. H. Jordan, former director of the New York State and Maine Stations; Lucius L. Van Slyke, former chemist and acting director of the New York State Station; and L. H. Pammel, former botanist in the Iowa Station.

Peter J. Wester, tropical horticulturist, who established the Lamao (P. I.) Experiment Station in 1912, died in Manila August 18. Edmond Rabaté, director of the National Institute of Agriculture of France and administrator of the National Institute of Colonial Agriculture, died April 18.

**BRITISH EMPIRE.** The new Imperial Agricultural Research Bureaus were fully organized and functioning actively and their location at existing research institutions enabled them to operate economically and efficiently. The bureau of soil science was located at Rothamsted Experimental Station, at Harpenden; of animal health, the Veterinary Laboratory, Weybridge, Surrey; of plant genetics (crops other than herbage), School of Agriculture, Cambridge; of fruit production, East Malling Research Station, East Malling; of agricultural parasitology, Winches Farm, St. Albans, Herts, all in England; of plant genetics (herbage), Aberystwyth, Wales; and of animal nutrition, Rowett Research Institute, Aberdeen, and of animal genetics, University of Edinburgh, both in Scotland. New fruit research laboratories, built by the Empire Marketing Board, were provided on the East Malling Station. The Ditton Laboratory, said to be the largest cold storage plant in existence, opened for research into fruit storage, contained a "model ship's hold" with a capacity of 120 tons of apples. A gift to the University of Cambridge by the International Education Board of £700,000 contingent upon the university securing £479,000 elsewhere became available, £162,000 being allotted for agricultural work, including the building and equipment of a new laboratory.

Ontario Agricultural College at Guelph, an important centre for agricultural research in Canada, occupied a new administration building and students' residence, and completed extensive greenhouses which supplement the new horticultural building. It was host from June 22 to 26 to the 11th annual convention of the Canadian Society of Technical Agriculturists, a Dominion-wide organization of station and extension workers. Research continued to go forward at the other Provincial Colleges of Agriculture and on the efficient Dominion Experimental Farms.

The Imperial Sugar Cane Research Conference, held by the Empire Marketing Board in June, 1931, recommended the establishment for West Indies, of a sugar cane breeding station in Barbados, and a sugar cane quarantine station, and other cane breeding stations in each of India, Mauritius, and Australia. The Board granted £15,790 over

five years for the development of rice research in India to increase yields and to improve quality.

In Southern Rhodesia, the main experiment station was in operation at Salisbury, and demonstration stations at Bulawayo, Gwelo, and Enkeldoorn. The government sand veld farm established in 1930 at Marandellas comprised a demonstration sand veld farm, tobacco, and pasture land research stations, and a crops experiment station. The British South Africa Company, to meet practical needs of the citrus industry in Southern Rhodesia, established a citrus experiment station at Mazoe.

**RUMANIA.** The Agricultural Research Institute of Rumania, formally organized in 1929, comprised sections of phytotechnology and phyto-genetics, chemistry, phytopathology, and rural economics, and was expected to add sections on animal production and rural engineering. It also took under its direction the Central Agronomic Station at Bucharest; the agricultural chemistry, agricultural technology, seed control, and medicinal plants stations at Cluj; the phytopathology station at Chişinău; the machinery testing station at Bucharest; the plant improvement and experiment stations at Jassy and Cluj; and experiment stations at Mărculeşti and Tighina.

**UNION OF SOVIET SOCIALIST REPUBLICS (Russia).** The Soviet Institute for Plant Protection, established under a decree of June 25, 1929, as one of the institutes of the Academy of Agricultural Science, and headed in 1931 by Director N. V. Kovalev, had for its object the development in a centralized way, of scientific work connected with the protection of plants and animals from diseases and other pests, and currently comprised divisions of administration, economics, applied entomology and zoology, phytopathology, and preventive measures. The administrative headquarters and certain activities were located on Yelagin Island, Leningrad, while other sections are elsewhere in Leningrad and in Moscow. Plans were for the central institute to be supplemented by similar institutes in the Ukraine, Transcaucasia, and Central Asia, while existing institutions were to be reorganized into 12 scientific experimental bases, and from 3 to 12 agricultural stations headed by the various institutes, were contemplated for each of the various regions and provinces of the Soviet Union.

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#### AGRICULTURAL EXTENSION WORK.

Extension problems were more numerous, more complex, and more widespread during 1931 than ever before. Average farm prices declined 50 per cent over the previous low point reached in 1929. This added slump in prices came as a crowning capstone to a decade of agricultural depression marked by continuously falling prices, overproduc-

tion, droughts, storms, floods, insect plagues, and epidemics of diseases of crops and livestock.

Although generally there was no actual shortage of food or feed on the farms in the United States, cash was very scarce. Extension workers therefore devoted most of their efforts toward showing farmers how to supplement their sources of farm income and how to maintain as good a standard of living as possible with the income available. Extensive crop shifts were necessitated by the price-breaking surpluses of wheat and cotton that had accumulated. The development of new sources of income became imperative. Supplemental lines of production had to be considered and adopted. County extension agents throughout the year gave constant thought and study to the situations in which farmers found themselves individually and collectively. Reliable and practical information from the State agricultural colleges and the U. S. Department of Agriculture was in great demand. Consulting with farmers as to their operations was not a new activity of extension agents. Crop adjustments had been made before with the aid of extension workers in many counties and in entire States. It was a recent development, however, for the entire force of the cooperative extension service to focus its attention largely on problems of agricultural adjustment the country over.

Farmers were helped to plan their farm operations more intelligently with the primary purpose of achieving greater efficiency of production on less land, and that land only the best of the farm. Where it seemed advisable to curtail or abandon a line of production, substitute crops or enterprises were considered. Many farmers were encouraged to develop new activities. They were advised to take steps in adjusting their economic life to a sound programme of land utilization by withdrawing from cultivation the poorer land of the farm and returning it to the production of pasture or woodland. They grew home and farm supplies as much as possible and built up reserves of feed, seed, and livestock. This plan of farming, generally known as the "live-at-home" type, was of considerable benefit during the year. It helped farmers to increase the non-cash income of the farm family in food and feed crops and meat and other livestock products for use on the farm and it enabled them to reduce considerably their cash outlay.

In many districts definite systems of soil improvement were adopted, wood-lot and forest-area developments were started, and minor cash enterprises were launched to make up for deficiencies in the income from major crops. Production costs were reduced by the use of better seed and by more scientific handling and feeding of livestock.

The grading, pooling, and selling of marketable crops received closer attention by the agents during the year. Existing cooperative-marketing organizations were strengthened and new ones were organized with the advice and help of extension workers but without the assumption of undue responsibility. The establishment of credits on a sound basis was promoted and the use of credit where adequate returns could be expected was encouraged. In this field much help was extended to farmers in taking annual inventories and in preparing credit statements for the use of local banks. Extension work in the field of farm man-

agement became a well-established part of the basic programmes of most of the various States.

The U. S. Department of Agriculture and the State agricultural colleges speeded up the assembling of economic facts applying to local conditions. A national and four regional outlook conferences were held at which State and federal extension workers considered available economic data concerning farm industries and issued statements on the production and demand situation. State workers attending these conferences returned to their own fields better equipped with the data thus made available to aid in appraising local situations. Between the close of the national conferences held in Washington, D. C., in January and the planting season, 12,000 local outlook meetings attended by more than 800,000 farmers were conducted by State and county extension workers. At these local conferences, farmers were apprised of the economic situation and advised of the adjustments to make to bring their various lines of production into closer relationship with current economic needs.

Considerable help was given to farmers in crop production, in dairying, in animal husbandry, and in horticulture. Thousands of dollars were saved by farmers who were shown how to reduce losses from insect pests and from plant and animal diseases. Assistance was given in livestock improvement through culling out unprofitable cows and better management of animals. Tree and shrub planting was encouraged both for shelter and the beautification of home grounds. Farmers were taught how to build terraces and soil-saving dams to prevent erosion.

Through helpful service to the farm family and the farm home, the home demonstration agents proved their practical and financial worth. They helped farm women and girls to make many needed improvements in their home practices. More time for rest and recreation was released to many farm women who rearranged their household equipment, planned their housework on a more efficient basis, and added homemade or inexpensive purchased conveniences and labor-saving devices with the advice of home demonstration agents. Agents also assisted farm women in the development of the resources of the farm home through establishing home industries. Women were shown how to prepare and sell surplus garden, poultry, and dairy products. The sale of standardized preserved-food products proved profitable. Handicraft activities, such as the making of rugs, woven materials, baskets, leather articles, pillows, and the like were encouraged. Other sources of income which agents helped the farm women to establish were roadside markets and tourists' homes. Farm women and girls were assisted also in the economical buying of supplies, in the preservation of home-grown foods, in the refinishing of furniture, in the making of inexpensive improvements in the house, and in the planting and care of flowers and shrubbery. They were taught the relation of better food habits to health, and how to plan the family food needs, the construction, selection, and renovation of clothing, child care, and many other things of practical benefit.

Boys and girls on the farm joined in the general effort to increase farm incomes and maintain farm living standards. More than 845,000 boys and girls were enrolled in the 4-H clubs in 1931. Under the supervision of extension agents they learned how to grow cotton, corn, potatoes, and

other crops and how to care for calves, pigs, poultry, and sheep. They also received training in marketing their products, in handicraft work, in the preservation of fruits and vegetables, the cooking and serving of meals, the making and remodeling of clothing, and the furnishing and decorating of rooms. Reports indicate that there was an increase in the number of short courses at the colleges, summer camps, weekly and monthly club meetings, music-appreciation programmes, growth, health, and posture work, community improvement activities, and other co-operative undertakings that contribute to the general all-round development of farm boys and girls. The influence of 4-H club work was immeasurable. Former club members more than ever before were taking their places as leaders of adult farm groups and as officials of farmers' organizations.

Tentative arrangements for coöperation in extension work between the U. S. Department of Agriculture and the University of Porto Rico were made by C. W. Warburton, director of extension work, during a brief visit to the island in December. This coöperation was authorized by an act of Congress approved Mar. 4, 1931, which provided that the several extension acts should apply to Porto Rico beginning July 1, 1932. An initial appropriation of \$50,000 was provided, this sum to be increased by \$10,000 annually until the total to which Porto Rico is entitled under the federal act is reached.

Funds provided for coöperative extension work during the fiscal year ending June 30, 1932, from all sources totaled approximately \$25,922,000, a decrease of about \$200,000 from the previous year. This decrease was due principally to reductions in State and county appropriations. Of the total funds available for extension purposes, \$10,240,000, or 39.5 per cent, were contributed by the federal government; \$7,188,000, or 27.7 per cent, were from State appropriations to the agricultural colleges and other State agencies; and \$8,494,000, or 32.8 per cent, came from county appropriations for extension work and from local organizations. About 95.7 per cent of all funds allotted for coöperative extension work during the year came from public sources.

From Dec. 31, 1930, to Dec. 31, 1931, there was a net decrease of nine persons in the total number of extension workers. Of the 6104 persons engaged in extension work in the United States and Alaska, Hawaii, and Porto Rico at the end of the year, 2726 were in county agricultural agent work, 1404 in home demonstration work, 356 in work with 4-H clubs, and 326 in negro extension work. There were 50 extension directors, one in each State and the Territories of Hawaii and Alaska, 31 assistant directors, and 1211 subject-matter specialists.

A synopsis of the statistical results achieved in 1930 affords an idea of the volume of work carried on annually and the results obtained. Extension workers supervised a total of 934,182 result demonstrations that were carried on by farm men and farm women in 1930 as a means of showing others the improvement in farm income, comfort, and beauty that can be obtained by putting better farm and home practices into use. Boys' and girls' 4-H club members completed 971,300 demonstrations covering every phase of farm or farm home activity. These demonstrations were supplemented by personal visits made by extension workers to farms and farm homes,

by the preparation of articles for the press, meetings, tours, correspondence and circular letters, radio talks, office calls, short courses, and other means of keeping in contact with farm people. A total of 318,400 progressive farm men and women and older club members voluntarily contributed their time and effort in assisting county extension agents in their demonstration work. They acted as local leaders in their communities, helped formulate extension programmes, conducted demonstrations, trained 4-H club members, and in many other ways helped to bring about the wider adoption of better practices. Agents made 1,758,700 visits to farms to discuss better agricultural practices with the farmer and 910,000 visits to discuss improvements in the home with the farm woman. A total of 402,500 meetings were conducted by extension workers at which better methods of carrying on farm and home operations were explained to 7,219,100 persons. A total of 822,700 farm boys and girls were enrolled in 56,180 4-H clubs, or an increase in enrollment of 66,600 over 1929. Some of the results achieved by these boys and girls through their 4-H club work were the cultivation of 52,000 acres of corn, 30,000 acres of cotton, 5300 acres of potatoes, 4800 acres of wheat, 3700 acres of tobacco, and 22,300 acres of home gardens. They raised 78,700 hogs, 50,500 dairy and 15,300 beef cattle, 28,800 sheep, and 2,272,700 standard-bred fowls, and canned 3,504,000 jars of fruits, jellies, and vegetables.

Nine States conducted 2584 farmers' institutes extending over a period of 3752 days. Instruction was given during these institutes to 1,269,400 persons at 8569 sessions. The cost of these institutes was \$176,008, of which \$112,416 was from State appropriations and \$63,592 from local contributions. Although there was a slight decrease in the number of institutes held, number of days that they lasted, and sessions held, there was a slight increase in the number of persons attending and in the amount of money expended.

CANADA. Extension work through the provincial departments of agriculture was conducted, and farmers, farm women, and boys and girls were taught better practices in agriculture and home economics by agricultural representatives through the media of boys' and girls' clubs, short courses at the colleges, demonstration farms, women's institutes, judging competitions, lectures, demonstration trains, radio, and the like. In New Brunswick, poultry club work made substantial progress since its organization in 1918. The popularizing of bred-to-lay poultry in the province and the education of boys and girls have been the two important objects of the work. Each year a fair is held at which members compete for prizes. There is also a poultry-judging competition. Demonstrations are carried on throughout the year and an endeavor is made to give each member as much individual instruction and assistance as possible. In Ontario, junior farmers' associations held four conferences in 1929 which were attended by delegates from the various zones. Definite, well-balanced programmes were planned and carried out during these conferences. Important problems concerned with the progress of junior-farmer activities, programme planning, methods of attacking economic problems, and similar topics were presented and solutions discussed.

UNION OF SOUTH AFRICA. The division of agricultural education and extension of the Department of Agriculture conducted extension

activities through extension officers located in various districts throughout the Union. They gave personal advice and instruction to farmers, established demonstration plots, held lecture meetings, and directed the activities of four schools of agriculture, which were extension centres in their respective areas. In January, 1930, additional home-economics officers were appointed to work with the women in each of the four schools of agriculture. They were specialists trained in domestic-science subjects. They visited farm women and gave advice about food preparation, hygiene, dressmaking, laundering, and other subjects of use and interest in the home. Camps for boys were held annually in Poteschefstroom and Pretoria. Tents and cooking utensils were lent by the military authorities. Teachers accompany the boys and act as supervisors. The objects of the camps were to instruct the boys in agriculture at a place truly rural in character.

SWEDEN. Agriculture advisers, paid by contributions from the government and from the agricultural societies, traveled about the country giving advice to farmers, conducting demonstrations, giving courses in general agriculture, bookkeeping, and household economics, and gathering statistics. Practical work with farm boys and girls made good progress. This work, which the Ministry of Agriculture in 1929 placed under the administration and guidance of the Jordbrukare-Ungdomens Forbund (Association of Farm Youth), was taking the form of competitions. Agricultural societies continued to show their interest through financial contributions and many firms and individuals presented prizes for the encouragement and support of the work. In 1929 there were 15,572 active members enrolled in 346 groups. The number of competitions increased from 154 in 1924 in which 1094 members took part to 654 in 1929 in which 4741 members participated. These competitions were held in 16 of the 20 counties in Sweden in 1929. Great interest was shown in root-crop growing, care of kitchen gardens, plowing, milking, potato and flax growing, women's institutes, and kindred subjects in addition to competitions, the farm-youth instructors and advisers during 1929 gave 1083 lectures, held 7640 meetings, and conducted 436 discussions and 226 study trips.

FINLAND. Official control of boys' and girls' club work was assumed by the Ministry of Agriculture in 1930. Club work was made a permanent part of the training for rural young people. The support which it has received from official and private courses showed the importance with which it was regarded by the government, by business interests, and by individuals. In 1930, there were 176 demonstration districts with 203 agricultural club agents, 42 home-economics agents, seven supervising agents, and 20,932 club members who completed their work. All club girls in 127 of the 176 districts were given instruction in the use of their home-grown products in the daily diet, baking, and canning. Livestock raising was conducted in 61 districts in which 677 club members participated in the courses.

NORWAY. Norwegian farm wives made considerable progress through the activities carried on by the Norsk Bondekvinneag (the Norwegian Countrywomen's Association). The objects of the association are to arouse the interest of farm wives in working for economic, cultural, and social improvement, to interest young people in ag-



riculture, and to combat the forces seeking to break down the Christian and moral life of the nation. The association sought to awaken interest among farm people in a national style of architecture, in restoring traditional peasant culture, in the care of the young, in the development of home industries on the farm, in the use of home-grown products, and the like.

Extension activities in agriculture and home economics were also carried on in the following countries: Argentina, Australia, Austria, Belgium, Brazil, British Guiana, China, Cypress, Czechoslovakia, Denmark, Ecuador, Estonia, France, Germany, Great Britain, Guatemala, Hungary, India, Italy, Jamaica, Mexico, Netherlands, New Zealand, Paraguay, Poland, Scotland, Soviet Union, Spain, Switzerland, and Uruguay.

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**AGRICULTURE.** The American farming industry had the benefits of a fairly productive season in 1931, but suffered from another precipitous decline in prices. The drought and reduced incomes made 1930 bad enough but 1931 was even worse. The problems of the year included huge existing surpluses of wheat, cotton, and other commodities, bumper crops, lack of demand and market, grasshoppers, and drought. The usual questions of credit, mortgages and unpaid bills, taxation and labor, already burdensome in themselves, were often aggravated by the general depression.

**AGRICULTURAL DEPRESSION.** The world-wide business depression was of unprecedented scope, duration, and intensity. American industries, as the Federal Farm Board viewed the situation, for the most part could meet the reduced demand by limiting output, whereas the very nature of farming prevented the farmers from promptly readjusting production, nor were farmers organized so as to make such changes. Agricultural production continued virtually unchanged and, indeed, total crop acreage and numbers of livestock registered increases. The purchasing power of domestic consumers fell sharply with the increasing unemployment, but taxes, wage rates, retail prices, etc., fell but slowly, and as a consequence, the purchasing power available for buying food and clothing was reduced still further, and industrial readjustments needed to correct unemployment were prolonged. Domestic consumption for most farm products could be maintained only by marked price reductions. Consumption of cotton and wool decreased in spite of lowered prices. As a result, the price depression bore down upon American farmers with exceptional severity. Besides, little or no reduction occurred in many cash payments, as taxes and interest, which farmers must meet. The low level of agricultural income during the year and the great unevenness between sections caused by the drought of 1930 were important factors in intensifying adverse business conditions.

The European demand for American farm products likewise was curtailed by rising unemployment and declining consumer purchasing

power. Increased tariffs in most European countries and widely adopted regulations requiring the use of a high percentage of domestic grain in milling operations both reduced foreign consumption of American products. The great increase in Russian exports tended to disorganize farm product markets, and further increase the difficulties of American exporters. An additional unsettling influence in international trade was the heavy depreciation of the foreign exchange values of the currencies of several countries.

Many new farm relief proposals were brought forward to cope with the situation. One group continued to recommend the equalization fee while another advocated the export debenture. A programme of price fixing and debt holidays for farmers were wanted by others. Conservative opinion was that measures designed to raise prices artificially were dangerous, tending to encourage further increases in supply, and in turn to bring only relatively lower prices. It was asserted that no price stabilization measure could produce permanently constructive results unless accompanied by a practical method for controlling crop production.

Recognizing the possibilities of adjusting the total volume of agricultural production by shifting land to uses yielding less product or out of agriculture altogether into forest, wood lot, and similar uses, Secretary of Agriculture Hyde indicated the urgent need of adjustment in the national agricultural policy, particularly the land policy. Acting with the Association of Land Grant Colleges and Universities, he called a national conference of farmers, bankers, economists, journalists, educators, public officials, and others to meet in Chicago, Nov. 19-21, to formulate a land-use programme. The National Land Use Committee created by the conference was to be a research and fact-finding body composed of experts from Federal departments and boards and the land-grant colleges. The National Advisory and Legislative Committee on Land Use, made up of representatives of farm, bank, commercial, and other organizations, was to advise the other committee and assist in directing legislative actions to carry out their findings. Looking definitely to the establishment of a rational land-use policy, the conference adopted recommendations dealing with the administration of the public domain, protection of the water shed and school lands, agricultural credit, outlook work, economic inventory of land resources and classification of soils, homesteads, taxation, land development, regional competition, reclamation, use of marginal land, public retention or acquisition of land, soil conservation, land classification, and regional land-utilization conferences.

**DROUGHT AND PESTS.** Heat and prolonged drought took a heavy toll of wheat in the spring wheat States and severely damaged cultivated crops and pastures, causing particular distress in parts of North Dakota and Montana, a section suffering heavily from crop failure in 1930. The government extended financial assistance to the stricken areas through credit corporations and relief loans to provide feed for livestock. In the areas of the South drought-stricken in 1930, the virtual end of emergency conditions was reported early in the spring of 1931 by Secretary of Agriculture Hyde who observed that the Red Cross had relieved the suffering, that Federal loans had enabled the farmers to start new crops and that frequent and heavy rains had

definitely ended the drought. These factors, he said, had developed a new spirit among the people of the areas which suffered most.

Grasshoppers caused the most notable insect damage during 1931, threatening the destruction of thousands of acres of crops in the Great Plains area of the West and doing their worst in central South Dakota and northern Nebraska. These insects, not migratory except locally and always present in the Great Plains area, increased tremendously in numbers because of conditions due to the droughts of 1929 and 1930 which favored the insects' growth but not diseases and other natural agencies normally checking grasshoppers. Timely preparation for control was expected to avoid a repetition of the year's experience.

**MODERN TRENDS IN FARMING.** Mechanization of agriculture continued to reduce production costs, often doubling or trebling the efficiency of the man, and in certain areas, it greatly increased the size of farms and investment per farm. Such machinery as the combine harvester-thresher, 2- and 4-row cultivators, mechanical corn pickers, usually tractor-drawn, by enabling the family labor supply to cover more land, had tended to conserve rather than to destroy the family farm system. While a few conspicuous developments in corporation and chain farming had taken place, the movement toward consolidation of holdings and toward farm operations on a large scale were not spectacular. The movement of farm products by motor truck has had a notable growth—enormous volumes of fresh fruit and vegetables, hogs, poultry, dairy products, cotton, timber, and grain being moved direct from the farm to distant markets. Concurrent with better production and marketing practices came improvement in the farm home, evident in more homes equipped with running water, sewerage disposal, and electricity.

**WORLD AGRICULTURE.** *China.* Large areas along the Yangtze River were damaged seriously by floods, and excessive rains in other sections were detrimental to crops, according to a report to the Department of Agriculture. Rice was principally affected but cotton along the Yangtze was also reported damaged and some stocks of wheat were lost in the flooded area. The rice crop in the Yangtze Valley and in southern China was reported to be much smaller than 1930 and not enough to supply the Shanghai market in 1932. The Chinese cotton crop was not expected to be larger than last year in spite of an increase of 10 to 15 per cent in acreage. Cotton growing sections near Hankow and Shanghai suffered greatly from the floods and heavy rain. In the important cotton growing region of Tungchow, damage to the cotton crop was reported to be as much as 20 per cent. The crop in the Tientsin area, outside the flooded district, probably would be considerably above 1930.

*Irish Free State.* Seventy thousand tenant farmers May 1 became absolute owners of their land through the new land act passed by the Dail, designed to speed up the process of transfer from landlord to tenant. This measure, the last of a long series of land-purchase acts, finally disposed of the old problems of land tenure and concluded a 50-year-old struggle begun by Michael Davitt to obtain the land for the people. The cost to the government, estimated at \$50,000,000, was to be met by an issue of land bonds.

*Rumania.* King Carol of Rumania adopted drastic measures to protect the peasantry from

usurious money lenders and speculators. Under a royal decree, peasants, who during the winter and spring sold futures on grain being harvested in 1931, might have their contracts declared void by depositing with the local law courts sums equivalent to the amounts received, plus 10 per cent interest. Speculators had been taking advantage of the peasants, now in almost a semi-starved condition, and had obtained full title to their harvests on payments of 15 or 20 per cent of the actual worth of the crops.

*U. S. S. R. (Russia.)* In March, 1931, approximately 10,000,000 peasants holdings, or 40 per cent of the total, were collectivized in Russia, and the movement did not promise to diminish soon. The collective farms rose from 82,276 in 1930 to 215,000 in 1931 and accounted for more than half of the total acreage planted in the spring of 1931. State farms numbered 4230 on June 30, and comprised 163,750,000 acres, compared with an area of about 100,000,000 acres in October, 1930, and about 22,500,000 acres were under cultivation.

*Bolivia.* The First Agricultural and Stock-raising Congress was opened on July 17, 1931, in the University of La Paz. Among its most important objectives were the organization of a national agricultural society, the foundation of an agricultural bank, and the organization of scientific agricultural and stock-raising services.

*Cuba.* The National Federation of Vegetable Growers and Exporters was organized in Cuba to obtain better transportation facilities for vegetables; to develop home and foreign markets; to seek favorable tariff agreements with countries consuming Cuban products; to work in cooperation with the Department of Agriculture; to give members the benefit of latest crop-growing methods; and in general to increase the vegetable production in Cuba. The federation was formed under the supervision of the Secretary of Agriculture, Commerce and Labor.

**WORLD WHEAT CONFERENCES.** The conference of wheat exporting countries held in London, England, May 18 to 23, consisting of delegations appointed by the United States, Argentina, Australia, Bulgaria, Canada, Hungary, India, Poland, Rumania, Union of Soviet Socialist Republics, and Yugoslavia, studied the existing world wheat situation, and signalized among the underlying causes for the prevailing depressed prices of wheat—the effects of the economic depression throughout the world, the fact that there was more wheat produced than could be sold at a profit, the absence of sufficiently adequate information regarding the movements of wheat, the requirements of certain countries and the quantities which were liable to be placed upon the market, and the prevailing uncertain state of the wheat markets throughout the entire civilized world.

The conference considered that, where possible, a reduction in the areas devoted to wheat should be undertaken in whatever way each country considers to be most effective and practical. It indicated the desirability of a careful exploration of all avenues for the greater utilization of wheat. The conference further considered that current information regarding the supply, the demand, and the movements of wheat should be brought together in such a way as to assist the wheat-exporting countries toward the orderly marketing of their surpluses, and suggested the establishment of a clearing house

for this information. Other world wheat conferences held on February 24 to 26, in Paris and in the last week in March, in Rome, did not reach agreement as to the solution of the world's wheat problems.

The Fifteenth International Congress of Agriculture held in Prague, Czechoslovakia, June 5 to 8, was attended by more than 100 official delegates, representing 30 countries, and more than 400 other participants. The congress was divided into sections, dealing with agrarian policy and rural economy, agricultural teaching and extension, agricultural coöperation, plant production, animal production, agricultural industries, and rural women. Much of the discussion centred on the world wheat crisis, with special reference to preferential treatment to grain from eastern European countries by western European countries. The export quota system also received attention.

The annual conference of the American Country Life Association for 1931, held at Cornell University, Ithaca, N. Y., August 17-20, had for its theme rural government, which was discussed in forums dealing with country organization and management, village and township government, taxation, public education, public health and welfare, and rural planning.

The Conference on Rural Hygiene, held at Geneva in July, summoned by the council of the League of Nations on the proposal of the Spanish government, had for its object an international technical study of rural hygiene, as one of the most important factors in the organization of European agricultural regions. The agenda adopted included guiding principles and appropriate methods for insuring effectual medical care in rural communes; the most effective methods of organizing health services in rural districts; and the amelioration of rural districts—most effective and most economical methods.

**THE AGRICULTURAL SITUATION.** The year 1931 was reasonably productive of crops in the United States, but was marked by another staggering decline in prices of farm products—a 44 per cent decline since 1929. The total crop production in 1931 was 10 per cent larger than in 1930, despite a reduction of 2.6 per cent in harvested acreage, thereby bringing production back to average following the poor yields of 1930. A total gross farm income of \$6,920,000,000 came from the farm production of 1931, or 26 per cent less than the \$9,300,000,000 from the production of 1930 and 42 per cent below 1929, according to estimates of the U. S. Department of Agriculture, which included the value of farm products sold and consumed in the farm home. The gross farm income for the United States probably about equaled the pre-war 1909-1913 average and was the lowest since 1911. Recent changes in gross farm income were held largely to be the result of the great price changes of the past two years associated with the economic depression.

The total value of the crops produced in the United States in 1931, based on December 1 farm prices, was estimated at \$4,123,000,000, or \$1,700,000,000 less than in 1930. Only about \$2,900,000,000 was derived directly from the sale and food consumption of crops, or about \$1,000,000,000 less than in 1930 and the income from livestock amounted to about \$4,000,000,000, or \$1,400,000,000 less than in 1930. Packers paid farmers \$1,103,000,000 for 10,834,000,000 pounds

of meat the first 10 months compared with \$1,533,000,000 for 10,759,000,000 pounds in the corresponding period of 1930. The combined total physical volume of crops and livestock sold or consumed in 1929 was about average, in 1930 about 2 per cent below, and in 1931 about 2 per cent above the average, whereas prices received for the crops and livestock of 1930 averaged about 22 per cent lower than for 1929 and the 1931 prices fell still further below the 1929 level.

The general status of agriculture near the end of 1931 could be illustrated in certain indexes cited by the U. S. Department of Agriculture. The wholesale price level of all commodities stood practically at pre-war or 100; the industrial wage level was roughly twice the pre-war figure, or 200; farm taxes exceeded 250; farm wages were about 120; prices of things bought by farmers 125; prices received by farmers for their products averaged about 70. The unit exchange value of farm products for other commodities was slightly over one-half what it was before the war.

The farm tax problem, serious before the depression began, became critical in 1931. Average taxes per acre on farm real estate declined slightly in 1930, as compared with 1929, the first decline in 17 years, yet because prices of farm products and values of farm real estate had gone down more than taxes in the year, farm real estate taxes were relatively higher than in the year before. In 1913 the average farm tax rate was 68 cents on \$100 of full valuation, i. e., the probable market value of the land, in 1924 \$1.22, and 1929 \$1.46. Because of the 8 per cent decline in land values, taxes in 1930 materially exceeded \$1.50 on \$100 of full valuation.

The farm-tax problem mainly rests with State and local governments, which in many instances have recognized the fact in practical ways. Forty-four State legislatures met during the year, and most of them considered taxation in relation to agriculture. Relief measures advocated, and in some cases enacted, were those designed to shift part of the cost of State and local government from general property, principally on real estate, to incomes and other sources of revenue, and those designed to reduce public expenditures. The policy of relieving local communities from some of the cost of schools and highways has advanced rapidly.

Farm real estate values, reflecting developments unfavorable to agriculture in the previous year, continued to decline in nearly all parts of the country. The acre value for all farm lands with improvements, averaged for the whole country, decreased from 115 per cent of the pre-war value to 106 per cent, during the year ended Mar. 1, 1931 compared with a 1 per cent drop in the year before. The fundamental cause of the decline in property values in 1930 was the slump in farm incomes. In average value, the land and buildings of farms in the United States fell from \$10,284 per farm in 1920 to \$7614 in 1930, and from \$59.38 per acre in 1920 to \$48.52 in 1930, according to the Census Bureau's 1930 farm census. The value of farm land and buildings declined from \$60,316,002,002 in 1920 to \$47,879,838,358 in 1930. The land alone was valued at \$54,829,563,059 in 1920 and \$34,929,844,584 in 1930. The number of farms fell from 6,448,343 in 1920 to 6,288,648 in 1930. The farm acreage increased from 955,883,715 in 1920 to



986,771,016 in 1930. Farm implements and machinery were valued at \$3,594,772,928 in 1920 and \$3,301,663,482 in 1930.

Voluntary sales and trades of farm realty were 19 per 1000 in the year ended Mar. 15, 1931, versus 23.7 in 1930, whereas forced transfers rose from 20.8 per 1000 in 1930 to 26.1 in 1931. Concurrently came a significant increase in the proportion of tenant-operated farms, which was 42.4 per cent in 1930 for the United States as a whole as compared with 38.6 per cent in 1925, and was reported in every State except Arizona and six Atlantic Coast States.

Agricultural credit conditions generally were extremely unsatisfactory, notwithstanding the important Federal legislation affecting agricultural credit put in effect during the last 15 years. This, as viewed by the U. S. Department of Agriculture was not wholly a reflection upon existing farm credit facilities, but was largely the result of the depressed condition of agriculture which weakened banking institutions. Local farm-credit facilities, barely adequate in normal times, were not prepared to handle the situation resulting from the 1930 drought and recent depression in farm prices. Accordingly, Congress passed legislation to supplement existing credit facilities and appropriated emergency funds, including \$45,000,000 for loans to farmers suffering from the 1930 drought, for the purchase of seed, feed, and fertilizer, \$2,000,000 for these purposes in a specific area suffering from storm and flood in 1929, \$20,000,000 for agricultural rehabilitation and for loans to individuals to buy stock in agricultural-credit corporations, livestock-loan companies and similar organizations.

Discussing credit and relief measures, President Hoover in his message to Congress, Dec. 8, 1931, stated:

To meet the emergencies in agriculture the loans authorized by Congress for rehabilitation in the drought areas have enabled farmers to produce abundant crops in those districts. . . . The action of the Federal Farm Board in granting credits to farm cooperatives saved many of them from bankruptcy and increased their purpose and strength. By enabling farm cooperatives to cushion the fall in prices of farm products in 1930 and 1931, the board secured higher prices to the farmer than would have been obtained otherwise, although the benefits of this action were partially defeated by continued world overproduction. Incident to this action the failure of a large number of farmers and of country banks was averted which could quite possibly have spread into a major disaster. The banks in the South have cooperated with the Farm Board in creation of a pool for the better marketing of accumulated cotton. Growers have been materially assisted by this action. Constant effort has been made to reduce overproduction in relief of agriculture and to promote the foreign buying of agricultural products by sustaining economic stability abroad.

Farm mortgage activities continued to be characterized by a conservative lending policy. Lower land values and falling prices of farm products induced restriction of amounts in new loans and a scaling down of amounts granted on renewals. As a consequence there was a reduction in the total farm mortgage holdings of the principal lending agencies. Farm mortgage loans by 40 life insurance companies aggregated Aug. 31, 1931, \$1,533,000,000, a progressive decline from \$1,618,000,000, Dec. 31, 1927; by Federal Land Banks \$1,171,000,000, Oct. 31, 1931 versus \$1,197,000,000, Dec. 31, 1929; Joint Stock Land Banks \$540,000,000, Oct. 31, 1931 versus \$667,000,000, Dec. 13, 1927; banks of Federal Reserve System \$389,000,000, June 30, 1931 versus

\$489,000,000, June 30, 1926; by Federal Intermediate Credit Banks—production and marketing loans for farmers' cooperative associations, \$47,027,000 and to financing agencies \$78,470,000 in October, 1931 versus \$62,984,000 and \$63,119,000 in October, 1930.

As the United States produces less for export, Secretary of Agriculture Hyde pointed out in his report, the tariff on agricultural products will become more effective. Agriculture will benefit by sharing in the results of a better adjustment of world production to world demand and by having a stronger, more sheltered domestic market.

The value of exports of agriculture commodities in the fiscal year ended June 30, 1931, amounted to \$1,038,000,000, or \$457,867,000 less than in the preceding year, and was the lowest since 1911. The percentage of agricultural products exported declined from 12.2 in 1928-29 to 10.2 in 1929-30, and probably declined more in 1930-31. Cotton suffered most from the reduction in foreign demand, although exports of meat and meat products, canned vegetables, and vegetable oils were reduced greatly. The volume of wheat and flour exports were 14 per cent and the value 38 per cent less than the previous season, whereas exports of leaf tobacco declined only slightly, and the exports of fresh and dried fruits rose considerably. Imports of agricultural products, reduced in volume and value, amounted to \$1,067,000,000, a decrease of 37 per cent from the preceding year. More coffee and tobacco were imported but values were less, imports of animal products were much lower in volume and value, and imports of sugar, tea, and vegetable oils were lower in value.

The farm population in the United States showed an increase, the first in two decades, being estimated from U. S. Department of Agriculture surveys, as of Jan. 1, 1931 at 27,430,000 as against 27,222,000 on Jan. 1, 1930. The movement to towns and cities comprised 1,543,000 in 1930, while 1,392,000 persons went from cities to farms. Balancing these movements and births and deaths left a net gain of 208,000 persons in farm population. The Census Bureau reported that on Apr. 1, 1930, the farm population was 30,447,550 or 24.8 per cent of the total population and the non-farm population living in rural territory 23,662,710. The population of the country increased 16.1 per cent between 1920 and 1930, but the farm population decreased 3.8 per cent, while the rural non-farm population increased 18 per cent.

CROP PRODUCTION IN 1931. The area of all crops harvested in the United States in 1931, exclusive of fruits, was estimated to be 350,672,000 acres, 2.6 per cent less than was harvested in 1930. This reduction was due to the decrease of more than 13,000,000 acres from drought and crop failures in California and five States in the northern great plains; acreages were higher in most parts of the country. While the United States in 1931 produced large crops of cotton, tobacco, and winter wheat, and short crops of hay, spring wheat, and flaxseed, there were no pronounced deficits or surpluses of the other staple crops. Apples and peaches were produced in abundance. Ample winter and early spring rains, followed by a dry growing season, were ideal for winter wheat, cotton, and tobacco. Although crops with large acreages in the West suffered greatly in the area drought stricken in 1930, only Montana, Wyoming, and western

North Dakota suffered again in 1931. There was abundant rain in the Ohio-Mississippi River area.

The value of the 1931 crops in the United States was estimated to be \$4,122,850,000 compared with \$5,818,820,000 in 1930, and \$8,088,494,000 in 1929. The percentage of decline was rather uniform in all parts of the country, but very heavy in the Dakotas, due to drought in 1931. The reductions in value were due primarily to the decline in prices and were shared by practically all crops being \$1,043,000,000 in corn, \$854,000,000 in cotton and cottonseed, \$446,000,000 in wheat, \$388,000,000 in hay, \$263,000,000 in potatoes, \$220,000,000 in oats, and \$130,000,000 in tobacco, and proportional decreases in less important crops.

The wheat crop of the United States was estimated at 892,271,000 bushels from 54,949,000 acres, an increase of 4 per cent in production from 6,189,000 fewer acres than in 1930. Based on the farm price reported December 1, 44.3 cents per bushel, the total value of the 1931 crop was \$395,600,000 compared with 60 cents and \$514,847,000 in 1930. The areas harvested and the total production were for winter wheat 41,009,000 acres, 787,465,000 bushels; durum 2,869,000 acres, 18,395,000 bushels; and other spring wheat 11,071,000 acres, 86,411,000 bushels.

Official estimates of 1931 wheat production for 41 countries which produce about 95 per cent of the world wheat crop, exclusive of Russia and China, totaled 3,542,684,000 bushels compared with 3,635,025,000 in 1930. The Canadian crop totaled 304,144,000 bushels, 93,728,000 less than that of the previous year. The 1931 production in 28 European countries was reported at 1,422,066,000 bushels compared with 1,366,692,000 bushels in 1930. See WHEAT.

The 1931 corn crop estimated at 2,557,000,000 bushels exceeded the 1930 crop by 24 per cent and the 1929 crop by 1 per cent. Acre yields in 1931 were materially higher in the area affected by the drought in 1930, but lower in the western States. Hot dry weather affected the crop adversely in five midwestern States and grasshopper damage also was a factor in part of this area. The acreage totaled 104,970,000, 4.2 per cent greater than in 1930, and the acre yield averaged 24.4 bushels, compared with 20.4 in 1930. Production of corn for grain was estimated at 2,200,000,000 bushels, and for fodder, hogging, and grazing, 11,626,000 acres. Corn production in 18 foreign countries amounted to 808,238,000 bushels, nearly 13 per cent more than their 1930 harvest. Nine European countries reported a total of 649,280,000 bushels, 16.7 per cent over 1930. See CORN.

The oats crop of 1931, was estimated to be 1,112,142,000 bushels, and harvested from 39,722,000 acres, compared with 1,277,764,000 bushels in 1930 from about the same area. The yield per acre averaged 28 bushels, 4 bushels less than in 1930. Oats production in 31 countries accounting in 1930 for about 94 per cent of the world total, excluding Russia and China, amounted to 3,157,051,000 bushels, 7 per cent less than in the previous year, and that of 24 European countries 1,610,393,000 bushels versus 1,588,072,000 in 1930. See OATS.

Barley production in 1931 was estimated at 198,965,000 bushels raised on 11,471,000 acres averaging 17.3 bushels per acre compared with

304,601,000 bushels on 12,662,000 acres averaging 24.1 bushels in 1930. The smaller production was in northern and western States, a consequence of reduced plantings due to moisture shortage, yields lowered by heat and drought, and more than the usual acreage cut for hay. The barley crop in 37 countries was reported to be 1,168,199,000 bushels, nearly 16 per cent below their 1930 production. The 25 European countries reporting showed a total of 649,639,000 bushels, 7.9 per cent less than in the previous year. See BARLEY.

The rye crop declined to 32,740,000 bushels on 3,143,000 acres in 1931 from 45,379,000 bushels on 3,543,000 acres in 1930. It averaged 10.4 bushels per acre in 1931 and 12.8 in 1930. Drought conditions in the northwestern States greatly reduced the harvested acreage. The 1931 rye crop in 24 reporting countries, accounting for about 96 per cent of the world production, except Russia and China, was estimated to total 797,259,000 bushels against 975,728,000 in 1930. Buckwheat production totaled 8,875,000 bushels from 502,000 acres, about 27 per cent over 1930, although on 71,000 fewer acres. Rice made 45,014,000 bushels, with small increases in yield and acreage over 1930. See RYE, RICE.

Total production of flaxseed in 1931 was 11,018,000 bushels from 2,313,000 acres as compared with 21,240,000 bushels and 3,047,000 acres in 1930, the reduction in yield and acreage being due to severe summer drought. Feterita, kafir, milo, and other grain sorghums produced an estimated equivalent of 104,529,000 bushels from 7,152,000 acres; a substantial increase in acreage was accompanied by good acre yields. Production of threshed or headed grain sorghums was 69,558,000 bushels, and of forage 3,533,000 tons. Broomcorn production was 47,900 tons from 309,000 acres.

Production of sorghum (sorgo) sirup amounted to 17,818,000 gallons, sugar cane sirup, 14,859,000 gallons, maple sugar 1,653,000 pounds, and maple sirup, 2,517,000 gallons. Sugar made from the sugar beet crop of 1931 was estimated at 7,933,000 tons from 720,000 acres against 9,199,000 tons from 775,000 acres in 1930. About the usual acreage of sugar cane in Louisiana was expected to produce 156,000 tons of sugar compared with 184,000 in 1930. See SUGAR.

The total hay crop, one of the shortest in years, largely due to drought, was estimated at 72,366,000 tons, of which tame hay made up 64,233,000 tons and native or wild grasses 8,133,000 tons. The totals included alfalfa, 20,914,000 tons; clover and timothy, 27,594,000 tons; sweet clover, 765,000 tons; lespedeza, 384,000 tons; annual legume hay, 4,420,000 tons; grain hay, 4,645,000; sweet sorghum forage, 3,676,000 tons; and other hay crops, 5,511,000 tons. Larger yields of timothy seed and lespedeza seed and smaller crops of seed of alfalfa, red and alsike clover, and sweet clover were reported in 1931. See HAY.

The potato crop was estimated at 376,248,000 bushels compared with 333,210,000 bushels in 1930; the average yield per acre 111.3 bushels was slightly higher but the farm valuation \$161,264,000, was 45 per cent below that of 1930 and 62 per cent less than in 1929. The Canadian crop was reported to be 87,172,000 bushels. Estimated production in 17 European countries producing about 75 to 80 per cent of the Euro-

PRODUCTION BY COUNTRIES IN 1930 AND 1931 OF WHEAT, RYE, OATS, BARLEY, AND MAIZE (CORN) IN BUSHELS\*  
[International Institute of Agriculture and U. S. Department of Agriculture]

Country	Wheat			Rye			Oats			Barley			Maize (corn)		
	1931	1930		1931	1930		1931	1930		1931	1930		1931	1930	
United States	892,271,000	858,160,000		32,746,000	45,379,000		1,112,142,000	1,277,764,000		198,965,000	304,601,000		2,556,863,000	2,060,185,000	
Canada	304,144,000	397,872,000		5,322,000	22,018,000		338,278,000	423,148,000		67,332,000	135,160,000		5,643,000	5,826,000	
Mexico	15,778,000	11,446,000		4,724,000	4,724,000		49,604,000	68,293,000		14,238,000	16,131,000		372,590,000	52,000,000	
Argentina	235,958,000	162,516,000		120,000	142,000		5,109,000	10,403,000		3,876,000	7,073,000		249,156,000	3,000,000	
Chile	21,190,000	37,052,000		18,322,000	20,613,000		22,956,000	27,606,000		10,665,000	12,278,000		5,917,000	4,447,000	
Austria	9,384,000	12,008,000		21,574,000	28,406,000		12,635,000	17,998,000		21,353,000	27,605,000		57,605,000	55,895,000	
Hungary	69,187,000	84,337,000		50,498,000	68,047,000		82,893,000	90,101,000		45,446,000	55,934,000		8,748,000	9,783,000	
Czechoslovakia	38,317,000	50,606,000		21,195,000	18,630,000		38,223,000	38,223,000		3,396,000	3,835,000		39,256,000	30,515,000	
Belgium	15,255,000	13,236,000		12,072,000	12,620,000		8,605,000	7,616,000		16,560,000	19,869,000		.....	.....	
Bulgaria	61,195,000	57,317,000		8,661,000	10,026,000		64,760,000	68,725,000		44,551,000	48,271,000		.....	.....	
Denmark	9,921,000	10,216,000		5,657,000	8,885,000		10,723,000	10,870,000		5,836,000	5,893,000		.....	.....	
Estonia	1,562,000	1,635,000		1,210,000	1,410,000		45,886,000	41,458,000		6,430,000	6,223,000		.....	.....	
Finland	1,139,000	231,119,000		31,013,000	29,255,000		344,222,000	302,749,000		54,807,000	45,336,000		.....	.....	
France	269,630,000	139,217,000		262,892,000	302,317,000		427,482,000	389,960,000		138,628,000	131,369,000		.....	.....	
Germany	155,545,000	12,493,000		1,815,000	1,866,000		6,614,000	5,991,000		9,172,000	8,173,000		.....	.....	
Greece	12,228,000	210,071,000		6,195,000	6,127,000		41,658,000	36,838,000		11,020,000	11,202,000		.....	.....	
Italy	247,933,000	4,062,000		5,595,000	14,377,000		24,631,000	23,537,000		9,232,000	8,605,000		.....	.....	
Latvia	3,502,000	11,327,000		16,121,000	25,177,000		29,427,000	26,871,000		11,133,000	10,883,000		.....	.....	
Lithuania	8,555,000	442,000		306,000	556,000		2,749,000	2,750,000		206,000	234,000		.....	.....	
Luxemburg	372,000	6,056,000		12,125,000	14,892,000		18,960,000	20,454,000		3,674,000	4,040,000		.....	.....	
Netherlands	6,268,000	720,000		598,000	556,000		10,433,000	13,621,000		4,703,000	4,922,000		.....	.....	
Norway	752,000	80,835,000		224,397,000	273,923,000		165,000,000	161,738,000		69,355,000	67,238,000		.....	.....	
Poland	12,052,000	130,770,000		15,747,000	18,288,000		55,804,000	79,679,000		70,274,000	108,916,000		.....	.....	
Portugal	127,867,000	1,083,921,000		15,512,000	21,544,000		42,380,000	49,995,000		90,129,000	103,926,000		.....	.....	
Rumania	134,144,000	146,699,000		18,204,000	18,005,000		67,310,000	79,058,000		10,659,000	11,021,000		.....	.....	
U. S. S. R.	19,621,000	21,469,000		1,429,000	1,484,000		3,000,000	2,659,000		615,000	496,000		.....	.....	
Spain	4,361,000	3,601,000		42,082,000	80,325,000		128,177,000	139,153,000		38,793,000	38,815,000		.....	.....	
Sweden	37,736,000	98,803,000		8,121,000	7,825,000		19,098,000	19,634,000		17,051,000	18,574,000		.....	.....	
Switzerland	110,000,000	103,853,000		.....	.....		.....	.....		.....	.....		.....	.....	
United Kingdom	347,275,000	390,843,000		.....	.....		.....	.....		.....	.....		.....	.....	
Yugoslavia	8,948,000	8,985,000		.....	.....		.....	.....		.....	.....		.....	.....	
Turkey	30,892,000	29,538,000		.....	.....		.....	.....		.....	.....		.....	.....	
British India	18,555,000	18,555,000		.....	.....		.....	.....		.....	.....		.....	.....	
Korea	32,249,000	32,249,000		.....	.....		.....	.....		.....	.....		.....	.....	
Japan	29,578,000	39,753,000		.....	.....		.....	.....		.....	.....		.....	.....	
Syria and Lebanon	46,071,000	21,302,000		.....	.....		.....	.....		.....	.....		.....	.....	
Algeria	34,708,000	21,302,000		.....	.....		.....	.....		.....	.....		.....	.....	
Morocco (French)	13,900,000	18,555,000		.....	.....		.....	.....		.....	.....		.....	.....	
Tunis	29,578,000	39,753,000		.....	.....		.....	.....		.....	.....		.....	.....	
Australia	212,629,000	126,885,000		.....	.....		.....	.....		.....	.....		.....	.....	
New Zealand	7,055,000	7,240,000		.....	.....		.....	.....		.....	.....		.....	.....	
Union of South Africa	10,180,000	11,140,000		.....	.....		.....	.....		.....	.....		.....	.....	

\* The production given countries in the Southern Hemisphere is for the crop years 1930-31 and 1929-30; also for maize production in British India.

pean crop, exclusive of U.S.S.R. (Russia) was 3,805,000,000 bushels compared with 3,914,000,000 bushels in 1930. The acreage under potatoes in the U.S.S.R. was reported at 14,838,000 in 1931 versus 14,378,000 in 1930. The sweet potato crop was estimated to be 62,904,000 bushels, and the peanuts harvested for picking or threshing at 1,083,110,000 pounds. See **POTATOES**.

Tobacco production in 1931 was 1,610,098,000 pounds from 2,019,000 acres, 1.5 per cent less than the record crop of 1930, and on an acreage less than 4 per cent smaller. There were increases in the production of the fire-cured class which was estimated to comprise 197,267,000 pounds of the total, Burley, 464,955,000 pounds, Southern Maryland 31,540,000 pounds, and dark air-cured 71,657,000 pounds, whereas flue-cured, the class ranking first in importance, produced 657,715,000 pounds, about 23.9 per cent less than in 1930. The production of cigar filler, 91,857,000 pounds, was higher than in 1930, while in the cigar binder class with 84,873,000 pounds, and cigar wrapper 8,794,000 pounds, production was lower. Farm prices reported December 1, averaged 9.7 cents a pound compared with 12.9 cents in 1930. See **TOBACCO**.

The cotton crop of the United States, according to December 1 estimates, was 16,918,000 bales, the second largest ever produced in the United States, and 2,986,000 more than in 1930 and the cotton was harvested from 40,495,000 acres compared with 45,091,000 acres in 1930. The yield of lint per acre averaged 200.1 pounds in 1931 and 147.7 in 1930. The 1931 season was extraordinarily favorable for the production of cotton, in regard to planting conditions, weevil infestation, growth, maturity, and harvest conditions. Exports of cotton during the cotton year ended July 31, 1931, totaled 6,759,927 bales compared with 6,689,796 in the previous year. France and Japan were the only major consuming countries increasing their imports. The producer received an average of 5.7 cents per pound for cotton lint on December 1, 1931, compared to 9.5 cents in 1930. See **COTTON**, and articles on other individual crops.

**FEDERAL FARM BOARD.** The board in spite of unfavorable economic conditions, during the two and one-half years of its existence, continued to make substantial progress toward the main objective of the Agricultural Marketing Act of 1929,—the development of a national programme of improved marketing and production adjustment for the permanent betterment of American agriculture. The board's major activities, as in its first year, were directed toward aiding farmers as far as possible to carry forward the co-operative movement on a sound basis. Emergency efforts to protect wheat and cotton growers from threatened collapse of the markets for these commodities were continued for the benefit of the farmers and the country as a whole.

**Coöperative Marketing.** Major efforts were centred on strengthening and expanding existing coöperatives and unifying their sales activities. The six active national coöperative sales agencies dealt in grain, cotton, livestock, wool and mohair, pecans, and fruits and vegetables. There were many regional and State associations formed for dairy products, poultry products, fruits and vegetables, potatoes, beans, sugar beets, and other products.

The 11,950 coöperative associations operating during the fiscal year 1930-31 had an active mem-

bership estimated to include over 2,000,000 different farmers. The total business transacted by coöperative associations in 1930-31 was \$2,400,000,000, of which \$130,000,000 represented the sale of cotton and cotton products; dairy products \$620,000,000; forage crops \$1,200,000; fruits, vegetables and nuts, \$332,000,000; grains, \$621,000,000; livestock, \$300,000,000; poultry and poultry products, \$86,000,000; tobacco, \$7,000,000; wool and mohair, \$26,000,000; miscellaneous commodities \$61,800,000; and purchase of supplies, \$215,000,000. Since 1927-28 the number of associations increased approximately 500, and the volume of business they handled increased in value by \$100,000,000, in spite of the lower prices.

As examples of the volume handled by the national coöperative marketing agencies, Farmers National Grain Corporation, with 27 regional members serving 250,000 farmers, handled about 196,000,000 bushels of grain in terminal markets; the American Cotton Coöperative Association and Staple Cotton Coöperative Association, with combined memberships of more than 160,000, handled 2,442,001 bales; National Wool Marketing Corporation, serving 40,000 wool and mohair growers, handled 130,349,499 pounds; and the National Livestock Marketing Association, serving 300,000 producers, handled more than 8,000,000 head of livestock.

Up to June 30, 1931, the board made loans from the 500,000,000 revolving fund to 105 co-operative associations with which were affiliated nearly 3325 regional or local associations having 1,110,000 members or approximately 730,000 individual farmers. Such loans amounted to \$255,866,458, of which \$146,367,203 had been repaid. Up to November 1, loans, exclusive of stabilization operations, had been made to associations in the amount of about \$326,000,000, of which about \$175,000,000 was repaid. Besides direct loans the board assisted coöperatives by organization surveys, by aid in improving methods of operation and management, in maintaining sound relations with members, in developing sound sales policies, and in improving the quality of services rendered.

**Stabilization Operations.** The stabilization operations in grain and cotton, undertaken as emergency measures, did much to cushion the decline of agricultural prices and to prevent the demoralization of business in the rural sections of the country. Wheat stabilization activities, made necessary by the acute situation, the board reported, sustained American prices well above world markets for six months, added millions of dollars to farmers' incomes, and gave farmers and business organizations a breathing spell in which to readjust to a lower level of prices. Cotton prices, supported through loans to co-operatives and the withholding from the market of stabilization stocks acquired the previous year, were sustained through the marketing year higher than they otherwise would have been, to the benefit of cotton growers and the nation. The downward trend in business conditions of the fiscal year 1930-1931 made stabilization operations unusually hazardous and reduced the possibility of conducting such operations without incurring losses.

Purchases of wheat up to June 30, 1931, by the Grain Stabilization Corporation totaled 329,641,052 bushels at a cost of \$270,204,303.78, or an average of 81.97 cents a bushel. Sales for export, milling, and other purposes left 257,136,571

bushels, June 30, 1931. Up to Nov. 1, sales were made to Brazil, 25,000,000 bushels (in exchange for 1,050,000 bags of coffee); to China, 15,000,000 bushels, and to Germany, 7,500,000 bushels, and in addition, sales in regular trade channels nearly equaled the 5,000,000 bushel monthly cumulative maximum. Unsold wheat owned by the corporation on November 1, totaled 189,656,187 bushels, worth at current prices, about \$120,000,000.

Up to June 30, 1931, the Cotton Stabilization Corporation had purchased 1,319,809 bales of cotton at a cost of \$107,533,246, or an average purchase price of \$81.48 per bale, or 16.3 cents per pound. Net sales for all purposes left 1,310,789 bales owned on June 30, 1931. This cotton, still on hand Nov. 1, 1931 was estimated to be worth about \$45,000,000 at current prices. The banks of the cotton-producing States agreed in October to make or renew loans to mature not earlier than July 31, 1932, secured by cotton totaling at least 3,500,000 bales. The board agreed not to call the obligation of the cotton co-operatives, covering about 2,000,000 bales, unless such cotton could be sold at more than 12.5 cents per pound before July 31, 1932, and that the Cotton Stabilization Corporation would maintain its backlog of approximately 1,300,000 bales until July 31, 1932, on the same terms. In addition, the board agreed to extend these commitments to July 31, 1933, if cotton acreage was substantially reduced in 1932.

That there were rigorous limits as to what stabilization operations could accomplish, was recognized by the board. Successful stabilization means keeping prices from going unduly low in periods of large supplies or poor demand and from becoming unduly high during periods of short supplies or of inflation. Prices cannot be kept artificially high over long periods by such methods. The experience of the two years showed the futility of engaging in stabilization purchases for any product over a period of years in the face of constantly accumulating surplus. Stabilization involves selling as well as buying. Permanently holding the price higher than it would be otherwise cannot be done without control of production. The board's experience showed that with the existing organizations and legislation it was not yet possible to control agricultural production.

**Other Activities.** In efforts to aid orderly production the board during the year urged reduction of acreage of particular crops for which an excess acreage was indicated in the coming year; collaborated with the U. S. Department of Agriculture and State agricultural colleges in their agricultural outlook service; and analyzed the possibilities of reducing agricultural output by measures designed to transfer land from agricultural to other uses.

Close cooperation was maintained with the U. S. Department of Agriculture, Federal Board for Vocational Education, and with the State colleges of agriculture and vocational teachers. Where their resources were inadequate for certain needs, as in special personnel, more complete market data on certain products, and research in the broad field of marketing, the board instead of setting up a parallel service, advised enlargement of the facilities of the other institutions. Advisory committees established by co-operatives for cotton, dairy products, wheat, coarse grains, livestock, wool and mohair, and

sugar beets and sugar cane, advised the board with respect to problems touching their particular commodities. A number of State coöperative councils created during the year made possible periodical State conferences of representatives of coöperatives and of the various agencies interested in developing the coöperative organization programme.

The membership of the board at the end of 1931 included J. C. Stone (Chairman), Ky.; Carl Williams, Okla.; C. B. Denman, Mo.; C. S. Wilson, N. Y.; W. F. Schilling, Minn.; S. H. Thompson, Ill.; Frank Evans, Utah; and Secretary of Agriculture A. M. Hyde, member ex-officio. Consult also *Second Annual Report of the Federal Farm Board for the year ending June 30, 1931*; *The Farm Board*, Federal Farm Bd. Circ. 3 (1931); *Financial Structure of Cooperatives*, Federal Farm Board Circ. 4 (1931).

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**AGRICULTURE, U. S. DEPARTMENT OF.** The U. S. Department of Agriculture during the fiscal year ended June 30, 1931, continued in full force its activities along the three principal lines of research, regulation, and extension. The classification of the Department's work under these three heads is reflected in its general organization which includes a director of scientific work, a director of regulatory work, and a director of extension work in charge respectively of scientific research and discovery, of the police powers of the Department in the enforcement of regulatory laws and of the extension service charged mainly with disseminating and bringing into use information applicable on the farm and in the farm home.

The report of the Secretary of Agriculture for the year described the regular lines of work of the Department and the activities demanded to meet emergencies and reviewed the agricultural situation within the country as well as in its world-wide aspects. World influences on American Agriculture, home market and farm incomes, crop adjustments, and the conditions surrounding the various branches of crop and livestock production were discussed. Attention was given also to drouth relief, exports and imports, the value of farm lands and their right utilization, farm taxation and agricultural credit, changes in the farm population, the national forests, and other subjects of agricultural and national importance.

For assistance to farmers in the drouth stricken areas of 1930 the Department administered a fund of \$57,000,000. Approximately \$47,000,000 of this amount was borrowed by more than 385,000 applicants for the purchase of seed, fertilizer, feed for livestock and other farm needs. These loans made in 1646 counties in 31 States were handled through field offices in Washington, D. C., Memphis, Tenn.; Fort Worth, Texas; St. Louis, Mo.; and Grand Forks, N. D. Through the extension forces supplies of feed and forage were located and the railroads granted reduced freight rates on shipments of hay, feed, and water to the drouth sufferers and on the outward movement of livestock from such areas. Through the agricultural organizations help was extended to farmers in the use of the money borrowed and in the utilization of the resources within their reach. Advice was given in the planting of fall gardens and of forage crops for fall and spring pastures and in the preserving of food supplies that were available. Further assistance was rendered in making crop adjustments with greater provision for feed and food and with better adaptation to market requirements.

The Department of Agriculture was authorized also to extend unemployment relief through the expenditure of additional funds appropriated by Congress for Department activities and the use of appropriations before they were to become available. In this way increased funds were provided for the construction of State highways and of roads and trails in the national forests. Employment was given also in the repair, construction, and improvement of equipment used in the Department's research and service work. Over \$100,000,000 was appropriated with a view to relieving unemployment and for varying

periods work was provided for nearly 200,000 men who were needing immediate employment.

The efforts to reduce unemployment advanced the Federal-aid road construction programme to a marked extent. The Federal-aid funds used for the purpose during the year reached the sum of \$133,340,910.64 or more than was ever paid to the States in this connection in a single year. It was estimated that during the latter half of the fiscal year about 300,000 men were occupied directly and indirectly in the road-building work in which the Department through the Bureau of Public Roads took part. During the fiscal year Federal-aid improvement was completed on 11,033 miles of road including 7939 miles receiving Federal-aid improvement for the first time, 3082 miles to which a further degree of betterment was added and 12 miles reconstructed. The total cost of this work was \$255,088,414.09 including a Federal contribution of \$105,918,451.14, the rest coming from the States. At the close of the fiscal year work was in progress on 16,481 miles of road of which 12,306 miles were receiving Federal aid for the first time. The total completed mileage improved with Federal aid up to date was reported as 88,713 miles including nearly 390 miles of bridges over 20 feet in span and their immediate approaches.

The more important changes on the Department's staff of workers during the fiscal year included the appointments of Henry A. Nelson as chief of the new Division of Operation of the Office of the Secretary, of Frank H. Spencer, assistant to the Secretary, as chief of the Division of Administration, Bureau of Entomology, and of S. A. Rohwer, assistant chief of the Plant Quarantine and Control Administration, as assistant chief of the Bureau of Entomology. At the close of the year the Division of Agricultural Engineering of the Bureau of Public Roads became the Bureau of Agricultural Engineering and S. H. McCrory, for many years head of the division, was appointed chief of the new bureau.

At this time also Dr. L. O. Howard, chief of the Bureau of Entomology from 1894 to 1927 and since then member of the Department's scientific staff, retired from the Government service. Dr. Howard was the recipient in 1931 of the Capper award for outstanding service to agriculture, established by Senator Capper of Kansas and consisting of a gold medal and five thousand dollars. Since the close of the year Avery S. Hoyt formerly director of agriculture in California was appointed assistant chief of the Plant Quarantine and Control Administration, J. T. Jardine, director of the Oregon Agricultural Experiment Station, entered upon the position of chief of the Office of Experiment Stations and Asher Holson in charge of the Foreign Agricultural Service Division of the Bureau of Agricultural Economics resigned to become professor of agricultural economics at the University of Wisconsin. On Aug. 6, 1931 occurred the death of Dr. Russell A. Oakley in charge of the Division of Forage Crops and Diseases of the Bureau of Plant Industry. Dr. Adrian J. Pieters of the same division was appointed to fill the vacancy.

During the fiscal year ended June 30, 1931, the Department of Agriculture expended a total of \$313,543,238. Of this amount \$21,812,529 was used for research, \$11,344,478 for extension, \$14,131,333 for eradication or control of crop and animal pests, \$11,961,027 for regulatory work, \$74,181,856 for service activities and \$180,112,-



015 for road construction. Over 80 per cent of the expenditures were devoted to service work and the building of roads.

**AIRCRAFT CARRIERS.** See NAVAL PROGRESSES.

**AIRPLANES, AIR RECORDS, AIRSHIPS,** etc. See AERONAUTICS.

**AIRPORTS.** See AERONAUTICS; PORTS AND HARBORS.

**AKRON, THE UNIVERSITY OF.** A coeducational institution of higher learning in Akron, Ohio, founded in 1870 as Buchtel College and taken over by the city and renamed in 1914. The enrollment for the summer session of 1931 was 419 students and for the autumn day session, 1183 students, distributed as follows: College of liberal arts, 491; home economics department of liberal arts, 29; teachers college, 259; college of engineering and commerce, 404; 985 students were enrolled in the autumn evening session. There were 84 faculty members. The amount of endowment was \$72,922 and the income for the year, including tax levy from the city, \$428,732. There were 32,224 volumes in the library. Among the important gifts received during the year was \$175,000 from the Daniel Guggenheim Fund for the Promotion of Aeronautics for an airship research institute. President, George Frederick Zook, Ph.D.

**ALABAMA. POPULATION.** According to the Fifteenth Census the population of the State on April 1, 1930, was 2,646,248, as against 2,348,174 in 1920. For 1930, the number of native whites was 1,685,065; it had been 1,429,370 for 1920. The number of Negroes, 944,834 for 1930, revealed a less rapid increase, from 900,652 for 1920. The small foreign-born white population declined to 15,710 for 1930, from 17,662 for 1920. Birmingham, the chief city, had 259,678 inhabitants in 1930; 178,806 in 1920. Mobile had 68,202 in 1930; 60,777 in 1920. The capital, Montgomery, had 66,079 in 1930; 43,464 in 1920. Of the population, 772,281 males and 254,014 females were engaged in all occupations. As farmers were occupied 235,005 males and 17,255 females; as wage workers on farms, 63,181 males and 16,922 females; as unpaid family workers on farms, 88,887 males and 70,245 females. Factory operatives numbered 30,836 males and 16,161 females; factory laborers, 51,366 males and 2,168 females. There were 23,965 coal-mine workers. Of all those listed as gainfully employed, 31,565 were of age from 10 to 13 years, inclusive.

**AGRICULTURE.** The following table gives the acreage, production and value of the principal crops for 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton ...	1931	3,420,000	1,430,000*	.....
	1930	3,770,000	1,478,000*	.....
	1931	3,101,000	43,414,000	\$17,800,000
Corn .....	1931	2,819,000	29,600,000	28,416,000
	1930	615,000	477,000*	4,293,000
	1930	432,000	806,000*	4,621,000
Hay, tame ..	1931	78,000	5,304,000	3,448,000
	1930	68,000	5,780,000	4,913,000
	1931	382,000	229,200,000*	3,438,000
Peanuts ..	1930	864,000	218,400,000*	6,115,000
	1931	39,000	3,666,000	2,566,000
	1930	28,000	2,184,000	3,167,000
Potatoes ..	1931	153,000	3,366,000	1,313,000
	1930	90,000	1,440,000	922,000

\* Bales.    \* Tons.    \* Pounds.

**MINERAL PRODUCTION.** The production of coal, normally supplying the greater part of the State's mineral yield, was much curtailed in 1930, attaining only to 15,570,058 short tons as against 17,943,923 tons (1929); in value \$31,616,000 was mined in 1930 and \$37,309,000 was mined in 1929. The production of coke, being even more sharply reduced in proportion to total, accounted for much of the decline in coal. Coke produced in the by-product ovens totaled 3,986,920 short tons for 1930, as against 4,753,967 for 1929; in value, it attained \$10,741,937 for 1930 and \$12,659,148 for 1929. The State's production of iron ore fell off conformably to 5,636,678 long tons for 1930, from 6,637,299 for 1929; in value it diminished to \$11,015,336 for 1930, from \$12,575,113 for 1929. The State's shipments of pig iron were 2,294,513 long tons for 1930, as against 2,697,814 for 1929, while the value of these shipments, \$31,083,005 for 1930, was greatly below the \$43,674,910 of 1929. Shipments of Portland cement totaled 4,689,516 barrels for 1930 and 5,228,947 for 1929; the total value of the shipments was more nearly maintained, being \$5,829,818 for 1930 and \$5,911,031 for 1929. There were produced, of lime, 174,000 short tons in 1930 and 209,260 in 1929; by value, \$937,000 in 1930 and \$1,223,623 in 1929. Clay products totaled \$4,001,633 for 1929 (\$4,072,802 for 1928). Stone was quarried in 1929 to the quantity of 1,262,120 short tons, in value \$2,249,601. The total value of the State's mineral product was \$65,402,354 for 1929; for 1928, \$69,807,334.

**MANUFACTURES.** Federal Census data obtained in 1930 and covering 1929 gave the number of manufacturing establishments in the State as 2848. These employed 120,064 wage earners, to whom wages of \$102,040,108 were paid. The number of the wage earners was less than 1 per cent above that for 1927, while the total of wages paid was some 3 per cent less. The materials used in production in 1929 cost \$258,071,960; fuel and purchased electricity, \$41,447,011. The manufactured products of 1929 were valued at \$560,974,640, which was about \$10,600,000 above the corresponding total for 1927. Value added by manufacture was estimated for 1929 as \$261,445,660. Birmingham had in 1929 318 establishments, employing 18,318 wage earners, to whom were paid \$21,505,390; its manufactured product was valued (1929) at \$137,101,685.

**FINANCE.** As stated by the U. S. Department of Commerce, the expenditures of Alabama in the year ended Sept. 30, 1930, were \$35,533,321; revenue, \$30,275,999; debt outstanding at close of year, \$67,684,845; year's direct State tax levy, \$8,044,397.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 5249.20. This was less by 8.35 miles than the total of a year before. No new trackage was reported to have been built in 1931.

**EDUCATION.** For 1930 the number of persons of school age in the State was reported as 875,576. There were in that year 622,988 enrolled pupils. Of these, 500,653 were in grades from the first to the sixth, inclusive. In grades from the seventh to the twelfth, inclusive, were 122,335. The total expenditure for public-school education in 1930 was \$22,654,507. Salaries of teachers averaged, by the year, \$628 for the elementary grades, \$1101 for the high schools, and \$761 for both groups. The figures above all related to education for the colored as well as the whites.

The system of State aid for public schools was subjected during the legislative session of 1931 to efforts to reduce the amount of aid in the interest of retrenchment, but reductions were small.

**LEGISLATION.** The sixty-seventh regular session of the State Legislature convened in January and adjourned finally on July 26, having been extended by intermediate adjournment. It dealt with a large and troublesome deficit in the State finances by voting a proposal for a constitutional amendment to authorize the issuance of \$15,000,000 in State warrants, redeemable in 20 years. A further proposed constitutional amendment, to be submitted to popular vote for ratification at the autumn election, was voted, calling for the termination of the State ad valorem tax and the creation, in its place, of a tax on net incomes, at rates not less than 1 per cent nor more than 10 per cent. The rate of the impost on sales of gasoline was raised by statute to 5 cents a gallon, from 4 cents. A measure requiring popular ratification as a proposed constitutional amendment was passed to authorize the issuance of \$25,000,000 of highway bonds, with which to meet costs of further road construction. Natural gas distributed within the State—a pipe line having introduced natural gas in large quantity in the preceding year—was subjected to a State tax, at the rates of  $\frac{1}{2}$  cent a thousand feet for 1931,  $\frac{3}{4}$  cent for 1932 and 1 cent thereafter. A proposal to amend the State constitution so as to increase the membership of the State Senate to 67, from 32, was passed, for submission to popular vote in 1932. By the Sanderson acts, passed over Governor Miller's veto, judges of the Circuit Court were empowered to grant probation to criminals receiving sentences up to the term of 10 years, and provision was made for the appointment of probation officers. The dimensions and loads permissible for motor carriers were limited by statute. Aircraft and pilots were placed under State license. Funds paid a bank or trust company for the purpose of transfer by draft or cashier's check were granted the status of preferred claims on such an institution's assets.

**POLITICAL AND OTHER EVENTS.** State Commissioner of Agriculture Storrs addressed to his colleagues of other States early in the year a series of appeals against proposed State and Federal legislation to tax out of business lard and butter substitutes containing cottonseed oil. In conformity with a suggestion made in President Hoover's message vetoing the Federal measure for the disposal of Muscle Shoals, Governor Miller of Alabama named a State commission of 3 members in July to cooperate with a Federal Commission and with a like Commission from Tennessee in seeking plans for disposing of the Federal power plant at the Shoals. Popular vote in Birmingham on March 12 approved an issue of \$1,500,000 of bonds for the cost of the new Jefferson County Court House, to cost in all \$3,000,000, and work on the structure was carried toward completion. The State Supreme Court in an opinion rendered in July declared invalid the action of the Legislature to submit to popular vote an amendment to authorize an income tax.

**ELECTIONS.** The proposed constitutional amendment to permit the issuance of \$25,000,000 of State highway bonds backed by a cent a gallon

of taxation on sales of gasoline was emphatically defeated at the polls on November 3. The reported adverse vote was at the rate of about two to one.

**OFFICERS.** Governor, B. M. Miller; Lieutenant-Governor, Hugh D. Merrill; Secretary of State, Peter B. Jarman, Jr.; Treasurer, Sidney H. Blan; Auditor, John Brandon; State Superintendent of Education, A. F. Harman; Attorney-General, Thomas E. Knight, Jr.

**JUDICIARY.** Supreme Court: Chief Justice, John C. Anderson; Associate Justices, William H. Thomas, A. D. Sayre, A. B. Foster, Lucien D. Gardner, Virgil Bouldin, and Joel B. Brown.

**ALABAMA, UNIVERSITY OF.** A coeducational State institution for higher learning at University, Ala., founded in 1831. For the autumn term of 1931 the enrollment was 4375, distributed as follows: Arts and science, 1859; engineering, 686; law, 192; medicine, 92; graduate, 118; education, 524; commerce, 789; chemistry, 57; and home economics, 58. The summer school registration was 2356. The faculty for 1931-32 numbered 182. The productive funds of the university amounted to \$2,147,599, and the income for the year was \$1,467,000. The library contained about 75,000 volumes, of which 20,000 were government documents. The university's centennial was observed May 10-12, 1931, the address being delivered by Claude G. Bowers, author and editor, of New York City. In January a centennial radio programme was inaugurated, depicting once a week until May, through dramatization or exposition, the history of the University of Alabama. The celebration culminated in the centennial pageant on May 11. President, George H. Denny, Ph.D., LL.D.

**ALASKA.** A territory of the United States, the most extensive of the noncontiguous territories and possessions under the American flag. It forms a peninsula at the northwestern extremity of the North American Continent. Its total area is 586,400 square miles. The capital is Juneau. The population, according to the Fifteenth Census, was 59,278 in 1930; in 1920 it was 55,036.

**GEOLOGY.** Using a Federal appropriation of \$250,000 the U. S. Geological Survey carried out in 1931 what was described as the most significant effort yet made to determine the mineral values of the Territory. A preliminary announcement giving tentative results was made November 8. In the Fairbanks district it was found that the Ryan lode might be judged to contain well over 1,000,000 tons of ore carrying between \$4 and \$5 of gold to the ton, but it remained to be determined whether, as a mining problem, the extraction of the ore could be profitably effected. It was reported that no mine in the district had yet reached a depth of more than 300 feet, so that the question of the continuation of gold-bearing ore in depth remained entirely unsettled. In the Eva Creek district gold ore reserves were estimated at from 25,000 to 50,000 tons bearing more than \$20, in the area of active mining, while the surrounding area had been little prospected.

In the Kantishna district the country rock was described as schist cut by small bodies of intrusive rock; the economic minerals reported were free gold, auriferous pyrite or arsenopyrite, argeniferous galena, sphalerite, tetrahedrite, and stibnite. The character of ore examined



suggested the possibility of its extension to greater depths than had been mined. The completion of an automobile road to this district from the Mount McKinley National Park was an influence likely to promote development.

The Mount Eielson district in Mount McKinley National Park was also made accessible by automobile road. It was described as characterized by a thick series of thin-bedded shales and limestones cut by the granitic mass of Mount Eielson from which many dikes and sills issued. Sphalerite was found to be the most abundant sulphide mineral, followed by galena of considerable silver content. In the Valdez Creek district were reported lenses of quartz in sheared or altered diorite or in slate, the veins ranging up to several feet in width and traceable in some cases for several hundred feet at the surface, yielding samples of substantial gold content.

The Chilitna West Fork district was described as offering quartz veins with gold value, accompanied by altered or sheared rock. Copper and some lead and arsenic were found to be present. The district was not found to contain high grade gold ore in large masses. The Willow Creek quartz veins were found to afford resemblance to California veins that had been mined profitably to great depths. In the Matanuska Valley area a study made of the extent and structure of the anthracite deposit of Anthracite Ridge led to the estimate that some 500,000 tons were present but that structure and topography prevented economic exploitation. Related beds were surmised to lie southward, covered by glacial deposits. Core drilling to determine the presence of surmised underlying beds was intended.

**MINERAL PRODUCTION.** The mineral product of the territory for 1930, \$13,812,000 in value according to revised figures, represented a decrease of some 15 per cent from the total for 1929. The fall was essentially in the value of the copper production, which declined to \$4,244,600 for 1930, from \$7,130,000 for 1929. Silver, produced incidentally to the production of other metals, declined to \$157,300 for 1930, from \$252,000 for 1929; lead and tin production also diminished, in minor totals.

Gold, on the contrary, was produced to a much greater total value, \$8,476,000 for 1930, as against \$7,761,000 for 1929. Thus while the gold production of 1929 had been but 9 per cent greater in value than that of copper, the gold production of 1930 was approximately twice that of copper, in value, and the gold increase offset about one-fourth of the copper decline. Coal mining attained in 1930 a production of the value of \$631,000, as against \$528,000 for 1929. Placer production furnished the greater part of the gold of 1930; it exceeded the placer production of 1929 by nearly \$750,000, and thus totaled \$4,837,000. More than 80 per cent of the placer production came from the operation of dredges, chiefly in the Yukon Valley and the Seward Peninsula.

In 1931, according to preliminary estimates prepared by the Alaskan branch of the U. S. Geological Survey, mines in Alaska produced minerals valued at about \$12,010,000, as against \$13,812,000 in 1930. This would make the total value of the mineral output of Alaska since 1880 approximately \$641,000,000. The source of min-

eral wealth in 1930 and 1931 was approximately as follows (preliminary figures given for 1931):

**VALUE OF MINERAL OUTPUT OF ALASKA IN 1931 AND 1930**

	1931 *	1930
Gold .....	\$ 9,342,000	\$ 8,476,000
Copper .....	1,712,000	4,244,600
Silver .....	89,000	157,300
Coal .....	567,000	631,000
Other minerals (lead, petroleum, marble, tin, platinum, etc.) .....	290,000	303,100
<b>Total .....</b>	<b>\$12,010,000</b>	<b>\$13,812,000</b>

\* Preliminary estimates.

General industrial conditions throughout Alaska in 1931 reflected more or less closely the conditions in the United States generally, though the severity of the depression in Alaska was by no means so acute. The mining industry as a whole was slowed down, and the search for ore deposits and development of mines, other than those whose ore was primarily valuable for gold, was suspended or materially curtailed. Extremely low prices prevailed for all of the mineral commodities except gold. For instance, the average selling price of copper in 1931, according to the U. S. Bureau of Mines, was 8.3 cents a pound as against 13 cents in 1930, a decrease equivalent to more than one-third of the price paid in 1930. Essentially the same condition prevailed for silver and lead, the prices for which, according to the Bureau of Mines, were respectively 29 cents an ounce and 3.8 cents a pound in 1931 against 38½ cents and 5 cents in 1930. In fact, it was estimated that had the amounts of these three metals that were produced in Alaska in 1931 been sold at the prices that were paid in 1930, their combined value would have been over \$1,000,000 greater than the amount stated in these estimates. Not only were the low prices paid for the metals reflected in the value of the minerals produced but also they had a great, though indeterminate, effect on restricting production and discouraging the undertaking of new developments. In the face of this general reduction the large increase in the output of gold from Alaska was extremely timely.

The total production of gold from Alaska mines in 1931 was estimated at \$9,342,000, about \$866,000 more than in 1930, a notable increase not only over the preceding year but also over any of the years since 1919. Together with the value of gold mined in earlier years, it brought the total value of gold produced from the Territory to the sizable figure of almost \$400,000,000. According to preliminary estimates, the production of gold in 1931 was almost evenly distributed between the lode and placer mines, about 49½ per cent having come from the lode mines and about 50½ per cent from the placers. In 1930, less than 43 per cent came from the lodes and more than 57 per cent from the placers. The pronounced change in the ratio for 1931 was brought about by the very large increase in the value of the gold recovered from the lode mines and the slight decrease in that from the placer mines over the value of the gold recovered from these sources in 1930. In the period since gold mining began, the ratio between the value of the gold from the two sources is about 34 per cent from lodes and 66 per cent from placers. Obviously, as the Alaska placers are more easily

and extensively worked, they contributed most largely to the output of the Territory in the early days, but as their extent is limited they will be the first to be exhausted. The lodes, on the other hand, are relatively more expensive to develop, but if they are skillfully managed they are much more likely to afford continuous output and thus equalize or even reverse the ratio that formerly existed between their output and that from the placers. The bulk of the lode gold continued to come from southeastern Alaska, especially from the properties of the Alaska Juneau Gold Mining Co. in the Juneau district. At this place search for new ore bodies, as well as for extension of those already known, was conducted with special activity, and the results appeared to have been distinctly encouraging, so that the work will be continued and will probably be reflected in increased production in the not distant future. The value of the gold recovered from Alaska placers in 1931 was estimated to have been \$4,706,000, or about \$130,000 less than was recovered from mines of this type in 1930. This comparison should not be interpreted as indicating a great falling off of placer mining as a whole, because the output in 1930 was especially large. By far the largest amount of placer gold came from the Yukon region, with the Seward Peninsula region second. The other placer mining regions together contributed less than one-tenth of the entire placer gold output of the Territory. Most of the placer gold is now recovered by dredging, the more primitive hand methods, and the use of the simpler mechanical methods having largely disappeared, except in the more remote districts. About 79 per cent of the placer gold that was recovered in 1931 was produced by dredges, which ratio compares with 1930, when about 81 per cent of the placer gold was recovered by dredges. So far as reported 27 dredges were in operation in 1931, which is the same number as were in operation in 1930. No notable new finds of placer ground were made during the year, but prospecting was in progress at a number of places, some of which are rather remote from the more productive camps.

**COMMERCE.** The trade of the Territory with the continental United States was on a diminished scale of value in the fiscal year 1931, as compared with 1930. Imports into Alaska from the United States totaled \$25,837,703 for 1931; for 1930, \$32,084,734. The exports to the United States fell to \$47,924,863 for 1931, from \$61,522,027 for 1930. The greater part of the decline in exports occurred in the categories of copper and of matte and ore; each of the two groups attained lower totals both by quantity and by value. Their combined shrinkage by value was about 50 per cent, or \$7,604,000. Exports of fish totaled 287,323,593 pounds (1931), as against 292,335,656 pounds (1930). In value, however, they were much reduced, to \$35,510,900 (1931) as against \$44,359,407 (1930). Fur exports rose in quantity to 480,310 pieces (1931), from 409,886 (1930), but declined in value to \$3,193,601 (1931) from \$4,593,132 (1930).

**REINDEER HUSBANDRY.** Secretary of the Interior Wilbur's committee on the reindeer (See NEW INTERNATIONAL YEAR BOOK, 1930: ALASKA) made a report, published in April, recommending the formation of a Reindeer Council of five members to exert administrative control over the industry and, particularly, to formulate range rules. It was found that the

Eskimos were not sufficiently vigilant in marking their herds, while whites were becoming important herd owners, the unmarked adult animals becoming the property of the finder. It was proposed that the council develop the export market for reindeer flesh, setting prices at which the natives might sell, but which they need not accept if they should prefer to keep their animals. Five important reindeer districts were noted, and for each it was recommended that the proposed council appoint a superintendent, paid by the Government, as the direct administrative official. The chief of these districts was on the Seward Peninsula, bordering on the Bering Sea and running almost to the mouth of the Yukon River; here the largest and most accessible herds were reported to have developed. An early roundup of the beasts in this area was recommended with a view to the marking of all mavericks and the termination of disputes. The prospect of an eventually important trade with the continental United States in reindeer flesh was emphasized by the Department of the Interior. Reindeer were introduced into Alaska about 1890 as a relief measure to provide food and clothing for the native people. The original herds contained less than 1,500 deer. From this small herd the entire western part of Alaska has been supplied and it was estimated that there were several hundred thousand animals in the herds that were distributed from Point Barrow to Atka Island and in the Yukon Valley. There were a few places where the natives were not supplied with deer, but the Government owned between 10,000 and 12,000 animals and these were to be used to supply new herds as rapidly as possible.

**FISHERIES.** The total value of the output of the Alaska fisheries in 1930, exclusive of aquatic furs, was \$37,679,049, as compared with \$50,795,819 for the previous year. On the basis of the number of salmon caught there was an increase of 15 per cent over the take in 1929. The Yukon River was closed to commercial fishing for several years and reports in 1931 indicated that the runs were again normal. The closing of the river deprived the natives and other residents of the lower Yukon of one source of income and they were sorely in need of assistance. Limited commercial fishing by bona fide residents was held advisable if investigations by the Bureau of Fisheries disclosed that such action could be taken without jeopardizing the future supply or depriving the residents along the upper reaches of the river of their food.

The whaling industry maintained an average production, but the value of the output was approximately 7 per cent less than in 1929. Two whaling stations were operated and a fleet of seven steam vessels were used in the capture of 355 whales; 206 persons were employed in the manufacture of 810,700 gallons of whale oil valued at \$371,276; 121,150 gallons of sperm oil valued at \$45,431; 1170 tons of fertilizer valued at \$51,400; 37,000 pounds pickled meat valued at \$1850; and 5600 pounds of whale bone valued at \$308. The total value of these products was \$470,265 as compared with \$502,081 in 1929.

**SEALSKINS.** When the control of the Alaskan seal herd passed to the United States Government the herd numbered approximately 132,000 animals and in 1930, 20 years later, there were 1,045,101 seals of all classes on the islands. The

rehabilitation of the seal herds was an outstanding achievement and demonstrated the results that might be derived under proper methods of control and utilization of the surplus. In 1930, 42,500 skins were taken from the rookeries on St. Paul and St. George Islands. This was the largest take since the Government assumed control. During the year 41,516 skins were sold at public auction for a gross price of \$821,767.

**PUBLIC HEALTH.** A large staff of nurses and doctors are employed in the work of safeguarding the health of the native people. Funds were available for the necessary personnel, and the early appointment of a qualified officer as medical director was urged by the governor in his Annual Report. There were sections of the Territory, larger than some of the smaller States, which were without hospitals or medical service of any kind. Practically all of the population in these sections were native people. A 5-year programme, which would provide adequate hospital facilities in every section should be prepared and approved. Also the hospital boat on the Yukon River should be replaced with a new vessel completely equipped for the service.

**EDUCATION.** The duty of administering education and medical and sanitary relief among Eskimos, Aleuts, and Indians in the Territory was transferred on March 16 from the Office of Education to the Bureau of Indian Affairs. For the fiscal year opening on July 1, 1931, the Federal Congress made for these purposes appropriations totaling about \$1,200,000 whereof some \$800,000 was for native schools, \$320,000 for health and \$100,000 for completing an industrial boarding school for natives at Shoemaker Bay. A survey of the native communities in the Territory by the Office of Indian Affairs disclosed that there were 25 villages with a school population of more than 25 children where there were no school facilities. There were a far greater number of small communities which had a school population of 10 or more children who were denied the privilege of attending school. The construction of not less than 10 schools each year until every community was equipped with adequate facilities was recommended by the Governor in his Annual Report. See AGRICULTURAL EXPERIMENT STATIONS.

**ALBANIA**, al-bā'nī-ā. A Balkan kingdom on the east coast of the Adriatic, situated between Yugoslavia on the north and Greece on the south. Capital, Tirana, with 30,800 inhabitants in 1930; reigning King in 1931, Zog I, proclaimed by the National Assembly Sept. 1, 1928.

The area is approximately 10,629 square miles and the population (census of 1927), 833,618, of whom 563,729 were Mohammedan, 181,051 Greek Catholic, and 88,739 Roman Catholic. A 1930 census showed 1,005,902 inhabitants. The Ghegs in the north and the Tosks in the south are the principal race groups. The other towns are Coriza (population 22,787 in 1930) and Scutari (29,209). Durazzo (8739) and Valona (9100) are the leading ports. Primary education is nominally compulsory, but the law is not enforced. State primary schools in 1929 numbered 495, with 28,199 pupils (5232 girls). There were also 32 state secondary schools, with 1247 pupils, and about 900 young Albanians studying abroad.

**PRODUCTION AND COMMERCE.** Primitive agriculture and cattle-raising are the principal occupations of the Albanian people. Only about

926 square miles were under cultivation in 1930; although the country is mountainous and wooded there are additional large areas available for cultivation. The state owns about 125,000 acres of land and under King Zog has taken an active interest in modernizing agriculture. The leading products are tobacco, timber, hides, wool, furs, dairy products, cheese, fish, olive oil, and corn. There are extensive forests of valuable timber and mineral resources are said to be of importance, but neither are developed to any appreciable extent. Flour-milling, cheese-making, olive-pressing and similar agricultural industries are carried on. Imports in 1929 were valued at 38,638,000 gold francs and exports at 14,982,804 gold francs (the Albanian gold franc has a par value of \$0.1929). Imports showed a steady increase from 21,799,411 francs in 1925, while exports declined from 17,122,761 francs in 1925.

**FINANCE.** In the budget for the fiscal year ended Mar. 31, 1931, as adopted by Parliament, revenues were estimated at about \$5,800,000 and expenditures at about \$6,300,000. The estimates submitted to Parliament balanced at 31,385,000 gold francs (about \$6,057,000 at par), compared with 31,827,200 francs in 1929-30. In accordance with a law passed by the Albanian Parliament in June, authorizing the Government to contract a foreign loan for bridge construction and the conversion of the debt, Italy agreed to lend its ally the sum of 10,000,000 gold francs annually for ten years. It was officially stated that the loan would be free of interest and "repayable when the condition of the Albanian budget shall permit of it." A loan of 50,000,000 gold francs was floated in Italy in 1925; it is guaranteed by Albanian Customs receipts and the income from Government monopolies.

**COMMUNICATIONS, ETC.** A railway line 22 miles long between Durazzo and Tirana was under construction in 1931. A motor-road network 1061 miles in length links the principal cities. Five airlines radiate from Tirana to Scutari, Coriza, Valona-Argirocastro, Pescopeia, and Cuesi, all controlled by Italian capital. Under the Constitution of 1928, the King administers the government, assisted by a council of ministers appointed by him and a parliament of one chamber, the members of which are elected indirectly for four years. A ministerial crisis in the spring of 1931 resulted in the reorganization of the Cabinet under former Premier Pandeli Evangheli.

**HISTORY.** The Treaty of Tirana, signed in 1926, under which Italy agreed to oppose any disturbance of the *status quo* in Albania, provided King Zog requested aid, expired in November, 1931, and was not renewed. This was considered an indication that King Zog considered himself sufficiently secure against a revolution to dispense with Italian aid. The Italian-Albanian defensive alliance of 1927 continued in force. King Zog in 1931 was declared by observers to be pursuing a policy largely independent of Italian control, while accepting Italian aid in the modernization of his country. The King, however, was forced into closer relationship with the Italian Government by an attempt to assassinate him made in Vienna February 20, during which his adjutant was killed. The two assassins were arrested by the Vienna police and tried in the Upper Austrian town of Ried in September. They were identified

as Ndok Gheloshi, leader of the revolt against King Zog in 1925, and Aziz Cami, a Moham-medan army captain and adherent of the former Democratic party leader, Fan Noli. Both were Albanian citizens in exile from their country and under sentence of death there. The defend-ents admitted that their attempt on King Zog's life was a political crime, but alleged extenuat-ing circumstances. A jury on October 3 sen-tenced Gheloshi to seven years' and Cami to three years' imprisonment. King Zog was re-ported to have been convinced that the crime was inspired by the Yugoslav Government.

For Albania's part in the Balkan Conference, see *TURKEY* under *History*. See also *YUGOSLAVIA* and *ITALY* under *History*.

**ALBERTA**, al-bŭr'tă. The westernmost of Canada's Prairie Provinces, bounded by Sas-katchewan on the east, British Columbia on the west, and the United States on the south. Area, 255,285 square miles; population at the census of 1931, 727,497, as compared with 607,584 in 1926. The chief towns, with their census popula-tions in 1931 and 1921 (in parentheses), are: Calgary, 83,362 (63,305); Edmonton (the capi-tal), 78,829 (58,821); Lethbridge, 13,448 (11,097); Medicine Hat, 10,310 (9634). In 1929, there were 16,748 births, 6234 deaths, and 5999 marriages. Enrollment in the 3640 public schools (1929) was 164,850; in three normal schools, 801; in the University of Alberta, 1516.

Agriculture is the chief occupation, but the extraction of coal, natural gas, and petroleum are important supplementary industries. Only about one-sixth of the land available for agri-cultural development is under cultivation. The acreage sown to the chief crops in the spring of 1931 was 11,793,031, compared with 8,312,512 in the spring of 1921. The estimated gross agricultural revenue of the province in 1929 was \$223,240,000, of which \$157,254,000 repre-sented field crops. In 1930, the value of field crops shrank to \$95,828,400, due largely to the fall in the price of wheat. Production of the chief crops in bushels (1930) was: Wheat, 132,900,000; oats, 77,940,000; barley, 18,999,000; rye, 3,714,000. The potato crop totaled 2,536,000 cwt.; hay and clover, 517,000 tons. Alberta ranked fourth among the Provinces in mineral production in 1930, with an output valued at \$30,629,997 (\$34,739,986 in 1929). Coal produc-tion (1929) was valued at \$22,928,182; natural gas, \$4,684,247; petroleum, \$3,458,177. The lum-ber industry in 1930 engaged nearly 4000 men and produced 97,351,298 feet of lumber (167,657,787 feet in 1929).

Executive power rests nominally with a lieutenant-governor appointed by the Dominion Government, but actually with the Executive Council of the Provincial Legislature. Of 63 mem-bers in the Legislature (1930), 39 were United Farmers of Alberta, 11 Liberals, 6 Conservatives, 4 Labor members, and 3 Independents. The Province sends 6 members to the Senate and 16 to the House of Commons at Ottawa. For the fiscal year ended Mar. 31, 1930, ordinary rev-enues and expenditures totaled \$15,829,865 and \$15,402,884, respectively. There was a deficit of \$2,306,581 for 1930-31. The gross bonded debt on Mar. 31, 1930, stood at \$106,888,380, of which \$38,936,134 represented self-supporting assets. As a result of the favorable settlement of the school lands case in July, 1931, Alberta obtained a judgment for \$9,564,569 against the Dominion.

There were in 1929 5568 miles of railway line within the Province and a state-owned telephone system, with 209,939 miles of wire. Air lines connect the principal cities. Lieut.-Governor in 1931, Dr. W. Egbert; Premier and Provincial Secretary, John E. Brownlee. See *CANADA*.

**ALCOHOL**. See *CHEMISTRY*, *INDUSTRIAL*; *PRO-HIBITION*.

**ALDEHOL**. See *CHEMISTRY*, *INDUSTRIAL*.

**ALDERMAN**, EDWIN ANDERSON. An Ameri-can educator, president of the University of Vir-ginia, died in Connellsville, Pa., Apr. 29, 1931. He was born in Wilmington, N. C., May 15, 1861, and was graduated from the University of North Carolina in 1882, later receiving the D.C.L. degree from the University of the South and the LL.D. degree from Tulane, Johns Hop-kins, Columbia, Yale, North Carolina, and Harvard Universities and from Williams and Dartmouth Colleges. He was professor of Eng-lish at the North Carolina State Normal College in 1892; professor of education at the University of North Carolina during 1893-96, and presi-dent of that institution during 1896-1900; and president of the Tulane University of Louisiana during 1900-04. Recognized for his efforts to advance education in the South and as one of its most influential, moral, and spiritual lead-ers, he was elected president of the University of Virginia in 1904.

In addition to serving as former district di-rector of the Southern Education Board, he was a member of the General Education Board and of the boards of the Woodrow Wilson Founda-tion, the Thomas Jefferson Memorial Founda-tion, the Institute of Economics, the Institute of Politics, and the Institute of Public Affairs. He was also a member of the American Academy of Arts and Letters. By invitation he was select-ed to deliver before the Congress of the United States on Dec. 15, 1924, the memorial address for President Woodrow Wilson. Among his works are *Sectionalism and Nationality* (1906); *The Growing South* (1908); *Virginia* (1909); *The National Spirit* (1911); *J. L. M. Curry: A Biography* (1911); *Function and Needs of Schools of Education in Universities and Col-leges* (1917); and *Woodrow Wilson: A Memorial Address Delivered before the Joint Houses of Congress* (1925). He was editor of *Classics Old and New* (1906) and editor-in-chief of the *Library of Southern Literature* (1909-23).

**ALFALFA**. The alfalfa hay crop of the United States was estimated by the Department of Agri-culture at 20,914,000 tons compared with 22,871,000 tons in 1930 and 23,854,000 tons in 1929. The crop of 1931 was the smallest since the es-tablishment of production records in 1919 and was approximately only two-thirds of the crop of 1927, the highest production ever recorded. The yields in 1931 were especially low in the Great Plains and Western States and they were not sufficiently high in the States east of the Mississippi to offset these reductions. The yields of the leading States in tons were as follows: California, 2,699,000; Idaho, 1,802,000; Nebraska, 1,606,000; Minnesota, 1,163,000; Colorado, 1,152,000; Kansas, 1,114,000; and Iowa, 1,061,000. These States produced over half the tonnage of the entire country. Production was reported from all States except Florida.

The area devoted to the crop in the United States in 1931 was 11,602,000 acres which was

65,000 and 105,000 acres respectively above the areas in 1930 and 1929. Owing to the difference in the yield per acre in various sections production and acreage varied to a marked extent. Nebraska, ranking third in production, stood first in area with 1,147,000 acres, while California, first in production and yielding over a million tons more, stood second with only 818,000 acres. The States ranking next in alfalfa area were Idaho with 751,000 acres; Colorado with 743,000 acres; Minnesota with 727,000 acres; Kansas with 719,000 acres and Montana with 660,000 acres. The average yield per acre was 3.3 tons in California, 2.4 tons in Idaho and 1.4 tons in Nebraska.

The production of alfalfa seed in 1931 of 18 States reporting was estimated at 852,600 bushels, about 25 per cent and 13 per cent less than the production of 1930 and 1929 respectively. The acreage harvested for seed, 353,000 acres, was about 16 per cent less than in 1930 and about 12 per cent less than in 1929. The leading States and their yields were as follows: Kansas, 144,500 bushels; Idaho, 94,500 bushels; Nebraska, 72,800 bushels; California, 70,700 bushels; Colorado, 60,000 bushels, and Utah, 57,000 bushels. In area devoted to the seed crop the leading States ranked as follows: Kansas, 57,800 acres; Montana, 33,000 acres; Utah, 32,000 acres; Nebraska, 28,000 acres; South Dakota, 25,600 acres; Idaho, 21,000 acres; Colorado, 20,000 acres, and California, 19,100 acres. The highest average yields per acre, 4.5, 3.17, 3, 2.6, and 2.5 bushels were secured in Idaho, California, Colorado, Nebraska, and Kansas respectively. In most of the more important producing States the yield per acre in 1931 was below that of the preceding year. The imports of alfalfa seed for the fiscal year ended June 30, 1931, were 233,400 pounds as compared with 337,000 pounds the year before. The imports for 1931 comprised 177,900 pounds from Canada, 44,500 pounds from Argentina and 11,000 pounds from France. The exports for the year were estimated at 350,000 pounds.

**ALGERIA.** A colony of France in northern Africa, comprising the two great divisions of Northern Algeria and Southern Algeria. Northern Algeria has an area of 80,117 square miles and a population (census of 1926) of 5,521,271; Southern Algeria, an area of 767,435 square miles and a population of 542,225. The total population in 1929 was estimated at 6,255,000 (6,066,380 in 1926). Of the total area of 847,552 square miles, all but about 222,206 square miles are desert. The European population was 833,359, including 549,146 French, 108,495 naturalized French, 135,032 Spaniards, and 28,594 Italians. The native population is almost entirely Moslem. The chief towns, with their populations in 1926, were Algiers, the capital, 226,218; Oran, 150,301; Constantine, 93,733; and Bône, 51,895. For the five-year period 1924 through 1928, births averaged 163,900 and deaths 108,917 annually. In 1929, there were 128,661 pupils in elementary and secondary schools, and in 1930, there were 1870 students in universities.

**PRODUCTION.** Algeria is primarily dependent upon agriculture, which is restricted to the coastal valleys and plains. In 1929, there were 15,298,000 acres of arable land, 658,000 acres of permanent meadow, 68,096,000 acres of grazing land, and 10,700,000 acres of forests. Pro-

duction of the chief crops in 1930, a poor year due to prolonged drought, was: Wheat, 30,644,000 bushels; barley, 37,663,000 bushels; oats, 13,503,000 bushels; potatoes, 1,837,000 bushels; wine, 351,347,000 gallons; olive oil, 3,332,000 gallons; tobacco, 38,509,000 pounds; and cotton, 2,534,000 pounds. Dates, fruits, vegetables, silk, and flax are other products. Livestock in 1930 included 939,000 cattle, 7,168,000 sheep, 3,268,000 goats, 173,000 horses, 471,000 mules and asses, and 201,000 camels. Wool production (1930) was estimated at 49,600,000 pounds (47,230,000 pounds in 1929). About one-half of the sheep in the country were reported to have died as a result of drought prior to Jan. 1, 1931.

**Mineral production** in 1930 in metric tons was as follows: Iron ore, 2,234,000; iron pyrites, 16,228; zinc ore, 22,163; lead ore, 13,945; coal, 17,173; petroleum, 1654; and phosphates, 864,000. Copper is also mined. The fishing industry is important.

**COMMERCE.** Exports in 1930 were valued at \$178,446,000 (\$151,998,000 in 1929) and imports at \$228,524,000 (\$229,647,000 in 1929). While imports changed but little, the value of exports increased 17 per cent. About 79 per cent of the total 1930 imports came from France and about 77 per cent of all exports were destined for that country. Exports to the United States in 1930 were valued at \$2,399,000, or about 40 per cent less than in 1929. Algeria exports agricultural and mineral products in return for manufactured articles.

**FINANCE.** The budget for the calendar year 1931 placed ordinary receipts at 1,137,490,000 francs (1 franc equals \$0.0392 at par) and extraordinary receipts at 1,108,017,000 francs, the total estimated receipts being equivalent to \$88,024,000. For the same year, ordinary expenditures were estimated at 1,136,970,000 francs and extraordinary expenditures at 1,108,017,000 francs, or the equivalent of \$88,003,000. For 1930, total receipts were estimated at the equivalent of \$73,446,000 and total expenditures at \$85,025,000. The public debt at the end of 1929 stood at 926,000,000 francs, or approximately \$36,299,000.

**COMMUNICATIONS.** Railway lines in 1928 extended 2981 miles, of which about 2000 miles belonged to the government. Gross receipts for the year totaled 375,000,000 francs (about \$14,700,000). In 1931, the government undertook the electrification of the line from Bône to Oued Keberet. Highways extended about 21,753 miles in 1930, of which 8860 miles were macadam. The telegraph and telephone systems are also government owned. The net registered tonnage of vessels entering the ports in 1930 was 8,306,000 (8,314,000 tons in 1929) and the tonnage clearing was 8,393,000 (8,466,000 tons in 1929).

**GOVERNMENT.** The central executive authority of the local government is the Governor-General who directs all the services with the exception of the non-Musulman departments of public instruction, justice, worship, and the treasury, which are each under a separate ministry. The Governor-General, with the Minister of the Interior, prepares the budget which is voted by the so-called financial delegations and by the Superior Council. The colony sends to the French Parliament one Senator and two Deputies from each of the three departments. The Parliament at

Paris has the sole right to legislate for Algeria. Governor-General in 1931, M. Jules Carde, appointed Oct. 3, 1930.

**ALL-AMERICAN CANAL.** See CANALS.

**ALLEGHENY COLLEGE.** A coeducational institution of higher learning in Meadville, Pa., nonsectarian in policy but under the patronage of the Methodist Episcopal Church; founded in 1815. The enrollment for the autumn of 1931 was 588, and for the summer session 125. The faculty numbered 44 members. The productive funds of the college amounted to \$1,400,000, and the income for the year 1930-31 was \$417,444. The Reis Library contained 80,000 volumes. This library was also doubled in size by a \$100,000 addition, making its capacity 225,000 volumes. President, William P. Tolley, Ph.D., D.D.

**ALLEN, FRANCIS RICHMOND.** An American architect, died Nov. 7, 1931, in Boston, Mass., where he was born Nov. 22, 1843. He was graduated from Amherst College in 1865, later attending the Massachusetts Institute of Technology (1876-77) and the École des Beaux Arts, Paris (1877-78). He began his practice in Boston in 1879, and from 1904 to 1926 was a member of the firm of Allen and Collens. His collegiate and ecclesiastical work was especially noted for its adaptation of the Gothic. Outstanding among these buildings are those at Williams College, Vassar College, Union Theological Seminary, New York City, and Andover Theological Seminary. He also designed Emmanuel Church, Boston; Memorial Hospital, Canandaigua, N. Y.; and the Woman's Hospital and residence of Arthur Curtiss James, New York City. He was elected a Fellow of the American Institute of Architects in 1935 and was vice president of the permanent committee of the International Congress of Architects.

**ALLIANCE FRANÇAISE, FÉDÉRATION DE L'.** An association of clubs and groups formed for the purpose of encouraging and furthering the study and cultivation of the French language, literature, art, and history in the United States and Canada. It was established in 1902 and in 1931 comprised more than 250 local branches, including French alliances, affiliated societies, and French clubs in universities, colleges, and schools. Ten new groups were added to the Fédération during 1931. Each year the Alliance Française brings from France one or more lecturers who are prepared to speak before all the affiliated societies and clubs wishing to hear them. It also organizes lecture tours for distinguished French travelers, and for French lecturers who live in America, assists in organizing courses in the French language and literature in cooperation with the leading universities, and encourages its groups to engage in dramatic performances and debates in French.

The official lecturers for the season 1930-1931 were Charles Mauricheau-Beaupré and Gaston Gille. M. Mauricheau-Beaupré was assistant curator of the National Museums at Versailles and professor at the École du Louvre. Among his publications the best known are: *Le Château de Versailles et ses jardins*, *Trianon*, *La Cour de Louis XIV et la Cour au XVIIIème Siècle*. M. Gille was professor of French at the College of the City of New York and an authority on political and social questions. The Fédération's Assemblée Générale, attended by representatives of the various groups, was held at the Hotel Plaza, New York City, Apr. 11, 1931. The official

periodicals of the organization are *L'Echo de la Fédération* and *Bulletin Officiel*. The officers in 1931 were: President, Frank D. Pavey; general vice president, William Nelson Cromwell; president of the executive committee, Albert Blum; treasurer, James N. B. Hill; and general secretary, Abigail B. Hagarty. Headquarters are at 32 Nassau Street, New York City.

**ALLINSON, FRANCIS GREENLEAF.** An American philologist, died in Hancock Point, Me., June 23, 1931. He was born in Burlington, N. J., Dec. 16, 1856, and was graduated from Haverford College in 1876, receiving the Ph.D. degree from Johns Hopkins University in 1880. From 1880 to 1882 he was an assistant professor of Greek and Latin at Haverford College, and from 1882 to 1891 head master of classics at the University School in Baltimore. He was appointed assistant professor of Greek and Latin at Williams College in 1892, and three years later was called to Brown University as associate professor of Greek and classical philology. He became professor of classical philology at Brown in 1898 and professor of Greek literature and history in 1915, retiring as professor emeritus in 1928. During 1910-11 he was Brown University annual professor at the American School of Classical Studies in Athens, and was appointed a member of the managing committee in 1913. He was also president of the American Philological Association during 1921-22. His published writings include: *Greek Prose Composition* (1895); *Greek Lands and Letters* (with his wife, Anne C. E. Allinson, 1909); and *Lucian-Satirist and Artist* (1926). He edited texts of several Greek authors, and was a contributor to *Studies in Honor of Basil L. Gildersleeve* (1902) and to the *American Journal of Philology*.

**ALLODELPHITE.** See MINERALOGY.

**ALLOYS.** See CHEMISTRY, INDUSTRIAL.

**ALSACE-LORRAINE, Al'zàs'lór'ân.** The provinces taken from France by Germany after the Franco-Prussian War of 1870-71 and restored to France after the Armistice of Nov. 11, 1918; constituting at present the three French departments of Bas-Rhin, Haut-Rhin, and Moselle. Total area, 5605 square miles; total population in 1926, 1,795,100. The area and population are distributed among the three departments as follows: Bas-Rhin (formerly Lower Alsace), 1848 square miles and 670,985 inhabitants; Haut-Rhin (formerly Upper Alsace), 1354 square miles and 490,654 inhabitants; Moselle (formerly Lorraine), 2403 square miles and 633,461 inhabitants. Alsace-Lorraine contains the only petroleum fields of commercial importance in France, as well as extensive iron-ore and potash deposits. For developments in the autonomist movement in Alsace during 1931, see FRANCE under *Local Elections*.

**ALUMINUM.** New aluminum produced in the United States during 1930 amounted to 229,035,000 pounds, valued at \$50,961,000, as compared with 225,000,000 pounds, valued at \$51,864,000, produced in 1929. The principal producing plant was that at Massena, N. Y., where approximately 44 per cent of the metal made in the United States was produced. Other works are at Niagara Falls, N. Y.; Alcoa, Tenn.; and Badin, N. C. According to the *Engineering and Mining Journal*, the domestic price of new aluminum ingot 99 per cent pure was 24.3 cents a pound until June 26, 1930, when a new quota-



tion of 23.3 cents a pound was announced, which price prevailed until the close of the year. A corresponding reduction—from 23.9 cents to 22.9 cents a pound—was made in the price in the outside market for metal 98–99 per cent pure.

Certain of the established uses for aluminum showed decreases in 1930 in demand for the metal, but these were more than offset by gains in other uses, particularly in strong aluminum alloy materials, in electrical conductors, and in paint. New uses were developed and improvements made in older applications largely as a result of industrial research. Lessened consumption of aluminum in 1930 was especially to be noted in the automobile and aircraft branches of the transportation industry.

Builders of truck and bus bodies incorporated aluminum strength-members in body frames, in addition to low-stressed parts, such as paneling and roofing. Tank trucks for gasoline haulage and trucks for heavy commodities, such as coal and sand, to light merchandise utilize aluminum in the form of strong alloy sheets and structural shapes, heat treated to develop maximum physical properties. There was introduced in 1930 a new piston alloy, of low expansion coefficient, further insuring the market for aluminum pistons, and it was stated that over 75 per cent of the automobile passenger car manufacturers in the United States were using aluminum alloy pistons. Large structural shapes of strong aluminum alloys, available in sizes up to 85 feet in length and 14 inches in depth, were produced for use in railroad and railway car construction, for trucks and busses, and such units as cranes and hoists.

Strong aluminum alloy wire was introduced as a new material for woven fence and barbed wire, while aluminum window screening was also being made. In both instances durability is the prime advantage of aluminum. The resistance of aluminum to atmospheric corrosion is also responsible for a steady increase in the use of the metal as a roofing and sheet metal material, and for an even sharper increase in its use as an ornamental metal on the exteriors of office and public buildings. Notable quantities of aluminum were being used for building purposes, and in the Empire State Building in New York, approximately 850,000 pounds of aluminum was used.

The consumption of the metal in aluminum cable and busbar accounts each year for an average of about 16 per cent of the production of aluminum in the United States. Bare stranded cable with a core of steel was employed for transmission lines, while insulated aluminum wires and cables similar to those of copper were in use in the form of insulated cables for underground network systems, automobile starter cable, aviation, and automobile wiring systems, and other wire and cable products. Electroplating on aluminum, and chemical or electro-

chemical processes of coloring aluminum had been placed on a commercial basis while heavy aluminum foil or thin sheets of aluminum were found to offer a protective coating for oil tank cars, pipe-lines, storage tanks, and similar structures.

The approximate consumption of virgin domestic aluminum by industries is indicated in the table in the preceding column.

**AMERICAN ASSOCIATIONS AND SOCIETIES.** For various scientific and other organizations whose official titles begin with the word American, see under the important descriptive word of the title.

**AMERICAN CHEMICAL SOCIETY.** See CHEMISTRY, INDUSTRIAL.

**AMERICAN FEDERATION OF LABOR.** See LABOR, AMERICAN FEDERATION OF; UNEMPLOYMENT.

**AMERICAN LEGION.** An organization of World War veterans, chartered by Congress in 1919. Its purpose is "to uphold and defend the Constitution of the United States; to maintain law and order; to foster and perpetuate a 100 per cent Americanism; to preserve the memories and incidents of our association in the Great War; to inculcate a sense of individual obligation to the community, State and nation; to combat the autocracy of both the classes and the masses; to make right the master of might; to promote peace and good will on earth; to safeguard and transmit to posterity the principles of justice, freedom, and democracy; to consecrate and sanctify our comradeship by our devotion to mutual helpfulness."

The legion's thirteenth national convention was held in Detroit, Mich., Sept. 21–24, 1931. There was an accredited delegate attendance of 1415 representing every State, the District of Columbia, nine departments outside the continental limits of the United States, and two foreign posts. Upwards of 100,000 persons marched in the annual parade which required eight hours to pass the reviewing stand. President Hoover attended and addressed the convention. The distinguished guests and speakers included: Newton D. Baker, wartime Secretary of War; Gen. Charles B. Sumnerall; Theodore Roosevelt, governor of Porto Rico; Frank T. Hines,\* administrator of Veterans' Affairs; George L. Berry, representing the American Federation of Labor; Floyd Gibbons, war correspondent for the *Chicago Tribune*; Edward L. White, president of Fidac; Wilber M. Brucker, governor of Michigan; Frank Murphy, mayor of Detroit; Judge Kene-saw Mountain Landis; Harry Woodring, governor of Kansas; Arthur H. Vandenberg and James Couzens, U. S. Senators from Michigan; Richard B. Russell, governor of Georgia; Maj. Gen. George B. Duncan; Mrs. Edith Nourse Rogers, representative in Congress for the fifth Massachusetts district; Hon. W. D. Herridge, Canadian Minister to the United States; Capt. Louis de Vaisseau Sable, representative of France; Baron Gaston de Bethune, representative of Belgium; Gen. Gustaw Orlicz-Dreszer, representative of Poland; and Admiral Baron Alfredo Acton, representative of Italy.

The principal accomplishments during the year were set forth in the report of Ralph T. O'Neil, the retiring national commander. Cash recoveries for veterans, effected through the work of the national rehabilitation committee of the legion, amounted to \$6,456,387. These recoveries

#### CONSUMPTION OF ALUMINUM BY INDUSTRIES

	Per cent
Transportation (land, air, and water) .....	38
Electrical conductor .....	16
Cooking utensil .....	14
Machinery (electrical appliances, etc.) .....	9
Iron and steel metallurgy .....	8
Building .....	4
Miscellaneous foundry and metal working .....	4
Chemical .....	2
Food products .....	1
General miscellaneous .....	4

were in the form of disability compensation, insurance, disability allowance, adjusted compensation, and other types of claims handled for veterans and their dependents. The legion successfully sponsored the appropriation by Congress of approximately \$21,000,000 for the construction of veterans' hospitals. Another important legislative accomplishment was the enactment of a law permitting veterans to borrow up to 50 per cent of the face value of their adjusted compensation certificates. See UNITED STATES under Congress. Because of the economic depression, unemployment, and distress brought about by drought, the legion carried on much relief work throughout the United States.

The national child welfare programme was advanced during the year, with the legion taking an active part in obtaining improved child welfare legislation in the various States and extending direct aid to many children of veterans. In response to an appeal from national headquarters, legion posts throughout the United States threw their support behind efforts to find jobs for the unemployed. Reports received indicated that about 200,000 were placed in employment. Progress was made in the legion's three-fold Americanism programme which emphasized education, youth activities, and community service. Upwards of 400,000 boys were enrolled in the junior baseball programme, conducted as one of the youth activities. Many other activities were successfully sponsored.

The official publication of the national organization is the *American Legion Monthly*. The membership of the legion on Dec. 1, 1931, was 1,053,408. The American Legion Auxiliary, composed of mothers, wives, daughters, and sisters of Legion members, had a membership of 411,248 on the same date. Legion officers elected for the year 1931-1932 were: Henry L. Stevens, Jr., Warsaw, N. C., national commander; Richard F. Paul, Boston, Mass., Harold L. Plummer, Madison, Wis., Forrest G. Cooper, Indianola, Miss., Roy L. Cook, Albuquerque, N. M., and Frank N. Brooks, Bellingham, Wash., national vice commanders; and the Rev. H. A. Darche, Bradley, Ill., national chaplain. The following national officers were continued in office by action of the national executive committee: James F. Barton, Fort Dodge, Ia., national adjutant; Bowman Elder, Indianapolis, Ind., national treasurer; and Eben Putnam, Wellesley Farms, Mass., national historian. The committee appointed Remaster Bingham, Indianapolis, Ind., national judge advocate. National headquarters are in the World War Memorial Building, 777 North Meridian St., Indianapolis, Ind. See PROHIBITION.

**AMERICAN REVOLUTION, ANNIVERSARY CELEBRATION.** See CELEBRATIONS.

**AMHERST COLLEGE.** An institution for the higher education of men in Amherst, Mass., founded in 1821. For the autumn term of 1931 approximately 651 students were enrolled. The active faculty, exclusive of administrative officers, emeritus professors, and those on leave, numbered 73. The productive assets of the college amounted to \$8,615,346, and the income for the year was \$844,217. The library contained 175,000 volumes. President, Arthur Stanley Pease, Ph.D.

**AMMONIA.** See FERTILIZERS.

**AMPHIBIA.** See ZOÖLOGY.

**AMSTERDAM INTERNATIONAL.** See TRADE UNIONS; SOCIALISM.

**ANEMIA.** See FOOD AND NUTRITION under *Trace Elements*; MEDICINE, PROGRESS OF.

**ANESTHESIA.** See CHEMISTRY, INDUSTRIAL.

**ANALYSIS, CHEMICAL.** See CHEMISTRY.

**ANALYTICAL CHEMISTRY.** See CHEMISTRY.

**ANAPLASMOSIS.** See VETERINARY MEDICINE.

**ANATOLIA,** an'-tō'lī-ā. An ancient geographical name for the land east of the Aegean Sea, now loosely applied to the western part of Asia Minor. See TURKEY.

**ANDORRA,** an-dōr'ra. A tiny state in the Pyrenees, under the joint suzerainty of the French President and the Spanish Bishop of Urgel. Area, 191 square miles; population, 5231 in 1924; capital, Andorra-la-Vieja (population, 700). The Andorrans, who speak Catalan, are governed by an elected council of 24 members, acting through a First Syndic. The two civil judges are appointed by France and the Bishop of Urgel, respectively. There is a customs union with France and a postal union with Spain. Andorra's accustomed peace was disturbed in 1931 when 400 Spanish laborers engaged in building a road through the country from Spain to France made threats which the Andorrans interpreted as a declaration of war. Andorra has no army but the peasants mobilized with scythes and other makeshift arms and drove the Spaniards across the border. Construction of the highway, which was to have ended Andorra's centuries of isolation, was indefinitely postponed.

**ANGINA PECTORIS.** See SURGERY, PROGRESS OF.

**ANGLO-EGYPTIAN SUDAN.** A British-controlled territory in the upper Nile region of Africa, extending south from Egypt and Libya to British East Africa and the Belgian Congo; bounded on the east by the Red Sea, Eritrea, and Ethiopia, and on the west by French Equatorial Africa. Area, estimated at 1,008,100 square miles; population in 1929 estimated at 5,579,776. Capital, Khartoum, with 42,240 inhabitants; other cities, Omdurman, 102,983; Khartoum North, with adjacent rural district, 102,512.

In 1930, there were 87 elementary vernacular schools, with 8348 pupils; 10 primary schools, with 1276 boy pupils; 22 girls schools, attended by 1919 pupils; and 768 native schools aided by the Government, with 26,880 pupils. The Sudan furnishes most of the world's gum arabic. Cotton, senna, dates, ground-nuts, salt, ivory, hides and skins, and gold are other leading products. In 1929-30, 27,480 tons of cotton lint and 61,000 tons of cotton seed were harvested from 355,594 acres. Livestock in 1929 included about 1,505,000 cattle, 2,200,000 sheep, 400,000 camels, 22,000 horses, and 350,000 asses. Valuable forests border the Nile and its branches. Imports in 1929, including Government stores, were valued at £6,856,114 and exports, excluding reexports, at £6,526,112. The Egyptian pound exchanged at \$4.98 in 1929.

Budget estimates for 1930 balanced at £4,929,000, including net receipts from railway and steamboat lines, compared with actual revenues, of £6,981,500 and actual expenditures of £6,610,274 in 1929. In addition, the revenue and expenditure of local provincial services in 1929 totaled £126,729 and £108,719, respectively. Railway lines open for traffic in 1930 totaled 1990 miles and linked the chief interior points with the Red Sea at Port Sudan and Suakin.



There were about 225 miles of main highways besides roads passable to motor cars in dry weather. A fleet of Government steamers sails the navigable arms of the Nile and its tributaries and there is a heavy trade by caravan.

Under the Anglo-Egyptian convention of Jan. 19, 1899, the Sudan is administered by a governor-general appointed by Egypt with the assent of Great Britain. The British and Egyptian flags are flown together. Since 1910, when a governor-general's council was created, laws have been made by the Governor-General in Council. The Sudan is divided into 13 Provinces, each under a governor. Following the assassination of Sir Lee Stack in 1924, Egyptian troops in the Sudan were evacuated and a force of Sudanese under British officers was organized under the direct authority of the Governor-General. Governor-General in 1931, Sir John L. Maffey. See EGYPT.

**ANGOLA**, an-gô'là, or **PORTUGUESE WEST AFRICA**. A Portuguese colony on the west coast of Africa, situated between the Belgian Congo and South-West Africa. Area, 486,071 square miles; population (1926), 2,481,956 natives and about 40,000 Europeans. Capital, New Lisbon (Nova Lisboa), formerly known as Huambo; other important towns, São Paulo de Loanda, Cabinda, Ambriz, Novo Redondo, Benguela, Lobito, Mossamedes, and Porto Alexandre. The interior plateau lands are fertile and well watered. Lobito, considered the best natural port on the west coast of Africa, has replaced Benguela as the shipping point for southern Angola.

In 1930, there were 68 elementary schools for Europeans and 26 industrial and 20 agricultural schools for natives, with a total enrollment of about 5000. The principal products are coffee, rubber, wax, sugar, vegetable oils, coconuts, ivory, oxen, and fish. Mineral products include diamonds, malachite, copper, iron, petroleum, and salt. Gold also is found.

Imports in 1929 amounted to 314,216,000 escudos (about \$13,825,000 at escudo exchange rate of \$0.0447 in 1929) and exports to 281,920,000 escudos (about \$12,404,000). Trade is largely with Portugal. Budget receipts in 1928-29 were 163,612,860 angolares and expenditures 181,457,931 angolares (about \$9,816,000 and \$10,887,000, respectively).

Railway lines in operation in 1930 totaled 1436 miles. The Benguela Railway from Lobito was linked with the Katanga Railway in the Belgian Congo in March, 1931, affording a shorter outlet for the mineral wealth of Katanga and Northern Rhodesia, and completing the final link in a transcontinental system connecting Lobito with Beira on the east coast and with Cape Town on the south (see CONGO, BELGIAN). There are 18,000 miles of wagon and motor roads and 5790 miles of telegraph line. Government is in the hands of a governor-general, assisted by a partly elective consultative council. Headquarters are at Loanda. There is a military force of 740 Europeans and 6000 natives. Governor-General in 1931, José Dionísio Carneiro de Sousa e Faro.

**ANHALT**, an'hält. A State of the German Republic. See GERMANY under *Area and Population*.

**ANIMAL DISEASES**. See VETERINARY MEDICINE; LABRADOR; LIVESTOCK; and DAIRYING.

**ANNAM**, an-nām'. An Asiatic protectorate of France, forming a part of French Indo-China. (See FRENCH INDO-CHINA.) Annam's present status was established by the treaty of Feb. 23, 1886. Area, about 39,758 square miles; population in 1929, 5,425,000, including 4569 European civilians. Capital, Hué, with a population of 45,000 in 1929; largest town, Binh-Dinh, with 545,000 inhabitants in 1929. The principal port is Tourane.

Besides seven higher secondary and professional schools, with about 2243 students, there were in 1930, 754 preparatory schools with 29,797 pupils; 122 elementary schools, with 10,647 pupils; and 57 secondary schools, with 14,613 pupils. Products include rice, cotton, corn, and other cereals, the mulberry, the areca nut, cinnamon, tobacco, sugar, betel, manico. The forest products include coffee, dye, medicinal plants, caoutchouc, and cardamoms. Raw silk also is produced. Copper, zinc, coal, hematite, iron, gold, and salt are worked to some extent. Imports in 1929 totaled 115,737,000 francs (68,580,000 francs in 1928) and exports were 67,787,000 francs (63,029,000 in 1928). One franc equaled about \$0.0392. The local budget for 1930 balanced at 11,043,300 piasters (1 piaster equals \$0.39). Ships clearing the port of Tourane in 1929 had a total tonnage of 586,838. King Bao-Dai, who succeeded to the throne Nov. 6, 1925, is the nominal head of the government, and is assisted by a Council of Ministers, but actual power resides in the French Resident Superior. A Chamber of Representatives with limited powers was established in 1926. See FRENCH INDO-CHINA.

**ANNELIDS**. See ZOOLOGY.

**ANNIVERSARIES**. See CELEBRATIONS.

**ANSCHLUSS**. The movement for the political union of Austria and Germany, which found expression in 1931 in the Austro-German Customs Union proposal. See AUSTRIA, FRANCE and GERMANY under *History*.

**ANTARCTIC EXPLORATIONS**. See POLAR RESEARCH.

**ANTHROPOLOGY**. This was not a fertile year for anthropology: no news or views of particular significance were announced, expeditions were curtailed, and publication was at low level. Needless to say the reduction of activities was due to the general depression. Anthropology is peculiarly susceptible to variations in financial support; expeditions and to some extent publications being financed largely by private gifts. Naturally, this need not have affected the appearance of important findings, so that their absence this year may be laid to accident.

Several articles of theoretical significance appeared, largely as affirmations of aims. In emphatic reaction to the view that culture is a static structure refined by tradition, E. Sapir insisted on our recognition of it as a network of understandings between members of social units of whatever kind or degree of organization. It is not truly what it appears, a static sum of social institutions, but is reanimated or creatively reaffirmed by the interaction of its participants. Here the universal medium of social contact, language, serves as fully an effective mechanism among primitive peoples as among the most civilized. The principal aim of culture growth has been to connect originally discrete elements into larger systems common to the group, and to rationalize them in terms of familiar principles.

Among primitive peoples the opportunity for novel interactions is much less than among the civilized because each individual is more fully a participant in every phase of a uniform culture. Psychological conformity is correspondingly much greater in less sophisticated parts of civilized communities (*Encycl. Social Sciences*, iv, 78, 658).

In keeping with the self-consciousness that dictated the appearance of the *Encyclopædia of the Social Sciences* last year, *Methods in Social Science* (Chicago) attempts a scrutiny of the logical basis of anthropological concepts and techniques. The most interesting of these probings is that of A. L. Kroeber, who considers C. Wissler's formulations of the culture area concept and "age and area" interpretations. Both have come in for sharp criticism. Kroeber's judgment is that the culture area is a legitimate classificatory device as a first step toward analysis. The "age-area" concept is based on the well founded assumption that culture traits tend to diffuse: that of two traits the older has normally diffused farthest. Granting that Wissler has mechanically assumed that relative age and distribution are coördinated and has forced his data to make his point, Kroeber asserts the general soundness of the principle when due regard is had for (1) the true comparability of the traits concerned, (2) the contingencies of terrain and contact between peoples. The point has more than passing interest for by this method all inferential historical schemes of the American school have been built. At the same time, in another article Kroeber finds it essential to emphasize the less mechanical aspects of diffusion, the importance of which are easily underestimated. He points out that diffusion plays as important a part in conserving culture elements as tradition. Psychologically both rest on the same basis: imitation (*Encycl. Social Sciences*, v, 139).

Anthropology, like others of the social sciences, has been alert to attain the precision gained by the use of statistical methods. But early statistical attempts, such as those of Tylor and Czekanowski, proved abortive since the units used in calculations could not be defined. The majority of anthropologists see real difference in what is ostensibly the same culture trait, e.g. the use of masks, occurring among two peoples and serving as the basis of the statistical count. The difficulty is partially overcome when the elements counted form part of a single complex of traits which has apparently diffused over a single compact area. F. Clements has therefore returned to the problem with an inspection of *Plains Indian Tribal Correlations with Sun Dance Data* (*Amer. Anth.*, 33, 216). Coefficients of correlation and association, based on the presence of common elements of the Sun Dance among these tribes, show a close relationship among a group of northern tribes and again in a central group. Clements then bases an historical reconstruction on the degrees of relationship shown by these coefficients. The strictures that might be offered to this method are that it lends an air of accuracy to the historical formulation that is spurious, since the units of the count are neither sharply defined nor necessarily comparable, and that equally valid results are obtainable by mere inspection. Clements ignores the circumstance that the traits counted are not of equal weight;

some being fundamental to the ceremony, while others are details of relative insignificance.

The problem of comparative *Race Psychology* (New York) received attention at the hands of T. R. Garth. His adequate and temperate book summarizes all experimental investigations and significant points of view to date. The results are throughout negative. In summary, he finds no racial differences in sensory traits and no satisfactory quantitative difference in intelligence or intellectual concentration. Association processes and temperament are fairly well distributed in all races and there is no specific racial personality. Observable differences are, in his opinion, primarily the result of learned factors, i.e. education and culture.

Interest in this question is also evidenced by the announcement that the Uzbek Research Institute of Samarkand and the Moscow Institute of Experimental Psychology despatched a large group of investigators in July to Uzbekistan. There they will study the psychological characteristics of peoples at various levels of cultural development. Work is to begin among the primitive nomads of the Alai Mountains and the agricultural population on the River Narin.

A new journal, *Wira Kocha* (Lima, Peru), devoted to studies of Peruvian anthropology, made its appearance under the editorship of J. C. Tello. This balances the termination of *Indian Notes* (New York).

**PHYSICAL ANTHROPOLOGY.** Few finds of the fossil races of man were made during the year, but interest attaches to that of a Neanderthal child, dating from the later Pleistocene age, made by T. McGown in a cave at Athlit, near Mt. Carmel, Palestine. As the third child's skeleton discovered, it now becomes possible to investigate developmental processes in this race.

Even more important for anthropological progress than the discovery of new remains of fossil types is the publication of descriptions. A detailed account of an adolescent skull of *Sinanthropus* (Peking man), found in 1929, was made available by D. Black (*Palæontologia Sinica*, ser. D, 7, fasc. 2, Peiping). While it is evident that *Sinanthropus* and *Pithecanthropus* (Java man), both dating from early Pleistocene, resemble one another more than any other human type, the former is differentiated by its more generalized archaic character. Black still maintains that *Sinanthropus* is to be considered a distinct species of fossil man. A description of the Neanderthal skull found at Saccopastore, near Rome (announced 1929) by S. Serji (*L'Anthropologie*, 41, nos. 3-4), indicates that it is one of the best preserved skulls of this race. The cranial capacity of 1200 cc. is the smallest yet known, and combined with its general refinement, makes for the probability that this was a woman's skull. Unlike most Neanderthal specimens, it appears that the carriage of the head was erect as in modern man.

On the relation of man and the apes, there was the interesting suggestion that the difference in the time at which teeth erupt results from the relative lengths of jaws (M. Degerböl, *Meddelelser om Danmarks Antropologi*, Copenhagen, iii, 2, 235). In apes the eruption and loss of the deciduous teeth and the appearance of the permanent is a continuous process. This is possible because the permanent set comes into place behind the milk teeth in their long jaws. In man

the eruption of the permanent set, delayed for years, hinges on first shedding the milk teeth they replace and on the growth of the jaw necessary to accommodate them.

The problem of populational trends over a long span was attacked by E. A. Hooton in his consideration of the skeletal remains from *The Pueblo of Pecos* (New Haven). This New Mexican site was occupied for some ten centuries. It appears "that the population became more and more homogeneous in cranial characters and more and more diversified in other skeletal features." Appended to this study is a general statement on the peopling of the New World. Hooton interprets the slender evidence for the precedence of long headed types over broad headed as an early invasion of pseudo-Australoids ("an archaic form of modern man"), containing a Negroid (not Negro) strain, compounded with a type related fundamentally to the Mediterranean race. Following this came an influx of brachycephalic people of Mongoloid type. The last wave of immigration brought the somewhat specialized Eskimo. The alternative possibility that these resemblances to Old World types may have risen independently by a convergent development does not appear to have been seriously considered.

A further contribution to the origin of the Eskimo was offered by H. L. Shapiro (*Anth. Papers Amer. Mus. Nat. Hist.*, 31, pt. 6) on the basis of measurements of the present populations. He points out that the striking similarity of such widely placed groups as "modern Eskimo from Smith Sound [north Greenland], Coronation Gulf [north coast of Canada], and Seward Peninsula [west Alaska], and the Chipewyan Indians from Lake Athabasca [north central Canada] suggests that the immediate origin of these Eskimo must be placed in the interior of Canada west of Hudson Bay." This agrees with current ethnological conclusions regarding the Eskimo as a whole. Shapiro adds, however, that the migration from this district "seems to be recent and superimposed upon an earlier distribution of Eskimo" of different type.

OLD WORLD ETHNOGRAPHY. For the most part contributions to this field have been brief and scattered. The interest in M. Mead's study of *Social Organization of Manua* in Samoa (*Bishop Mus., Bull.* 76) lies in its emphasis on the antithesis of individual behavior with the formal social structure. Samoan organization is highly flexible and serves as an instrument for political intrigue and personal ambition, despite the seeming stability evidenced by its traditionalism. The stress on the dynamic flow of this culture rather than on its crystallized institutional aspects reflects the influence of F. Boas.

Two volumes on tribes of Northern Nigeria by C. K. Meek (*A Sudanese Kingdom and Tribal Studies in Northern Nigeria*, London) present a general account of the Jukun, as well as detail of the social organization and languages of a large number of little-known tribes.

Extended accounts of tribes of South Africa are rare, though not surprisingly so in view of the breakdown of native society by white settlement. Hence the value of H. A. Stayt's *The Bavenda* (London), a Bantu tribe still preserving their native culture in the Zoutpansberg Range of North Transvaal.

NEW WORLD ETHNOGRAPHY. Scientific study of North American ethnography dates only from

the opening of the present century. Investigations into the manners and customs of the Indians have now been carried on in practically every part of the continent. Even in eastern United States where many tribes are nearly extinct, a surprising amount of information has been systematically collected. The largest areas still unsurveyed are the northern interior of Canada, the Great Basin of western United States, and the southern Plains region. That these areas will not long remain neglected is evidenced by activities of the current year; e.g. the appearance of Birket-Smith's account of the Chipewyan of Canada and Lesser's investigations of the Plains Caddoans.

During the last decade the most systematic surveying has gone on in the United States west of the Rockies. Due primarily to the efforts of the State University, California has received the major share of attention, so that to-day something is known of practically every Indian group resident within its borders and full accounts are available from half a dozen tribes. Little more can be done, however, in the region of old Mission influence, where the natives are either extinct or have lost almost the whole of their aboriginal culture.

Descriptive surveying of Washington was well under way, although most of the available accounts of tribal customs were still random and incomplete. Practically nothing had yet been attempted in Oregon. While it was still possible to collect information east of the Cascades, the natives of the western half of the State were annihilated or so shattered in the wars of the 1850's as to preclude a complete survey. Systematic efforts were still possible in the mountain States. This holds also for the Great Basin, where the lowly culture of the Indians of Nevada and Utah had never proved attractive. Much of this area may have been unoccupied.

Arizona contains a greater number of tribal groups still nearly aboriginal than any other State in the union, yet reasonably complete accounts are available from only three or four. Here however there has been a concentration of effort on the part of a number of eastern institutions, so that a few years should see most of the area satisfactorily described.

One of the least known regions, the northern interior of Canada, is by no means easy territory to work, since the natives are few and scattered and difficult of access. The culture has often been dismissed as little more than an undeveloped survival of the primitive culture of the ancestral Indians immigrant to this continent. K. Birket-Smith's *Contributions to the Ethnology of the Chipewyan* (*Rept. Fifth Thule Exped.*, Copenhagen, vi, no. 3), which presents the first reasonably full account of a people of this area, shows, that while the culture is indeed simple, it has at every point distinctive elements.

How far the culture of the Algonkins of the Great Lakes extended in this direction was investigated by J. M. Cooper. To him it seems that the culture of the Athabaskans of the Mackenzie Basin is essentially one with that of the Algonkins. Hunting territories, for instance, are inherited as among the Eastern Algonkin, and types of hunting magic and divination are shared by the two.

In older literature the Seri of the west coast of Mexico occupied an exaggerated place as a

people of animal-like endowment, "more dominated by instinctive impulses and less capable of cultural development than other peoples." This because of McGee's tenuous conjectures, based on a fleeting visit in 1894. Happily A. L. Kroeber restores sanity to the picture in a brief account (*Southwest Museum Papers*, Los Angeles, no. 6) which shows them essentially the same as other desert dwellers of northwest Mexico and Arizona.

In *A Sketch of Northern Sahaptin Grammar* (*Univ. Wash. Publ. Anth.*, 4, no. 2) M. Jacobs groups the Sahaptin dialects of Washington in a unit coördinate with Nez Percé of Idaho (together forming Powell's Shahaptian stock) and reaffirms their genetic connection with Molala-Cayuse and Klamath-Modoc southward in Oregon. The term Sahaptin is thus extended to include this larger linguistic family of three major divisions.

Shoshonean, as one of the most widely flung linguistic divisions of west North America, offers exceptional opportunities for studies of primitive dialectic variation. E. Sapir offers a grammar of Southern Paiute as a norm on which such studies may be based (*Proc. Amer. Acad. Arts and Sciences*, 65, no. 1). Beside many novel elements of analysis it presents the first full grammar of any Shoshonean tongue.

Chronology within a local area was amplified by *Recently Dated Pueblo Ruins in Arizona* (E. W. Haury and L. L. Hargrave, *Smithson. Misc. Coll.*, 82, no. 11) which fix the Pueblo III period (Great Period) in the Little Colorado drainage as middle thirteenth to early fifteenth centuries A.D. Since these ruins contained pottery painted with lead glaze all doubt is now removed that lead glazing in the Southwest antedates Spanish influence.

A survey of a wide area, on the other hand, was W. K. Moorhead's *Archæology of the Arkansas River Valley* (New Haven). Here in succession were found along the river a series of cultures ranging from typical mounds of Southeastern type to Pueblo remains in the headwaters. Unfortunately no precise delimitation of types or succession in time was forthcoming as a result of the survey.

The reputed contemporaneity of artifacts and fossil remains of Pleistocene animals at Frederick, Okla., is repudiated by O. F. Evans (*Jour. Wash. Acad. Sci.*, 20, no. 19) who maintains that the gravels are a redeposit made after a period of post-Pleistocene uplift. The artifacts and fossils had originally a purely accidental association, and were redeposited where they were found by an eroding stream. Hence, once again, the age of the fossils associated with the remains of man prove no index that America was occupied in Pleistocene times.

The archaeological history of Peru continues as a laborious and inferential fitting together of fragments from local areas. Such it will continue to be until the discovery of definite stratigraphic evidence, which will decisively reveal the main lines of the mosaic. On the northern coast, A. L. Kroeber finds Chimú culture; its early and middle phases extending over the southern half of that area, its late phase over the whole. The middle phase is less local in its outlook than the first, bearing evidence of highland influence on the coastal strip; the late phase is a renaissance of early Chimú, its influence now extending to the southern coast (*Mem. Field Mus.*, ii, no. 2).

**EXPEDITIONS, PERSONALIA.** The expedition of the Naturhistoriska Riksmuseet (Stockholm) in China and Mongolia continued under S. Hedin. Important collections illustrating the lamaistic cult and the culture of the Tebbu (on the Chinese-Tibetan border) were made. G. Bolinder concluded his expedition to Sierra Leone, Gold Coast, and Nigeria in West Africa. During the year E. Nordenskiöld and K. G. Izikowitz of the Gothenburg Museum (Sweden) investigated the religion and language of the Cuna of Panama. Collections were received from field representatives among the Apinagá and Canella (e. Brazil), Chipaya and Siriono (Bolivia), and archaeological material from Colombia.

Greenland was as usual the centre of Danish activity. The southern coast was visited by the Sixth Thule Expedition under K. Rasmussen. Ethnological work was done with the few surviving Eskimos of Cape Farewell and extensive excavations made at Linderrow Fjord by M. Høivæd. Further archaeological work was begun at Angmagsalik (central e. coast) by T. Mathiasen and at Clavering Island (northeast coast) by H. Larsen. W. Thalbitzer continued his studies of West Greenland dialects. The Museum für Völkerkunde (Leipzig) dispatched E. Erkes to China for the study of Taoism. Collections made by C. Nimuendaju were received from the Canella and Schavante (Ges tribes of eastern Brazil). The Staatliches Forschungsinstitut für Völkerkunde (Leipzig) fostered several African expeditions: J. H. Wilhelm among the Okavango (Southern Angola), B. Struck and A. H. Bernatzik to Portuguese Guinea and the neighboring Bissagos Islands, and G. Spannaus and K. Stölper to the Vandau and Baschleungwe (Portuguese East Africa).

The British Museum's fifth expedition to British Honduras under T. E. Joyce returned in May after excavating at Pusilhá. The Institut d'Ethnologie (Paris) furthered the African researches of M. Griaule in Daka-Djibouti, M. Cochain in Hoggar, Mlle. Jouin in Morocco, and Mlle. Dijour in British Columbia.

The activities of the Dirección de Monumentos Prehispánicos of Mexico were directed to excavations of ruins at the Pyramid of Tenayuca (D. F.), Calixtlahuaca (Mexico), Cholula (Puebla), Monte Albán (Oaxaca), with further extended excavations at Chichén Itzá (Yucatan).

For the American Museum of Natural History (New York) H. J. Bockelman investigated shell-heaps on the east coast of Central America and G. C. Vaillant near Ticoman in the Valley of Mexico. R. M. Snodgrass reported the occurrence of artifacts of Folsom type (of possible Pleistocene age) from El Paso to southern Wyoming. H. L. Shapiro continued his studies of oriental types in the Hawaiian Islands and in Japan and China. M. Mead returned to New Guinea for ethnological research. The Museum of the American Indian (New York) joined the University Museum (Philadelphia) in dispatching G. Mason to Venezuela and Colombia for ethnology; H. S. Dickey explored the Orinoco and F. Johnson visited the Micmacs of Newfoundland.

The University Museum (Philadelphia) had a large number of expeditions in the field in co-operation with other institutions. In Iraq (Mesopotamia) they excavated at Ur, at Tar Khalan near Kirkuk, at Tell Billa near Mosul, at Tepe Gawra; in Palestine at Beisan and Mugharet-el-Wad near Jerusalem; in Persia at

Damghan; in Egypt at Meydum. Other archaeological and ethnological studies were made among the Tlingit and on Prince William's Sound, Alaska; to the Matto Grosso (South America); and to Piedras Negras (Guatemala).

The Bureau of American Ethnology (Washington) made two staff additions, W. D. Strong and W. M. Walker. Linguistic and ethnological investigations were carried on by J. R. Swanton among the Chitimacha and Tunica (Louisiana), T. Michelson among Cheyenne, Fox, and Kickapoo (Iowa and Okla.), J. P. Harrington among surviving groups of southern California, and J. N. B. Hewitt among the Iroquois (Ontario, N. Y.). Archaeological reconnaissance was conducted by M. W. Stirling in the southern States and Haiti, by W. D. Strong in the Dakotas, and N. M. Judd in southeastern Arizona, while W. M. Walker excavated in Arkansas and Louisiana, F. H. H. Roberts in eastern Arizona, and F. M. Setzler on the Gulf coast near Brownsville, Texas.

The Carnegie Institution of Washington continued its primary activities in the Maya field, Yucatan. Further excavations were made at Chichén Itzá and Yaxchilan by S. G. Morley and by A. L. Smith at Uaxactun (Guatemala). O. G. Ricketson prepared the ground for excavations in the Guatemalan highlands. Among the living Maya, R. Redfield investigated sociological conditions, M. Andrade linguistics, and M. Steggerda physical anthropology and basal metabolism.

The Field Museum (Chicago) also operated in this area, with J. E. Thompson at San José, western British Honduras, and in Guatemala. P. S. Martin continued excavation at the Lowry ruin (southwestern Colorado). Further excavations at Kish (Iraq) in cooperation with Oxford University were made by S. Langdon. In these ruins, which extended back to 4000 B.C., was found evidence of connection with India about 2800 B.C. and on another level a Persian palace of Sassanian dynasty (*circa* 350 A.D.). A study of the physical anthropology of the same region by H. Field shows that the modern inhabitants had changed little from those of ancient Kish. The Southwest Museum (Los Angeles) continued exploration of Gypsum Cave (near Las Vegas, Nevada) under M. R. Harrington, where human remains were found in association with extinct animals. A reconnaissance of the archaeology of the Californian desert was made by W. H. Campbell.

American universities continued active. For Columbia University, F. Boas investigated the Kwakiutl (British Columbia), G. Reichard the Navaho and R. Underhill the Papago (Arizona), R. Benedict the Mescalero Apache (New Mexico), and P. Gordon the Comanche (Okla.). R. Bunzel was occupied with ethnology in Guatemala and E. C. Parsons in Oaxaca. J. M. Cooper of the Catholic University (Washington) revisited the Tete de Boule (Ontario) and extended his survey as far as Great Slave Lake. At the University of Pennsylvania, F. G. Speck studied language and ethnology of the Catawba (South Carolina), Montagnais-Naskapi (Quebec), and Delaware (Okla. and Ontario).

The University of Chicago had F. C. Cole conducting excavations in mounds of central Illinois, C. Wisdom studying the ethnology and language of the Chorti (Guatemala), K. Oberg the economic system of the Tlingit (Alaska), and B. Haile the language of Jicarilla Apache and

Navaho (New Mexico). An expedition to the Djabo (eastern Liberia) under G. Herzog returned with rich linguistic and musical material. W. Bennett and R. Zingg studied the culture and language of the Tarahumare (Chihuahua), and the latter continued an archaeological survey over a wider area.

For the University of California, E. M. Loeb gathered material on Patwin and Maidu ceremonialism (California), R. Beals on the Mayo (Sonora), and L. M. O'Neale on textiles in Peru. R. L. Olson joined the university staff. Perhaps the most significant movement among the universities was the establishment of a graduate division of anthropology at Yale under E. Sapir.

The Committee on Research in Native American Languages reported expeditions for linguistic purposes to the Tonkawa (Texas), Apache and Lipan (New Mexico-Chihuahua: H. Holjer), to the southern Caddoans and Pawnee (Nebraska-Oklahoma: A. Lesser and G. Weltfish), Natchez (Mississippi: V. Riste), to the Siouan Dakota and Crow (South Dakota-Montana: E. Deloria and R. H. Lowie), to the Patwin, Pomo, Yuki, and Yokuts (California: P. Radin, J. de Angulo, M. Uldall, and S. Newman), to the Washo (Nevada) and Wishram (Washington: W. Dyk), to the Tillamook and Cayuse (Oregon: M. Mandelbaum and M. Jacobs), Nez Percé (Idaho: A. Phinney), Interior Salish (Washington: V. Ray and V. Walters), and to the Nitinat (British Columbia: M. Swadesh).

NECROLOGY. Emil Torday, by birth a Hungarian, a distinguished authority on Africa, died May 9, aged 56. His best known work was an ethnography, *Les Bushongo*. England lost A. P. Maudslay, known for his investigations of Mayan and Aztec sites in Mexico and Central America, on January 23, aged 81. Herman F. C. ten Kate, born in Amsterdam, was a physical anthropologist, whose field work was chiefly in America and the Dutch East Indies. He died at Carthage, North Africa, on February 5, aged 72. Josef Bayer and Franz Heger, both connected with anthropological activities of the Natural History Museum, Vienna, died, the former on July 23. George A. Dorsey (q.v.), who as curator at the Field Museum, Chicago (1898-1915), was largely responsible for the amassing of their extensive anthropological collections, died March 29, aged 63. His scientific writing was principally on Plains Indian ceremonialism; his most popular book *Why We Behave Like Human Beings*.

ANTIGUA. See LEEDWARD ISLANDS.

ANTIOCH COLLEGE. A nonsectarian co-educational institution in Yellow Springs, Ohio, founded by Horace Mann in 1853 and reorganized in 1920 by Arthur E. Morgan with the aim of embodying anew the educational philosophy of its first president. The number of students enrolled for the first semester of 1931-32 was 586, of whom 371 were men and 215 women. The faculty had 88 members. The productive funds of the institution amounted to \$264,401, and the operating income for the year was \$422,886. The library contained approximately 37,000 volumes. Research projects closely associated with the school were established in the fields of physics, chemistry, biology, and medicine, and approximately \$540,000 was made available to complete their studies. Antioch College is conducted on the belief that academic training alone does not fit the student for life, and is so organized that the student divides his time between liberal and

professional studies at college and practical work in the professional, industrial, and commercial institutions of the central and eastern States. An extramural faculty normally supervises the location of students in about 175 firms and institutions in 15 States during these work periods, which alternate with study periods in five-week intervals. President, Arthur E. Morgan, D.Sc.

**ANTIQUES.** See ART EXHIBITIONS; ART MUSEUMS; ART SALES.

#### **ANTI-SALOON LEAGUE OF AMERICA.**

A federation of churches and temperance organizations in the United States, united against the beverage liquor traffic. It was established in 1895 by a coalition of the anti-saloon leagues of four States and the District of Columbia. At the end of 1931 it embraced 48 State or territorial leagues and had affiliation with 40 other national temperance organizations, as well as with the World League against Alcoholism (q.v.).

During 1931 the work of the league, which was conducted by more than 2000 representatives, included a widespread educational campaign on the evils of the use of alcohol and the duty of observance of the law, carried on through the press, the pulpit, the lecture platform, by radio, and the drama. Its legislative programme emphasized support of the measures urged by President Hoover for the better enforcement of national constitutional prohibition. These included the Reorganization Act of 1930, providing for the transfer of the investigative functions of prohibition enforcement from the Treasury Department to the Department of Justice, which became effective on July 1, 1930; the Stobbs Act, to define petty offenses under the prohibition law with a view to bringing them within the proposed enlarged powers for United States commissioners, which became effective Jan. 15, 1931; and House of Representatives bill 10341, to define petty offenses against the penal statutes of the United States, so that the same procedure would apply to all petty criminal offenses, as was suggested by the Commission on Law Observance and Enforcement with respect to minor offenses under the prohibition law, which became effective Dec. 16, 1930.

The league issued statistics, based on official reports, demonstrating that consumption of intoxicants had dropped to a small fraction of its former total and giving the consequent economic, social, moral, and physical benefits of prohibition to the people of the nation. The league centred its activities on the organization of local and State groups for the encouragement of enforcement authorities and the support and expression of popular opinion on prohibition. In addition to many thousands of leaflets, documents, and books distributed, it published *The American Issue* in Westerville, Ohio, with a monthly circulation of about 1,000,000 copies and with State editions in 24 States.

The officers of the league in 1931 were: President, Bishop Thomas Nicholson, Detroit, Mich.; secretary, S. E. Nicholson, Media, Pa.; honorary treasurer, Foster Copeland, Columbus, Ohio; treasurer, H. B. Sowers, Westerville, Ohio; general superintendent, F. Scott McBride, Washington, D. C.; director of the department of education, Ernest H. Cherrington, Washington, D. C.; attorney, Edward B. Dunford, Washington, D. C. See PROHIBITION.

**ANTI-SEMITISM.** See JEWS; also POLAND.

**AOSTA, 18-08-tà, EMANUELE FILIBERTO, DUKE OF.** An Italian prince of the House of Savoy and cousin of King Victor Emmanuel III, died in Turin July 4, 1931. He was born in Genoa Jan. 13, 1869, son of Amadeus, Duke of Aosta, who was King of Spain from 1870 until the Republican revolution of 1873. Adopting a military career, he successively commanded the 1st Army Division at Turin and the 10th Army Corps at Naples. When the World War began he was on the retired list, but was later appointed to the command of the 3d Army to succeed General Zuccari. He remained in that position throughout the War and won the admiration of the nation when after the Caporetto disaster in October, 1917, he succeeded in extricating his army intact. On reaching the Piave River, during the retreat, this army bore the brunt of the fighting in holding the Italian main line against further Austro-German advance. It also played an important part in the Allied counter-offensive, leading to the final victory at Vittorio on Oct. 30, 1918, and was named the "Unconquered Army." In 1926 the Duke of Aosta was made a marshal.

**APARTMENT HOUSES.** See ARCHITECTURE.

**APPENDICITIS.** See SURGERY, PROGRESS OF.

**APPLES.** See HORTICULTURE; ENTOMOLOGY, ECONOMIC.

**AQUEDUCTS.** Four great American aqueduct projects were noted in the 1930 YEAR BOOK—those for the supply of New York, Boston, San Francisco, and Los Angeles. These are all major projects, which rank among the largest works of their kind in the world, and attention naturally centres on them.

**NEW YORK.** The proposal, outlined in the 1929 YEAR BOOK, to secure an additional supply for the Greater New York area by tapping the tributaries of the Delaware River in the Western Catskills, was held up due to interstate difficulties. The special master appointed by the U. S. Supreme Court to hear the arguments of the three States interested—New York, New Jersey, and Pennsylvania—recommended the allowance of a limited diversion by New York in a report dated February 2. This decision has a far-reaching importance in connection with water rights in the Eastern States as it undoubtedly establishes, and for the first time, the basis on which interstate rights will hereafter be apportioned.

New York had proposed to divert 600 m.g.d. (million gallons daily) from the Delaware source. In order, however, to protect the rights of the other States on the Delaware River, considering that river both as a waterway and as a future source of water supply within these States, the allotment to New York was reduced to 440 m.g.d. It was also required that New York should maintain a minimum flow below the points of diversion in the streams affected, by releasing water, during periods of drought, from the reservoirs to be constructed. This report was sustained by formal action of the Supreme Court on May 5.

The New York authorities were thus faced with the problem of determining whether the cost of the new Catskill supply, thus limited in amount, justified this construction as against some other possible source. Apparently the only other source would be in the Adirondacks and it was announced that the city authorities would develop the Delaware supply as rapidly as land could be acquired for the works. For outline of this proj-



ect, which involves an aqueduct longer and larger than the Catskill aqueduct of 1905-17, see 1928 YEAR BOOK.

Satisfactory progress was also made during the year in driving the deep 20-mile water distribution tunnel under New York City which will join Hill View Reservoir with the terminal point of Tunnel No. 1 at Fort Greene Park, Brooklyn. This 15 to 17 feet circular bore was being driven from 19 shafts, and, with Tunnel No. 1, will form a huge tunnel loop under the Bronx, Manhattan, Brooklyn, and Queens, from which water will be supplied to the distributing mains in the city streets. A new method of distribution thus was developed to meet the needs of this greatest urban centre and free the streets of dangerous, long, multiple lines of distribution pipe.

The extraordinary conditions brought about by the low flow of the streams supplying New York, particularly during the early part of the year, should also be noted. The flow was so reduced as to equal the worst drought on record since 1868. The seriousness of the situation is reflected in the following figures showing comparative yields.

Month	Average yield M. G. D.		
	Schoharie	Esopus	Croton
January, 1930 .....	416.1	343.5	400.9
January, 1931 .....	37.5	17.8	209.2
February, 1930 .....	296.6	246.2	376.4
February, 1931 ...	65.0	95.5	430.0

During the period from July 1930 to March 1931, stream flow in the Catskill system (Schoharie and Esopus) averaged only 60 per cent of normal. Furthermore, stored water in the Catskill reservoirs, at the end of March, to meet the normal summer demands and low flow, amounted to approximately 27,000 m.g. as compared with 120,000 m.g. in the previous year.

Accordingly emergency measures were taken to make additional water available from wells in Long Island and a pumping plant was also established between the Croton gate house and the Catskill aqueduct near Kitchawan, N. Y. Surplus Croton water was thus made available in the high level Catskill line. The city's normal consumption of 930 m.g.d was also reduced to 860 m.g.d by eliminating street flushing and other non-essential uses by city departments. Heavy rains during late April and early May relieved the situation.

BOSTON. The diversion of water from the Swift and Ware Rivers, tributaries of the Connecticut, for the additional supply of the Boston Metropolitan area, was upheld, without prejudice, by the U. S. Supreme Court in a decision of February 20. It was held that this diversion would not result in substantial injury to the State of Connecticut. Bids were opened March 26 for the construction of the connecting aqueduct tunnel between the Swift and Ware Rivers, and the work was thus going rapidly forward. This decision, with that affecting New York, constituted the first ruling on interstate waters in the East where the time-honored principle of riparian rights was set aside. It substituted therefor a broader policy based on economic justification irrespective of either State boundaries or riparian law.

SAN FRANCISCO. At the beginning of the year, San Francisco's new aqueduct was nearly half way through the last 28¼-mile mountain barrier.

This Hetch-Hetchy line, described in previous YEAR BOOKS, had been under way for almost 20 years. In its 156 miles of line no less than 85 miles is in tunnel.

While the extraordinary drought of 1930-31 was causing much concern in New York, as noted above, the San Francisco area was experiencing an equally dangerous period of low flow following a series of years of great dryness. This caused an emergency which had not been foreseen and forced the city authorities to make a hurried and expensive connection with the East Bay Municipal Utility District system as well as to approve an emergency pipe line over the coast range mountain barrier to bring Hetch-Hetchy water to the city, pending the completion of the tunnel above noted. Through the East Bay connection, rushed to completion in 100 days, some 10 m.g.d was purchased for San Francisco. The Hetch-Hetchy 45 m.g.d. emergency line was 25.9 miles long and required a pumping lift of 1325 feet. This latter construction also involved rushing the completion of the 47½ mile San Joaquin siphon, described in the 1930 YEAR BOOK and about half completed, in order to complete the Hetch-Hetchy line to the city.

It was unfortunate that this shortage had to be met by these extraordinary expenditures as the Hetch-Hetchy supply, when finished, will meet the demands of San Francisco for years to come.

LOS ANGELES. The selection of the so-called Parker route for the record-breaking Colorado River-Los Angeles Aqueduct, was noted in the 1930 YEAR BOOK. It was estimated that the construction of this 265.5 mile line would require six years and that two years would be necessary for preliminary studies and plans. Road construction, and other work preliminary to construction, was started September 30. An immense amount of such work was necessary in order to reach the isolated area in which the line is located. This first activity was made possible by the passage on September 29 of a \$220,000,000 bond issue to finance the work. It was claimed that the greatest campaign of publicity ever undertaken was carried out by the Metropolitan Water District of Southern California in order to secure this construction. In spite of much opposition and the nation-wide depression, the vote was 5 to 1 in favor of this stupendous undertaking.

ATHENS, GREECE. The work which had been going forward in this classical centre of the Old World has been noted in previous YEAR BOOKS. (See *Marathon Dam*, under DAMS, 1929). Several years previously the ancient aqueduct built by the Roman Emperor Hadrian was cleaned out and partly rebuilt. The new work, however, involves a strictly modern system consisting of a storage reservoir formed by the Marathon Dam, a 20-mile aqueduct from the dam to the city, and a filtration plant and service reservoir at the city.

The most interesting part of the aqueduct is the 8.37 mile Boyati Tunnel which cuts through the long low saddle between the Parnes and the Pentelikon Mountains. It is said to be the longest hydraulic tunnel in Europe. Great difficulty has been encountered in this work due to the heavy and unstable ground through which it passes. One area, in the north section, of squeezing ground with large inflows of water, forced the selection of a new line around this obstacle. A shaft was sunk to the south and the southern portion of

the tunnel was holed through to this shaft on April 2. Work then went forward on the new northern alignment. Ulen and Co., are the contractors on this interesting \$11,000,000 work, and they are also under contract to manage the water supply for 25 years. See **WATERWORKS AND WATER PURIFICATION**.

**ARABIA.** A peninsula in southwestern Asia situated between the Red Sea and the Persian Gulf. The area is estimated at from 1,000,000 to 1,200,000 square miles, the higher figure including the Syrian Desert and the Sinaitic Peninsula. A mountain barrier, parallel to the Red Sea, runs the length of the western part of the peninsula from which the terrain slopes uniformly to the Persian Gulf, with the exception of the Oman district in the extreme southeastern part of Arabia, where a mountainous area with 10,000-foot peaks is found. Barren and sparsely watered, the peninsula nevertheless has numerous large oases. Estimates of the population range from 4,000,000 to 7,500,000. The inhabitants represent every stage of transition from the purely nomadic Bedouin tribes, occupying a large part of the interior, to the well-developed civic life of the large towns. Freed of Turkish control by the World War, the Arabs were at liberty to work out their own political destiny. After six years of internecine warfare, the Ibn Saud dynasty of Nejd emerged as the ruling power, controlling all the peninsula except several small states along the southern and eastern coastal fringe. During this period, the divisions of Arabia became defined as follows:

**KINGDOMS OF HEJAZ (HEDJAZ) AND OF NEJD.** The Kingdom of the Hejaz, founded by King Hussein Ibn Ali in 1916 as the outgrowth of the World War, was conquered at the end of 1925 by Abdul Aziz Ibn Saud, Wahabi leader and Sultan of Nejd. Ibn Saud, on Jan. 8, 1926, was proclaimed King of Hejaz and Nejd. He maintains two capitals at Mecca (Hejaz) and Riyadh (Nejd).

Hejaz occupies the western coast of Arabia between Trans-Jordan on the north and Asir on the south, the latter boundary touching the coast at about 20° north latitude. The estimated area is about 150,000 square miles, although the land frontiers have never been definitely defined, and the population, largely composed of nomads, is placed at from 800,000 to 1,000,000. The chief cities, with their estimated populations, are Mecca (85,000), the holy city of Islam; Medina (30,000), site of Mohammed's tomb; and Jeddah (25,000), the seaport for Mecca. Mecca is visited annually by about 100,000 Moslem pilgrims from abroad, who represent the chief source of revenue for the government. The standard gold currency is the pound sterling, which is equivalent to 10 rials in native currency. Agriculture is confined to the mountain oases and valleys, which produce fruits, dates, and some cereals. Hides, wool, gum, and clarified butter are the leading Bedouin products. Some Arab horses are exported. Imports of the Hejaz are estimated at from \$13,000,000 to \$15,000,000 annually. The southern section of the railway from Amman, Trans-Jordan, to Medina, has been out of commission since 1925. Of a total of some 1055 miles of highway in Arabia in 1930, only 30 miles (mostly in the Hejaz) were graded or drained.

The Kingdom (formerly Sultanate) of Nejd occupies the highland of Central Arabia, with an indefinite area and a population estimated

at 3,000,000. Riyadh, the capital, and Hufuf have populations of about 30,000 each. Dates, wheat, barley, fruits, hides, wool, horses, and camels are the chief products, a few of which, particularly camels, are exported.

The Nejd is governed in patriarchal fashion by the King, acting through Emir Saud, his eldest son, who resides at Riyadh as Viceroy. The Hejaz, however, has a Constitution issued Aug. 29, 1926, which vests all administrative powers in the King. There are six Departments of State and advisory councils of notables and officials approved by the King, including a consultative legislative assembly at Mecca, municipal councils in Jeddah and Medina, and numerous tribal councils.

**ASIR.** A province on the west coast between the Hejaz and Yemen, formerly ruled by the Idrisi dynasty but since 1926 a protectorate of the Kingdom of Hejaz and Nejd. Estimated population, 1,000,000; capitals, Abha and Sabiya. Under an agreement reached between the Idrisi and Ibn Saud, Asir was practically annexed to the Hejaz in 1930.

**YEMEN.** The Imamate of Yemen is an independent Arab state occupying the Red Sea coast between Asir and the British protectorate of Aden. The area is about 75,000 square miles and the population between 2,000,000 and 3,000,000. Sana', the capital, has about 25,000 inhabitants. Barley, wheat, millet, coffee, and hides are the principal products and exports. Ruling Imam in 1931, Yahya Hamid ed-Din.

**THE HADRAMAUT.** A region of fertile valleys to the east of Aden Protectorate, the greater part of which is ruled by the Sultan of Makalla. The territory is under loose British protection and control.

**OMAN.** An independent state occupying the coastal fringe of southeastern Arabia; under the protection of Great Britain. Area, about 82,000 square miles; population, estimated at 500,000, chiefly Arabs but with a considerable Negro element along the coast. Muscat, the capital, has about 10,000 inhabitants, most of whom are Negroes or Baluchis. Exports, consisting of dates, dried limes, pomegranates, and dried fish, are exchanged principally with India. In 1929-30 imports were valued at £317,295 and exports at £142,151. Revenues total approximately 1,000,000 rupees (\$365,000) annually. The reigning Sultan in 1931 was Seyyid Sir Taimur bin Feisal, who succeeded to the throne Oct. 5, 1913.

**KUWAIT.** An Arab territory fringing the northwestern coast of the Persian Gulf, with an estimated population of 50,000. The Sheik, Ahmed ibn Jabir al Subah, is subsidized by the British government. Capital, Kuwait.

**BAHRAIN ISLANDS.** An island archipelago in the Persian Gulf 20 miles from the Arabian coast; under British protection. The total population of about 120,000 is ruled by Sheik Hamad bin Isa al Khalifa. Capital, Manama (population about 20,000). The islands are the centre of the pearl-fishing industry of the Persian Gulf.

For other Arab or partially Arab states, see also **IRAQ, PALESTINE, TRANS-JORDAN, and SYRIA.**

**HISTORY.** Unwonted peace reigned throughout the Arabian peninsula during 1931. From the broad domains of Ibn Saud came no rumor of tribal insubordination such as that which led to the King's chastisement of Feisal ed-Dowish and his followers in 1930. The treaty with Iraq



signed the previous year resulted in a distinct improvement in the relations of the two principal Arab kingdoms. No recurrence of raids by Bedouins from the Nejd and Hejaz across the Iraqi and Trans-Jordan borders was reported and in April Prime Minister Nouri Pasha of Iraq made an official visit to the Hejaz and the Yemen. Opposition newspapers in Bagdad hinted that Nouri Pasha's trip was intended to promote a Pan-Arab union under British auspices.

Ibn Saud took advantage of the period of peace to modernize the communications of the Hejaz and Nejd. The Marconi company during 1931 was engaged in the erection of 15 wireless stations in the principal centres of the kingdom. Marconi officials undertook the training of Arab wireless operators at Jedda and the entire system was to have been in operation by the end of the year.

An important event of the year was the death at Amman, Trans-Jordan, on June 4 of Hussein ibn Ali, Sherif of Mecca from 1908 and King of the Hejaz from 1916 until his abdication in 1924 (see HUSSEIN IBN ALI). Still another was Bertram Thomas's exploration of the Ruba-el-Khali (see EXPLORATION).

It was announced in Washington May 3, 1931, that the United States had extended full diplomatic recognition to the Kingdom of the Hejaz and Nejd. The action was apparently prompted by the expansion in the Arabian demand for American manufactures, many American automobiles having been imported for use in transporting pilgrims between Jedda and the holy city of Mecca. For developments in other Arab or partly Arab states, see IRAQ, PALESTINE, TRANS-JORDAN, and SYRIA.

#### ARACHNIDS. See ZOOLOGY.

**ARBITRATION, INTERNATIONAL.** The League of Nations was encouraged by the development of the methods of peaceful settlement, especially in 1930, following from the number of States bound by the General Act of September 6, 1928, from the number of States bound by Article 36 of the Statute of the Permanent Court of International Justice relating to the compulsory jurisdiction of that court in legal disputes, and according to *The Advocate of Peace*, from the number and quality of the treaties registered with the League. In 1930 the number of States bound by the General Act rose from three to eight. The three States bound on Dec. 31, 1929, were Sweden, Belgium, and Norway, and the five new accessions in 1930 were Denmark, Finland, Luxembourg, the Netherlands, and Spain. Denmark, Finland, Luxembourg, and Spain acceded to the whole of the Act. Norway, that had previously given her partial accession to the General Act, extended her accession to the whole of the Act.

The number of States bound by Article 36 of the Statute of the Permanent Court of International Justice rose during 1930 from 19 to 34. The 15 new States were Albania, Australia, Brazil, Canada, Great Britain, India, Ireland, Latvia, Lithuania, Luxembourg, New Zealand, Salvador, Siam, South Africa, and Yugoslavia. Czechoslovakia and Rumania signed the optional clause subject to ratification.

Fifty-two treaties were registered in 1930, 34 in 1929, 15 in 1928 and 6 in 1927. Thirty-one States were parties to the treaties, namely; United States of America, 17; Luxembourg, Czechoslovakia, each 8; Poland, 6; Spain, Hun-

gary, Rumania, each 4; Belgium, Estonia, Greece, the Netherlands, each 4; Italy, Norway, 3; France, Haiti, Iceland, Latvia, Lithuania, Switzerland, Turkey, Yugoslavia, each 2; Afghanistan, Austria, Bulgaria, Denmark, Dominican Republic, Germany, Persia, Portugal, Salvador, Uruguay, each 1. These 52 treaties may be classified as follows:

I. Those relating solely to conciliation procedure (8); II. Those providing for the compulsory settlement of all or certain categories of disputes (44). Of these treaties, 13 provide solely for arbitration or judicial settlement. The 31 others provide for conciliation, arbitration and / or judicial settlement.

In considering these treaties *The Advocate of Peace* pointed out a distinction must be made between the seventeen treaties concluded by the United States and the 35 others. The seven treaties of conciliation concluded by the United States, and the ten on arbitration are all based on the same models. The conciliation treaties present no noteworthy feature and contain no reservations. The arbitration treaties provide for arbitration solely for legal disputes and include four kinds of reservations: (1) Disputes within the domestic jurisdiction of states. (2) Disputes affecting the interests of third powers. (3) Disputes affecting the Monroe Doctrine. (4) Disputes affecting undertakings under the Covenant.

Concerning these treaties, the following points are to be noted: (1) There is a general tendency to provide in the same treaty for conciliation and for arbitration and / or judicial settlement, 31 of the 35 treaties being of this nature. (2) There is a tendency to submit all disputes to arbitration or judicial settlement. Nineteen of 34 treaties are thus drafted. (3) There is a noticeable tendency to eliminate reservations. Twenty of the 35 treaties contain no reservations. (4) As regards legal disputes, the Permanent Court of International Justice is habitually chosen as jurisdiction. Several treaties even give the Court jurisdiction over all disputes.

By Dec. 31, 1930, 182 treaties for the peaceful settlement of disputes had been registered in the League of Nations Secretariat.

A record number of 52 bilateral treaties providing for conciliation, judicial settlement, or arbitration, or for all three combinations, were registered at the Secretariat of the League of Nations during the year 1930. There were only 34 in 1929, 15 in 1928, and 6 in 1927. The number of states bound by the League's general act for the peaceful settlement of all disputes rose during the year from three to eight: Denmark, Finland, Luxembourg, Spain, and Holland being added to Sweden, Belgium, and Norway. The optional clause to accept the jurisdiction of the World Court increased in the same period from 19 to 34, while two more states had signed the clause but had not yet ratified it.

**TACNA-ARICA ARBITRATION.** A careful, well documented account of the *Tacna-Arica* dispute (see YEAR BOOK for 1929) has been written by Prof. William Jefferson Dennis of the University of Iowa and published by the Yale University Press. It relates the facts incident to the origin and details of the long drawn out boundary dispute between Chile and Peru and of attempted arbitrations by the United States. A consideration of this famous boundary dispute was most timely in view of the upheavals and revolutions sweeping over South America. It

came into being through a heritage of indefinite boundaries. Much valued "guano" lay in an area of uncertain control. Soon, Chile, Peru, and Bolivia began struggling for its possession, a contest that resulted in the strange contrasts of the war of 1879 where the sling shots of the sons of the Incas mingled with the best of modern field artillery, and old wooden ships sailed beside nine-inch armored cruisers. War brought no solution and the dispute dragged on for 40 years. Then came the final remarkable settlement by direct negotiation in 1929. The volume is a clear-sighted analysis and an enduring testimony to the need for arbitration in the modern world.

THE "I'M ALONE" CASE. In the development of this case referred to in the YEAR BOOK for 1930, the Canadian Agent, J. E. Read, through his counsel, submitted the Canadian Claim to the commissioners, The Hon. Willis Van Devanter and the Right Honorable Lyman Poore Duff, and George Wharton Pepper the American Agent submitted his answer. These two documents were in the hands of the commissioners who, under the convention, were charged with the duty of dealing with the case. If they should unite in the opinion that under all the surrounding circumstances this was not a suitable case to be made the subject of international controversy, that would end the matter because the decision of both is final. If after considering the pleadings they should call for evidence and argument, the representatives of both governments are prepared to supply them with what they want. If they do not in the first instance "ignore the bill" and if, after testimony and argument, they should be divided in opinion, the ultimate decision of the case will rest with the Standing Claims Commission which, under the convention, is a kind of appellate court.

A special agreement between the United States and Sweden, signed on Dec. 17, 1930, for the arbitration of claims growing out of the alleged detention in ports of the United States of the motorships *Kronprins Gustaf Adolf* and *Pacific*, owned by a Swedish corporation, became effective by exchange of ratifications on Oct. 1, 1931. By a protocol signed on January 20, 1931, an agreement was entered into between the United States and Egypt for the submission to arbitration of the claim of the United States against the government of Egypt arising out of the treatment of George J. Salem, an American citizen, by Egyptian authorities.

The treaty between the United States and Panama, signed on July 28, 1926, for the arbitration of claims by the citizens of each country against the other, became effective on Oct. 3, 1931, by the exchange of ratifications on that day.

GENERAL AND SPECIAL CLAIMS COMMISSIONS (UNITED STATES AND MEXICO). The two-year extension periods covering the presentation of claims to the Special and General Claims Commissions expired on Aug. 17 and 30, 1931, respectively. On those dates the personnel of the Commissions remained the same except that Fred K. Nielsen had succeeded Ernest B. Perry on the Special Claims Commission as commissioner appointed by the United States. It was understood that negotiations with Mexico looking to the conclusion of agreements providing for further extensions of the working periods of the Commissions were in progress at the end of the year.

The only case decided by the Special Claims Commission since 1929 was a claim for the death of Hubert L. Russell at the hands of Orozco forces in the year 1912. By a majority decision the Commission held that Mexico was not liable under the Special Claims Convention for damages resulting from the occurrence.

MIXED CLAIMS COMMISSION (UNITED STATES AND GERMANY). The vacancy in the office of umpire, caused by the death of Roland W. Boyden, who died Oct. 25, 1931, had not been filled up to the end of the year. The other members of the commission were: Chandler P. Anderson, American commissioner; Wilhelm Kiesselbach, German commissioner. The governments were represented before the commission by Robert W. Bonyngue, American agent, and Wilhelm Tannenbergh, German agent (appointed in March, 1931, to succeed Karl von Lewinski, resigned). The principal assistant to the American agent was Harold Hudson Martin. The secretaries of the Commission were Walter R. Dorsey, American Joint Secretary, and Alfred Luders, German Joint Secretary.

The labors of the Commission were approaching completion in 1931. The principal work remaining to be done was in connection with the supplementary petition for rehearing, supported by documents tendered as newly discovered evidence, filed by the American Agent in the two so-called "Sabotage Cases" (Black Tom disaster, fire and explosions at the Jersey City (N. J.) terminal of the Lehigh Valley Railroad Company, July 29-30, 1916; Kingsland disaster, fire at the assembling plant of the agency of Canadian Car and Foundry Company, Limited, at Kingsland, N. J., Jan. 11, 1917), involving some \$41,000,000 (including interest to date), 150 claimants are concerned in these two cases. The claims notified to the commission totaled 20,425: 12,416 under the Agreement of Aug. 10, 1922, in pursuance of which the commission was established, and 8009 (so-called late claims) under the agreement of Dec. 31, 1928. All of these were finally disposed of, except the Sabotage Cases, in which a rehearing was asked, and several others involving demands aggregating only several hundred thousand dollars.

ARBITRATION, LABOR. See LABOR ARBITRATION AND CONCILIATION.

ARCHÆOLOGICAL INSTITUTE OF AMERICA. A society for the promotion of archaeological investigation and research, founded in Boston in 1879 and incorporated by Act of Congress in 1906. It has largely accomplished its purpose through its schools and a number of important committees, including the American School of Classical Studies at Athens, the School of Classical Studies of the American Academy in Rome, the American Schools of Oriental Research in Jerusalem and Bagdad, the School of American Research in Santa Fe, N. M., the American School of Prehistoric Research at Peabody Museum, Yale University, and the Committee on Medieval and Renaissance Studies. In 1931 it had 55 affiliated societies, or chapters, with a membership of 3425.

The thirty-third general meeting of the institute was held at the University of Richmond, Richmond, Va., Dec. 29-31, 1931. In connection with its study of the Mythology of All Races, the institute published *Semitic Mythology*, by Stephen H. Langdon. The official organ is the *American Journal of Archaeology*, a quarterly, while *Art*

and *Archæology*, a non-technical monthly, is published by the institute's Washington society. The officers in 1931 were: President, Ralph Van Deman Magoffin, New York University; first vice president, David M. Robinson, Johns Hopkins University; general secretary, Albert Billheimer, New York University; treasurer, Rollin H. Tanner, New York University; and recorder, Horace W. Wright, Lehigh University.

**ARCHAEOLOGY.** The worldwide depression apparently had little effect upon archaeological investigation. In Egypt especially the archæologist was active. At the Bakaria (ancient Buchum), where were buried the cows that produced the sacred Buchis bulls, excavations brought to light several mummies of these animals. One head was discovered with the gilding completely preserved upon it. In one case the mummy owed its good preservation to the fact that it had been completely coated with wax. In another instance wax had been applied to the skeleton of the cow. The southern end of the Bakaria was found to be mostly of Roman date and here the cows were buried in bricked vaults. In one passage was a stele of the Emperor Commodus.

At el Meadi, near Cairo, on the left bank of the Nile, the Egyptian University uncovered burials which contained much material in the way of stone and flint implements and vases. This points to the existence here of a town antedating the time of Menes and prior to Memphis—which had been regarded as the oldest city in the world. In the layers of debris were found evidence of storerooms containing large storage jars. Except in one instance the dwellings were oval in plan with wooden posts about a half a yard high still in place. Only one dwelling was found to be square in plan. The painted pottery was similar to that found in Upper Egypt. Copper was in abundance.

At Gizeh more than twenty tombs, all showing interesting inscriptions have been examined. Most of them belong to officials of the fifth dynasty. The most important is that of a high official who married a princess who was the daughter of Naosser-Ro, a king of the fifth dynasty. In the tomb were four excellent lifelike alabaster statues. On the wall was incised the king's will contracting for the administration of his estates by his son-in-law. Opposite to the inscription were 15 statues of the witnesses to the will. In the serdab of Wpemnefert's tomb were found five female statues probably of his wife, Meresankh. One stands with the left foot advanced which is an unusual posture for a female statue. Another tomb was that of Nemaatra, chief singer to Pharaoh. Also near the Sphinx was found the sealed tomb of a young woman of the fourth dynasty. The burial was in a chamber at the foot of a shaft 28 feet deep. Here were discovered 78 alabaster vases and under the head of the mummy a perfect alabaster headrest. A curious discovery was that of clay fingers and toes, never before found in Egyptian burials.

At Hermopolis the Germans freed parts of the temple of Seti II. Digging revealed that the precincts were enclosed by a brick wall about 15 meters thick. The University of Michigan excavated a paved way 121 feet long by 23 feet wide at the end of which is a house which may have been connected with the temple on this site, Kom Aushim, in the Fayoum.

The most interesting find was a big granary, built where two streets intersected. The granary

was enclosed by a great wall and contained numerous bins of different sizes and shapes in the floor of a courtyard. Originally the building was two stories in height. Among the many documents discovered here was a papyrus which gives the name of Caius Julius Apollinarius, who may have been in charge of the granary and a collector of taxes for the Roman government. He seems also to have had charge of the rentals of neighboring lands.

At Meydum the University of Pennsylvania Expedition recovered a red granite sarcophagus about seven and a half feet long, the largest sarcophagus yet found in Egypt. It was discovered in a chamber of massive construction. The roof blocks over the doorway weigh around 30 tons. The finds at Meydum date all the way from 3000 B.C. to late Roman times. An interesting bit of work was the clearing of a pit in mastaba No. 8 which had been left unexcavated by Petrie. It was found that the pit went to a depth of 7.40 meters with the lower part cut out of the solid rock. The pit was packed with great limestone blocks. The chamber at the bottom had been robbed through a small hole cut in the roof to which access was afforded by a tunnel from the east side of the mastaba. In the chamber was discovered the name "Ny-Hep, the King's son." He was the son of Snefru. The sides of the mastaba were found to be 38.25 m. by 20.65 m. in length and it had a height of 9 m. On the east face were three niches.

Excavations on the site of the tomb of Queen Neith at Sakkara exposed a funerary chamber with sides almost intact and showing about 800 lines of religious texts. These are the oldest known. The exposed plan of the tomb gives the best known layout of a tomb of the Old Kingdom. It shows a granite floor flanked by two small obelisks bearing the name of the queen, a vestibule, covered with reliefs, storerooms and, near the pyramid, a sanctuary containing an altar stele. There was as well a small subsidiary pyramid for the reception of gifts for the Sun god.

At Tebtunis the Italians discovered remains of an ancient city in which was a great temple sacred to Seknebtuni, the crocodile god. The approach to the temple was flanked by lions and sphinxes with altars and banqueting halls at intervals. In a corner of the sanctuary were found stables, courtyards, ovens, and the houses of officials and craftsmen connected with the temple. In the sacred cemetery to the south of the sanctuary was found the mummy of a crocodile. In the dwellings of the priests were discovered writing tablets, stools, and wooden receptacles for medicines in use two thousand years ago.

At Tel-el-Amarna work during 1931 was concentrated upon clearing the northern suburb. This was found to be a later development and not laid out so carefully. Here rich men seem to have owned large rectangular lots which they sublet to poor tenants who crowded them with small buildings put close together. To the north and south of the town large estates bordered the main roads. Here also was found a large open area which was used as a public dump. When the town grew this space was filled in and built over. In this part was found a beautiful little limestone head of Ankhsefnef, the wife of Tutankhamen.

At Alexandretta, in Syria, was found a splendid Greek palace in good condition. It dates from the fourth century B.C. In one room, which contained

a large bath with pipes leading to it was found a statue of Hercules giving a wand to Hermes. In the middle of the bath is a tall fountain surrounded by columns. Part of the floor of the room is paved with a fine mosaic. The principal mosaic shows Amphitrite reclining and holding a reptile in one hand and grasping an oar in the other.

At Beth Zur, eighteen miles south of Jerusalem, was found a town with finds dating all the way from the bronze age (2200 B.C.) to the Christian era. At Gazah Petrie has discovered neolithic remains and objects which date from the later Hyksos period. Engineers working at Jerusalem have uncovered what is thought to be part of the wall of David. Garstang's excavations at Jericho revealed a system of fortification antedating the year 2000 B.C. Under one building was found a pottery jar of the early bronze age—1000 years before the time of Joshua. At Jerusalem was discovered a tomb bearing in Aramaic the inscription "Jeshua Bar Jehoseff," which should be translated "Jesus, son of Joseph." It is believed that this strange collocation of names is just a coincidence. Lack of chronological and other data connected with the tomb make it impossible to date it with any degree of accuracy.

The third season's work of the Academy of Inscriptions of the Louvre at Ras Shamra resulted in the clearing of an area north of the earlier excavations. It was found that the strata from 60 centimeters to 4 meters was literally packed with votive offerings consisting mostly of intact local fabrics or importations of the fourteenth to the thirteenth century from Crete. Also some fine Rhodian cups were found, together with late Minoan painted vases.

Excavations in the Dead Sea area have proved that Sodom was actually destroyed by fire. Rifts in the ground in the neighborhood suggest that an earthquake may have contributed to the disaster. The oldest stratum found on the site dates about 2200 B.C.

The expedition of the University of Pennsylvania and the British Museum continued its investigation of the temple of Ishtar at Nineveh. The temple had been gutted and had been rebuilt by Ashurnasirpal in the ninth century. Near the temple were found seven interesting tombs built of mud bricks and dating from the third millennium. On the site were also found many tablets whose inscriptions are of the time of Tiglath Pileser. Among the most conspicuous finds was a bronze or copper male head dating as far back as probably 3000 B.C.

At Tellbillah digging had brought to light a group of tombs of the first millennium B.C. In one burial was recovered a fine bronze bowl which had been used for smoking hashish or some other narcotic. In a tomb of the third millennium were found the arms of an Anatolian chieftain together with a cylindrical seal identifying the owner. In all 72 tombs were opened dating from the third millennium for the most part.

The 14 levels uncovered at Tepegawra indicate that this site is the oldest in Mesopotamia. The site is particularly rich in bronzes dating mostly from the third millennium. The evidence discovered points to extensive relations between Asia and Europe at this early date. At Til-Barsib a large palace of Tiglath Pileser III was found with important frescoes still preserved. Those on the walls of the central hall show the king surrounded by his court and giving an audience

and receiving tribute. Another represents a parade of infantry, horse, and chariots. The third shows most realistically a battle.

Important work was accomplished at Ur. The great tombs of the third dynasty kings have been cleared. In February attention was directed to the residential quarter of the city dating from the age of the patriarchs (1900-1200). Some 10 feet above the Abrahamic level were found mud brick dwellings separated from the former by a layer of baked brick walls of about 1400 B.C. Four streets of the town have been now laid bare and they have been found to have been bordered by private houses, shops, and chapels. One large building seems to have been an inn. On the floor of one house were found some 400 complete tablets as well as a thousand fragments. Some of these were legal documents, letters, and religious texts. In another house was discovered a large tablet which gives the complete conjugation of the Sumerian verb together with its Babylonian equivalents. Paradigms for five different groups of stems were given. Not the least interesting of the discoveries was evidence which goes far to show that the book of Daniel was composed at the time of the events described. Thus, the excavators have uncovered the palace of Princess Bel Shalti Nanna, who is believed to have been the sister of Belshazzar. It was their grandfather who took the Jews into captivity in Babylon. This discovery is held to help confirm the Daniel story.

The history of the temple at Ur can now be traced from 2300 to the time of Nebuchadnezzar. At the time of the first date Rim-Sin, who was king of Larsa in the twentieth century, rebuilt the temple. Six hundred years later it underwent another rebuilding at the hands of Kuri-Galzu and about 1000 still another by an unknown Kassite king. The last to touch the building was Nebuchadnezzar who practically made a new temple. A large building, a palace, about a hundred yards square has been excavated. The main court is about 80 yards square. It reminds one of the great palace of Nebuchadnezzar at Babylon. Several chapels of a type hitherto unknown also were discovered. These are little public shrines dedicated to the lesser gods and open to any one for worship.

Not far south of the palace of Knossos in Crete Evans found in a hillside a remarkable temple-tomb of one of the priest kings of Crete. Digging revealed a massive square chamber, the pillar crypt, with inscribed double axes. These pillars had once supported massive beams which belonged to a chamber above. This indicates that here was a small two-columned temple which must have been visible from the south terrace of the palace. This upper structure formed part of a large building located in a long trench which was cut back into the side of the hill. On the lower level one passed through, in this order from the front, a pavilion, a paved court, an inner hall, crypt, and funeral chamber.

At Vournos in Cyprus twenty tombs (dating 3000-2100) were opened. These are cut like caves in the rock and are approached by a dromos. Several using one dromos indicate that we have here a family group. The prevailing custom in the early bronze age was to place the body in the right corner of the chamber with the offerings in the left. These consisted of large jars for food and arms. Some extraordinary forms of pottery were found during examination of these tombs.

On the site of Hephæsteia in Lemnos the Italians have come upon an important Tyrrheno-Pelasgian settlement. Here were found 300 geometric burials consisting of large ovoidal, or biconical, jars laid on the ground and sealed with a slab or a cup.

Professor Robinson of Johns Hopkins University has continued his important work on the site of Olynthus. Many private dwellings were uncovered and about 200 graves. From these finds it was certain that, contrary to what had been previously believed, the Greeks were accustomed to good homes before Alexandrine times. A particularly remarkable find of terra cottas was made yielding over 50 complete figures with the colors still preserved. They have all the character of Phidian and Praxitelean work.

In May, after many delays, the American school was able to initiate the excavation of the agora in Athens. Professor Shear was fortunate enough to locate the Stoa Basileios which makes the orientation of the work possible. This is not far from the so-called Theseum. Immediately below the foundations were found marble and stone chips together with fifth century objects. Below this was a burned layer containing sixth century potsherds. In the earth in front of the steps of the building were later fifth century finds. On the west side of the southern area of the excavation was laid bare in part a building of Hymettus marble which may be the stoa of Zeus Eleutherios, which Pausanias locates near the Royal Stoa.

The Greeks, continuing their work on the site of the Academy, have uncovered the foundations of a very large building which may prove to be the gymnasium. While dredging near the main wharf of the Piræus the Greeks also found fragments of first century reliefs which may have been part of a cargo intended to be shipped to Rome. On the north slope of the Acropolis Professor Broneer believes he has discovered the hitherto lost temple of Eros.

Excavations at Anzio (ancient Antium) in Italy have brought to light parts of a villa of Nero. Traces of luxury, as for example polychrome pavements in mosaic, have been found. A newly found tomb at Chiusi yielded interesting information as to the disposition of such burials. The tomb has three small terminal cells and stands as an intermediate stage between the regular chamber tomb and the later type with niches.

Work progressed steadily at Herculaneum. The first and second insula of the southern section were cleared. In insula three the houses were found to be spacious in plan with architectural features quite distinct from those found at Pompeii. Fine pieces of sculpture were found, for example two fine groups showing a hind being pulled down by hunting dogs. At Lake Nemi the second of the galleys had been completely uncovered and was found to be in exceptionally good condition. It is, however, not so complete as the first. At Pæstum the main effort was directed toward work on the area north of the old road which runs through the city from the Porta Serena to the Porta di Mare. The substructure of the amphitheatre of the Roman town was mostly cleared. The Greek theatre was identified and about one-third of the auditorium cleared.

In Abundance Street in Pompeii a large house was excavated in which, in a niche at the back of the peristyle, a portrait of Menander was

found. The plan and structure of the building is that of the home of a noble Samnite. It had been modified to fit an aristocratic Roman's needs.

In Rome valuable pavements from the Forum of Trajan were discovered. Also there were recovered marble details from the superstructure, especially from the façade.

Between Newport and Caerwent, in Wales, was discovered an ancient British camp. The plan is elliptical in shape, being about 750 feet long by 400 in width. Annexed to it is an oblong area about 500 by 200 feet. Around the camp is a series of ditches. The main camp is connected with the annex by a deep cut. The annex itself is defended in a like manner by a series of ditches. See PHILOLOGY, CLASSICAL.

**ARCHITECTS, THE AMERICAN INSTITUTE OF.** The National organization of the American architectural profession, founded in 1857. Its objects are to organize and unite in fellowship the architects of the United States; to combine their efforts so as to promote the æsthetic, scientific, and practical efficiency of the profession and to make it of ever-increasing service to society; and to spread an understanding of art and service among the people. Its activities include devising methods for improving and extending architectural education, not only in the universities but in the lower schools; securing proper laws for the registration of architects in the various States; developing a service for architects which will give them for their actual problems data relative to building materials and methods obtainable from no other source; and maintaining a public information service to tell the prospective builder the financial as well as the æsthetic, service of the architect.

The institute is governed by officers and a board of directors elected by, and responsible to, the delegates from the 66 chapters, assembled at the annual convention. The directors and executive committee hold quarterly meetings in various parts of the United States, and the regional directors keep in active touch with the work of local chapters throughout the year. The membership in 1931 numbered more than 3400 of the 10,000 practicing architects in the United States.

The sixty-fourth annual convention, held April 14-16, 1931, in San Antonio, Texas, particularly emphasized the desirability of local and Federal governments discontinuing as competitors in business with its private citizens and the desirability of such governments utilizing to the fullest extent every bit of architectural ability that the nation possesses. It stated its belief that standards of excellence can be achieved only by enlisting the services of the best ability in the architectural profession that is locally available and that, therefore, the operation of State, municipal, and other bureaus for the designing of buildings and monuments is inconsistent with this policy and an invasion into the field of individual professional activity.

The officers elected for 1931-32 were: President, Robert D. Kohn of New York City; first vice president, Ernest J. Russell of St. Louis, Mo; second vice president, Horace W. Peaslee of Washington; secretary, Frank C. Baldwin of Washington; treasurer, Edwin Bergstrom of Los Angeles, Calif. The Octagon endowment fund capital of the institute in 1931 amounted to approximately \$78,000, the income being devoted to the maintenance of the Octagon House in Washington. The organization's property and funds to-

taled \$465,227, of which \$53,817 belonged to the Waid Education Fund, the income being used to defray expenses of lecturers sent to various States and to preparatory schools. The institute publishes *The Octagon, a Journal of the American Institute of Architects; Handbook on Architectural Practice; The Significance of the Fine Arts; Standard Contract Forms and Standard Filing System*, which are in widespread use throughout the United States; and documents on the ethics of the profession. Headquarters are in The Octagon, Washington.

**ARCHITECTURE.** The great moot-point of architecture all over the world during the year was no longer traditionalism versus modernism, but rather the question of the domination of the so-called "International Architecture"—the modernism of Le Corbusier, in France, Gropius in Germany, and Howe and Lescaze in America, a modernism of ascetic rectangularity—or of some freer, less functional and more imaginative modern style. The system of past styles was uniformly defunct, save in isolated circumstances, in every Western country, and largely also in Japan and China.

This controversy was carried on with great bitterness and continual propaganda on both sides. Thus *La Cité et Tekné*, of Brussels, published monthly a section "Architecture Internationale," showing photographs of work in the style, from America to Japan—work whose geographical location it would be impossible to fix from the buildings themselves, so alike are they. The most eloquent of the supporters of the opposite view supporting free creation as the basis of design was Frank Lloyd Wright in America, who in his book *Modern Architecture*, and in numerous lectures fought for the right of the architect to design, irrespective of any style. He has beautifully shown how "Modernism" as usually considered, can be the foundation of a stylistic eclecticism as inhibiting and sterile as any stylism of the past.

Whether or not the "International Style" represents a true internationalism of feeling is debatable. Surely recent political happenings give no such promise, and no style can last which is not deeply founded in actual practical and psychological facts. Perhaps the basic cause of the controversy is that industrially and financially internationalism is more and more an existent, if imperfectly realized fact; emotionally, on the other hand, due to tariffs, fear, and the like, nationalism and sectionalism seem growing rather than diminishing. The architectural solution of this dilemma is to be sought not in the profession, but in the actions of statesmen, financiers, and eventually, politicians.

Two great international competitions signalized the year: that for the Columbus Memorial in Santo Domingo, and that for the Folk Theatre at Kharkov, in Russia. The first was judged by a jury of Frank Lloyd Wright, representing North America, Eliel Saarinen, representing Europe, and Acosta y Lara, representing South America. The first prize was awarded to J. L. Gleave of Nottingham, England, the second to Donald Nelson and Edgar Lynch of the United States, the third to J. J. Polacios and L. M. Blanco of Spain, and the fourth and last to T. Lescher, P. Andrieu, O. Zavroni, and M. Gauthier of France.

The winning design is remarkable for being designed as much for effect from the air as from

the land and water. It comprises an enormous cross laid flat on the ground, with the light at the intersection of the arms. In each arm is a deep canyon-like cut, with walls richly decorated, and arrangements for projecting light upward; the dim shadowed recesses of these canyons would be delightful places as a relief from tropic sun. The centre of the cross encloses the memorial chapel. The whole conception is creative, dignified, and impressively simple; it is imaginative and untrammelled by the dictates of any style.

The designs for the Kharkov Theatre, on the other hand, were entirely in the "International" functionalist style favored by the Soviet government; so alike, and with one or two exceptions, so impersonal, that it would be impossible at a glance for the layman to tell one from another. The winning design, by the Brothers Wessenin, of Moscow, was unique in conferring upon the masses of steel and glass windows and plain stucco surfaces a unifying grandeur of mass by the use of a great dome-like roof over the auditorium, and the frank expression of the enormous stage building. Other winners of lesser prizes included A. Kastner of the United States, Walter Gropius of Germany, R. Kawakita of Japan, Bosiger and Storonow of Germany, Kurmann Hirz Lindstrom and Peterson of Sweden, and Norman Bel Geddes, also of the United States.

**THE UNITED STATES—Public Buildings.** The second year of depression hit the building industry with terrific force. Building of all kinds was far below normal; office buildings, commercial work generally, speculative housing, and domestic work all suffered especially. On the other hand, there was a large amount of public building, especially that under Federal auspices; yet even here the amount was pitifully below what was necessary to produce any market effect on the building industry generally.

The most important public building architecturally was that carried on in Washington in the effort to complete the great Mall, and fill the triangle between it and Pennsylvania Avenue. The Department of Commerce Building—one of the largest of the units—by York and Sawyer, was almost completed. It is a huge rectangular mass around several courts, pleasant in color, but utterly undistinguished in detail, and without the monumental character its size would indicate. The fragments already built of the group containing the Post Office Department, by Delano and Aldrich, are on the other hand charmingly delicate, carefully studied though academic. The Department of Agriculture, by Rankin and Kellogg, on the other side of the Mall, resembles the Commerce Building in the uninspired use of classic motives; the one virtue is the harmony between it and other Washington buildings erected some 20 years previously.

Much criticism was caused by the attitude of the Treasury Department because of its failure to employ local architects throughout the country on local work, as well as by the uniformly *hack* character of most of its post offices and Federal building designs. That at Madison, Wisconsin, is typical in its quite stupid parade of outworn motives badly applied. Repeated storms of local protest at published sketches for proposed buildings finally led the Treasury Department to stop publication of preliminary sketches





*Acme-P. & A. Photograph*

**EMPIRE STATE BUILDING**

New York City  
Shreve, Lamb & Harmon, Architects



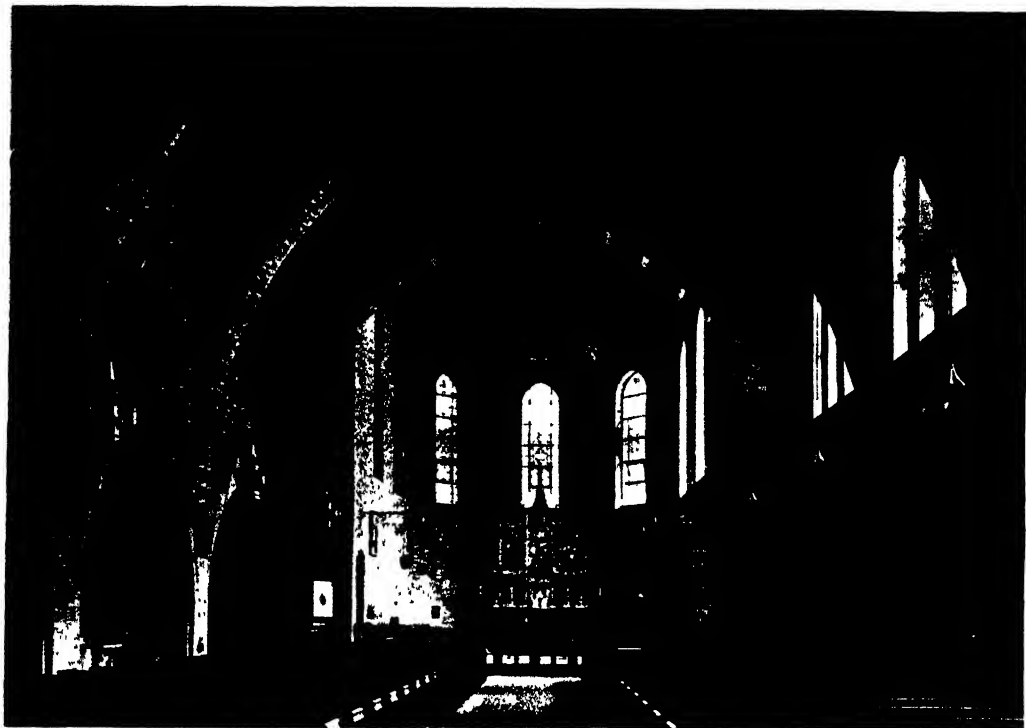
*Acme Newspictures, Inc.*

**TEMPLE OF ANGKOR-WAT**

French Colonial Exposition, Paris  
Reproduction of Temple in Indo-China

**NOTABLE ARCHITECTURE OF 1931**





CHURCH OF ST. CATHERINE OF SIENNA  
New York City  
Wilfrid E. Anthony, Architect



THE A. O. SMITH RESEARCH LABORATORY  
Milwaukee, Wisconsin  
Holabird & Root, Architects  
NOTABLE ARCHITECTURE OF 1931

on the specious-sounding theory that they didn't adequately represent the completed building!

The Treasury Department also claimed that private architects were inefficient and took a long time to prepare satisfactory drawings and specifications. This apparent inefficiency, they neglected to state, was alleged not infrequently to be caused by the requirements under which the private architects worked, by which they were enmeshed inextricably in the department's own red tape methods, and forced to refer for decision to Washington endless petty questions. Each of these decisions might take days to obtain. The whole controversy at the end of the year was much alive, and there was much bitterness on both sides. Its mere existence was evidence that the architectural proceeding of the Federal government needed overhauling.

Of the actual work of the Treasury architects, the post offices at Kansas City and Wichita, Kansas have only size—and possibly, solidity and workability—to recommend them. Architecturally they were without merit. Some of the smaller post offices were better—less ostentatious, more human. Such examples are those at San Bernardino, California, and the colonial buildings at Branford, Conn., and Hanover, N. H.

The State Office Building at Albany, by the State architects Sullivan Jones and William E. Haugaard, in style somewhat resembled the simplified classic of the State Office Building in New York, completed in 1930. A heavily rusticated, rather Roman, lower portion supports a simple range of piers crowned by an adequate cornice—not exciting, it nevertheless has a straightforward character, and a classic note, distinctly pleasant, definitely dignified. The Buffalo City Hall, by Dietel and Wade and Sullivan Jones, is a great simple modernist pile of office building type—it lacks public character and dignity. The Maricopa County Court House and Phoenix City Hall, Phoenix, Arizona, by E. F. Nield, Lescher, and Mahoney, is in a modernized Romanesque that is unconvincing.

Much the finest of the smaller government buildings is the Racine County Court House, Racine, Wis. by Holabird and Root, a stunning mass composition of wings and setbacks, treated with simple straightforward dignity of style. Less ornamental, but most delightful in its handling of masses, and its delicate richness of detail is the Haish Memorial Library, De Kalb, Ill. by White and Weber—a truly distinguished achievement. Other public buildings deserving notice are the New Brunswick War Memorial, New Brunswick, N. J. by A. Merchant, with sculpture by F. L. Mora; the armory at Chicago, Ill. for the 124th Field Artillery, by C. Herrick Hammond, and the magnificent Municipal Stadium of Cleveland, O., by Walker and Weeks.

COMMERCIAL AND INDUSTRIAL. The outstanding commercial building of the year in the United States is without doubt the Empire State Building, by Shreve, Lamb, and Harmon. That it is the world's highest building is purely incidental. The tower portion is superb in its modern use of modern materials, with setbacks of subtle harmony. Its masonry is manifestly a skin, and the vertical leap of its metal strips is thrilling. Giving back the light as they do, reflecting sun or the blue sky, or the rose of morning or evening, they give to the whole a marvelous sense of lightness, of delicate and harmonious strength. But the "Mooring Mast," which is useless for

its supposed function, reflects in indecision of outline its real uselessness; and the base of the whole—the long street and avenue façade—has none of the distinction of the tower portion.

The Irving Trust Company Building at Wall Street and Broadway in New York, by Voorhees, Gmelin, and Walker, is another important skyscraper, attempting to find adequate modern expression for this modern problem. Here the masonry skin is treated in vertical planes that channel the entire building; a similar free use of angular planes is used to break up the surface of the topmost stage. The interiors are over lavish, but effective in their use of mosaic to clothe the walls from floor to ceiling.

The publication of preliminary plans for "Radio City" in New York—the development of almost three entire blocks, from Forty-eighth to Fifty-first Streets, and from Fifth to Sixth Avenue, produced an unprecedented outpouring of popular protest. The public had been led to expect a superb piece of town beautification, carefully thought out. They received only another real-estate promotion, high class, to be sure, but a monument not to city beautification or city pride, but to the hope of profits. The general plan was a real-estate promoters' plan; and however beautiful the detail, it is the general plan that controls effects. The much heralded plaza in the centre turned out to be an insignificant open space completely dwarfed by the 60-story cliff of building at whose feet it is placed. As an answer to protests, the plan was superficially altered, and one square building substituted for one originally oval, and announcement was made that there would be gardens on the roofs! It was still the mammoth real-estate scheme it was at the beginning, thoughtless of the dangers of overcrowding streets, thoughtless of almost everything except square feet for rent. The original architects of the project were announced as Reinhart and Hofmeister; later Corbett, Harrison and MacMurray, and Raymond Hood, Godley, and Foulhoux were added as associated firms.

Various other commercial buildings deserving note are the Ohio Bank Building, Toledo, Ohio, by Mills, Rhines, Bellman and Nordhoff; the McGraw-Hill Building, New York, by Raymond Hood, Godley, and Foulhoux, in which there is an interesting though not entirely successful attempt to stress horizontal rather than vertical lines in a high building; the enormous S. S. Kresge Administration Building, in Detroit, Mich., by Albert Kahn, rather incoherent in its changing rhythms of upper and lower portions; an office building on Fifty-seventh Street and Lexington Avenue, N. Y., by Thompson and Churchill, in which all the outer walls and outer portions of the floors are hung from cantilever girders at the top, so that almost unbroken windows are permitted on each floor; and the New England Telephone & Telegraph Building, Worcester, Mass., by Densmore, Reclear, and Robbins.

The office building erected at No. 29 Broadway, New York, by Sloan and Robertson attempted a modernist expression of banded windows, but achieved only an illogical restlessness. The Fifth Avenue Hudnut Building by E. J. Kahn and Eliel Saarinen, on the other hand, is one of the most charming small buildings on the Avenue; its square panels and square windows are both rich and delicate.

Three novel and important industrial buildings of the year are the Worcester Pressed Steel

Building, Worcester, Mass., by J. D. Leland and Company; the Research Engineering Building for the A. O. Smith Co., Milwaukee, Wis., by Holabird and Root; and the Starrett Lehigh Terminal and Storage Building, New York, by R. and W. Cory and Yasuo Matsui. The Worcester building is all glass and metal on the exterior, with exposed rivet heads used decoratively. The details are classic in inspiration, and hardly harmonize with the modernity of material, but the general affect is light, delicate, strong, and new. The A. O. Smith building is likewise metal and glass on the exterior, but entirely modern in style. Its front is divided into vertical bays of slight projection to catch the maximum of light, and create a sense of lateral strength; the whole is light, crystal-like, and lively. The Starrett Lehigh Building has two beautiful wings of cantilevered construction, with horizontally banded continuous windows, and rounded corners, and a less successful and more labored central mass with masonry expression. All these buildings are prophetic in their creation of new kinds of beauty directly dependant on new materials.

**EDUCATIONAL BUILDINGS.** The loveliest of the year's educational buildings was the Adler Planetarium, Chicago, by E. A. Grunsfeld. Its setback proportions, its dome outline, and its details, are beautifully simple and right. College buildings were generally conservative in style. The Sterling Memorial Library at Yale, by James Gamble Rogers, is as lavish as Harkness Quadrangle. Full of picturesque details, it nevertheless brings up the whole question of the propriety of such extravagant borrowing from the past, such building of atmospheric bits instead of buildings, or why the catalogue room of a modern library should look like an English perpendicular chapel. The students themselves seem moved more by the anachronism than the gorgeousness.

The severe and monumental Georgian of Dunster House and Lowell House, the new "Colleges" of Harvard University by Coolidge, Shepley, Bulfinch, and Abbott, have a greater soundness of design; they seem real. The Radcliffe Lecture Hall at Harvard, by Perry, Shaw, and Helburn, is a scholarly work based on Bulfinch's Harvard works.

Among the other college buildings, the new work at Duke University, Durham, N. C., by Horace Trumbauer; Brothers College at Drew University, Madison, N. J., by Henry B. Marsh; and the Men's Dormitory of St. Lawrence University, Canton, N. Y., by Ernest Sibley and Lawrence C. Licht, are all in colonial or Georgian styles. The last is especially effective in its grouping. Western Theological Seminary, Evanston, Ill., by Armstrong, Furst, and Tilton; and the Clothier Memorial at Swarthmore College, by Karcher and Smith are in collegiate Gothic; the former is distinguished more by its pleasant plan than its commonplace detail; the later by a beautiful, simple tower.

School designs of the year were generally undistinguished. The styles are often a mechanized collegiate Gothic—without the honesty of straightforward modernism or the charm of the Gothic—or else some interpretation of colonial prototypes, generally more successful because simpler, as in the Elementary School, Norwood, Mass., by McLaughlin and Burr, or the Beaver Country Day School, Brookline, Mass., by G. Allen. The Junior High School, Lynwood,

Calif., by Marsh, Smith, and Powell, rises above the general level because of its powerful modern mass composition, and the Linscott Primary School, Watsonville, Calif., by W. H. Weeks, because of its quiet one-storied charm.

**ECCLESIASTICAL BUILDINGS.** The gradual and inevitable freeing of church design from archæological dictation can be well seen in several examples—St. Madeleine Sophie's Parish School and Chapel, Germantown, Pa., by Henry D. Dagit and Sons; St. Joseph's Church, Seattle, Washington, by A. H. Albertson, Wilson, and Richardson; the Charity Crucifixion Tower, Royal Oak, Mich., by H. J. McGill, T. F. Hamlin collaborating; St. Catherine of Sienna, New York City, by W. Anthony; and two Swedish churches, the First Baptist, New York, and the First Lutheran of Arlington, N. J., both by Martin Hedwark. The first, basically Gothic, uses great modern concrete parabolic arches to support the chapel roof. St. Joseph's in Seattle is a simple modern interpretation of concrete construction. The Charity Tower lifts bold sculptural masses above a simple terrace, and bears a monumental stone crucified Christ figure. The two Swedish churches embody much of the free loveliness of modern Swedish craftsmanship and design, though the useless high stepped gable of the New York example has no functional reason. St. Catherine of Sienna, New York, is perhaps the most finished, the most carefully organized of all the churches, brilliantly conceived, and carefully carried out.

The most interesting of the more conservative churches are all in a colonial or Georgian style, that seems so beautifully adapted to the American landscape and to congregational service. The best examples are: the Mission Church of St. Giles, Stonehurst, Pa., by Wilson Eyre and McIlvain; the First Presbyterian, Hackensack, N. J., by E. P. Mellon and W. L. Smith; and the Fourth Church of Christ Scientist, of Milwaukee, Wis., by C. D. Faulkner and C. W. Wands, with a beautifully slim spire and an interesting plan.

**HOTELS, HOUSING, DOMESTIC WORK, ETC.** The completion of the New Waldorf Astoria Hotel in New York, by Schultz and Weaver, revealed a great mass with two metal-topped towers, and with large and lavish interiors of many styles; all rich and rather incoherent. The best portions are the central office space, with its entrance, the set room, with interesting murals, and an English late Georgian room; the worst is the large and ineffective Ball Room. The Atlantic Beach Club, Atlantic Beach, Long Island, by Joseph Urban, is exceedingly ingenious in plan, but ineffective in mass; the Nikabob Club, Los Angeles, Calif., by Morgan, Wells, and Clements, has some beautiful interiors. The Los Angeles County General Hospital, by the Allied Architects of Los Angeles, has simple mass and adequate detail, and the Illinois Soldiers' Orphans' Home, Normal, Ill., by C. Herrick Hammond, is a charming group of small cottages delightfully simple and direct.

Good apartment houses of conservative type were built at Radburn, N. J., by Clarence Stein and Andrew Thomas; this development by the City and Suburban Homes Co. of New York was justifying its carefully thought out and interesting town plan by a well deserved success. The most interesting of the year's apartment houses was Baxter Apartments, Los Angeles, Calif., by

G. J. Adams, where a purely modern expression of a carefully arranged plan has created great human loveliness and beauty. Other housing work meriting notice is the Forest Hills Development, Cleveland, O., by Andrew Thomas, with small houses of charming informality; the model Shopping Village at Highland Park, Dallas, Tex., by Foshee and Check—a group of Spanish tiled roof shop buildings beautifully related; and the simple Georgian faculty houses for Swarthmore College, by W. Pope Barney. Among city apartments, that occupying a block on First Avenue and 57th Street, New York, by Roger Bullard, Philip Goodwin, and Kenneth Franzheim is interesting in its fresh and daring modern use of corner windows and black and white brick.

Another important example of the bold and successful use of black in design is the Earl Carroll Theatre, New York, Ernest Keister, architect, and Babolney, designer. Here a large interior, mainly in black, is beautifully patterned with silver bands and silver hollows which form the light source. The whole is relieved with delicate touches of vermilion and orange. Altogether, it is the most unified and interesting of any of the recent American theatres.

The influx of modern types of design into domestic work is increasing. Although the lovely Jopling House, Southampton, L. I., by Rodgers and Poor, with its hipped roof and delicate detail, is conservative in style, modern influence is obvious in the schooled simplicity of detail. The Tyng House, also at Southampton, by Peabody, Wilson, and Brown, is completely modern in exterior dress, but the modernism somehow seems a cloak over a purely conservative building. Two most interesting California houses show the complete dominance of the modern approach, in plan and structure as well as in style. The Wolfe house in Catalina Island, by R. M. Schindler, steps up on a steep slope in a most interesting and practical way; the Cedric Gibbons house at Santa Monica, designed by Cedric Gibbons and Douglas Honnold, is full of the most interesting rectangular forms, and uses plain surfaces relieved by grouped windows and free and delicate detail most effectively. It is, like the Baxter Apartments, as human and as lovable as it is modern, and shows perfectly the possibilities of this type of design.

ENGLAND. The amount of building in England was great, despite the depression, and its general standard high. Modern trends seemed to have been quietly absorbed, and simply, directly, and beautifully expressed, in a surprising kind of quiet flowering. Many competitions were held, of which the most important were that for the Public Offices of Leicester, won by H. S. Silcock, Greyson and Barnish with a handsome Italianate scheme; the Municipal Bank of Birmingham, won by T. C. Howitt, with a scheme of simple rectangles; the Wesleyan Methodist Church group at Friern Barnet, won by Farrow, Turner, and Cooper, with a brilliant and monumental plan; the Branch Baths of Folkehill, Coventry, won by Adshead, Topham, and Adshead, with a scheme having a delightfully simple elevation; and the Public Baths, Police and Fire Stations of Northampton, won by J. C. Prestwich & Sons with a design somewhat in the spirit of George Dance.

The year's public buildings were predominantly those of social usefulness—baths, libraries, and

the like. An addition to Ealing town hall, by the late G. H. Pryune, and A. W. Johnson, has a stately Jacobean towered entrance, and a great vaulted hall. The Bognor Council Offices, at Bognor, Sussex, by C. Cowles-Voysey, is in a much simplified Georgian with a good cupola. The Baths include the South Bristol Baths, Bristol, by C. F. W. Dening, a well composed group; the Finsbury Public Baths and Wash-house, London, by A. and K. Cross, a simple two storied building with hipped roof, and the ornate Georgian Bethnal Green Public Baths, London, by A. E. Darby Mice-Aimf. The New Market Hall of Southport, by H. Langman, is a simple block with three great entrance arches. Hendon Central Library, Hendon, by T. M. Wilson, is a massive Georgian building with an over-crowded front; the Clacton Town Hall and Public Library, by Sir B. Thomas, is simpler in treatment, and more modern in effect.

Characteristic of present conditions are numbers of Government Employment Exchanges, all by the architect of H. M. Office of Works. Typical examples are those at Cradley Heath, Bilston, and Stourbridge. The Hastings Railroad Station by J. R. Scott, with its classic brick and stone treatment, is much like American examples of fifteen years ago.

The commercial buildings as a class were more modern. Certain large London structures keep the older classic dress, but use the classic motives with a new dignity and restraint, and were rapidly creating a new commercial London of superb monumental type. The great Finsbury Square building by Sir Giles Gilbert Scott and R. G. Wills is typical; Unilever House, by Sir John Burnett, Taft, and Lorne, has an impressive curved front something like Lloyd's Bank, by Sir John Burnett and partners, finished in 1930. The additions to the Bank of England, by Sir Herbert Baker, are fronted with a three storied classic treatment which is certainly not a beautification of Soane's original lovely one storied façade; but the very beauty of that made the problem extremely difficult, and enough of Soane's exquisite neo-classic work of a hundred years ago remains to give still the dominant character.

Broadcasting House, London, by G. Val Myer, is an interesting departure from this classic trend, while retaining monumental character, and not being obviously "Modernistic." Somewhat similar in style is Kelvin House, London, by Constantine and Vernon. Straightforward interesting modern character distinguishes the Spicer Building, London, by F. W. Troup, and the even more successful and modern Avon India Rubber Co. Building, London, by Wallis, Gilbert, and partners, a most interesting handling of horizontal bands tied together by a heavy corner. Crawford's shop, London, by F. Etchells and A. Welch, has lovely metal elements freely treated, and the Oxford Street Shop of Lennad, by H. A. Wright, is a most successful example of the extremely modern "Cubist" treatment. A shop building at Coventry, by Percy Bartlett, is successful with horizontal lines, and the simple Coöperative Store Building at Bolton, by Gass and Hope, is exceedingly charming.

Among industrial Buildings, the Aladdin Factory by Nicholas and Dixon-Spain; the factory for the Jantzen Knitting Mills, by Constantine and Vernon and R. Sunderleaf; and

the well massed Indian Tyre and Rubber Co., by Wallis Gilbert and partners, all stand out.

The year's theatres vary from the unmitigated Hollywood pseudo-everything of the Granada Theatre at Tooting, by C. Massey, to the interesting modernism of the Gaumont Palace, Birmingham, by W. R. Benslyn, and the original Sheen Cinema, London, by Leathart and Granger and to the careful and lavish delicacy of the Saville Theatre, London, by T. P. Bennett, with a sculptured frieze by Gilbert Bayes.

Of the many interesting school buildings, the following deserve especial notice: Grignon Hall, Felstead School, by Chetwood and Grant, a Georgian building with good mass; the Whitgift Grammar School, South Croydon, by Leathart and Granger, in modernized Tudor; the radical "School in the Woods" (an open air school) at Whaley Thorns, Derbyshire by G. H. Widows; the stunningly planned Elementary School at Birkdale, Southport, by Grayson and Barnish; the Boys' Secondary School, Stretford, Lancashire, by S. Wilkinson, in an attractive combination of brick and stone, and the Warrington Training College, Liverpool, by Slater and Moberly. What characterizes all of these is adequate space, and a strong combination of monumental plan, and simple but attractive exterior and interior detail.

English churches were almost without exception modern in design, were distinguished, and by a combined simplicity, interesting mass, and a slight flavor of tradition well wedded to the present day. Archaeological design in churches is dead—St. Paul's R. C. church, Hayward's Heath, by W. C. Mangan, was characteristic in its interesting exterior bays and interior arches; and the chapel at Kelham Theological College, Newark, by Currey and Thompson, in its low dome and interesting arched brick rood support. Other typical examples were the Bromsgrove School Chapel, by Sir G. G. Scott; and St. Mary's, Pype-Hayes, Birmingham, by Wood, Kendrick, and Reynolds.

Much apartment and community housing was built during the year in which the English talent in using simple materials directly is obvious. Even in the lavish Dorchester Hotel, Park Lane, London, by W. Curtis Green and partners, done in a much simplified and modernized Adam style, there is a lovely and typically English simplicity of light stone and delicate iron balconies, and in most of the London apartments big and little, brick and balconies and grouping are the foundations of the effect. Thus in Swan Court, by Buckland and Haywood, pleasant mass and quiet brick give beauty; in the flats for Kensington Housing Trust, by T. Smith Shearer and S. C. Kirby, a more modern effect is gained with equal simplicity and in Broxholme House, Fulham, by G. Topham Forrest, the same directness distinguishes a new municipal tenement.

Other housing and domestic work deserving notice comprises: A model tenement for the Finsbury Borough Council, by E. C. P. Monson; a terrace of five delightful modernized Georgian houses in Ealing, by W. S. Grice; the modernist minimum price house at Knockley, by F. E. Towndrow; and the beautifully planned and well detailed Kirkby House, Overblow, Yorkshire, by John C. Proctor, which in spirit resembles some of the work of the German, Mendelsohn.

THE COLONIES AND FOREIGN ENGLISH WORK. The Bengal Legislative Council House, India,

by John Greaves, is a monumental building of powerful scale with a central dome and a great Doric colonnade, somewhat incongruous in its surroundings, but well done. The Commander-in-Chief's house in New Delhi, by R. T. Russel, harmonizes adequately with the rest of the great capitol group. The church of St. Paul, Wad Medani, Egypt, by Martin and Davies, is romantic, with rough stone walls, and brick quoins, but has little to do with its environment. In the Galle Face Flats, Colombo, Ceylon, Edwards, Reid, and Booth have produced a whole that is a strange mixture of classic and Mohammedan motives. The most successful foreign English work was probably the Government House in Jerusalem, by A. St. B. Harrison, a superb mass with impressive interiors, that seems entirely to belong to its location in mass, material, and style.

FRANCE. The outstanding event in French architecture was the Colonial Exposition; on the whole, a most satisfactory group of temporary buildings, neither ostentatiously eccentric nor hidebound. Much of the loveliest work was of course the reconstruction of various colonial types of building—especially among many others, Angkor Wat, by M. Blanche; the building of Cochinchina and Tonkin, by Blanche and Sabrier; that of the États de Lévant, by M. Moussali; the Ile de Rhodes, by M. Lombarde; and that of the Kameroun and Togo, by M. Boileau. Of the other buildings, the Cité des Informations, by Chevalier and Bourgon was delightful with its long court and a superb central dome and Salle des Fêtes. The permanent museum, by Laprade and Jausely, has an interesting colonnade with a sculptured wall behind. The American pavilion—a reproduction of Mt. Vernon—by Gréber and C. K. Bryant was disappointingly out of place in such an imaginative and fantastic group. The Dutch buildings, by Mooyen and Zweedick, were interesting. See EXPOSITIONS.

Among other French work, the following deserves notice: The casino at Dax, by A. Granet, with lovely outdoor and indoor theatres, quite modern; the simple and beautifully proportioned Ford Building in Paris, by M. Roux-Spitz, with curved corner; Sacré Cœur Church at Casablanca, and St. Joseph de l'Océan at Rabat, by P. Tournon, both structurally interesting; the church of St. Laurent at Rosny sous Bois, by M. Chauvel, simple and lovely, and St. Louis at Rouvray-Mines, by Duval and Gonse, with a heavy and impressive interior. The Paris Apartment House at Porte Chamberet, by P. Patout, is beautifully massed with vertical bays and strong horizontals. The Theatre of the Menus-Plaisirs, Paris, by M. Pingusson, is a *chic* example of fantastic extreme modernism; and the Villa at Garches, by G. Veissière is charming in its simple modern design and its brilliant use of various terrace levels.

GERMANY. The German Building Exposition in Berlin, held in an interesting and simple group of halls and sheds designed by Wagner and Poelzig, showed the almost complete domination of German architecture by the functionalist "International Style" extremists. The effect upon German housing has been disastrous, for many recent developments, by E. May, Block and Guggenheimer, Gropius, and others, have degenerated into long straight rows of characterless building, at exactly the mathematical angle to catch the most sun and air, but, as houses, utterly inhuman and unattractive. By contrast

the freer, less theoretical groups, however modern in detail, seem all the more successful—a. g. groups at Halberstadt, by F. Keller; at Braunschweig, by Flesche and Kölling; and apartment developments at Berlin Wilmersdorf, by H. Rosenthal, and for the Beamten Wohnungs Verein at Neu Köln, by B. Schneiderreit.

The Neu Wache War Memorial in Berlin—a great black marble cube with a bronze wreath in the centre of Schinkel's building—by H. Tessenow, is dignified and impressive, and the War Memorial at Jena, by Högg and Müller—an altar surrounded by a circular wall—is worthy of praise. German churches, as usual, were on an extremely high plane of dignity, imagination, and modernity. Excellent examples are the Evangelical Church, Berlin-Wilmersdorf, by F. Höger; the Catholic Church at Maria Grün, by C. Holzmeister; and St. Engelbert, Pattscheid, by B. Rotterdam.

Several large commercial and industrial buildings and groups are important in revealing that sense of organization which again and again makes German factories architectural units, and also a growing freedom in the imaginative use of the Mendelsohn type of geometrical forms. The Graf Zeppelin Hotel and Café, Bonatz and Scholer, Stuttgart, is a rather bleak exterior to decorate the Station Square, but has beautiful open interiors and good detail. The Rubber Factory for M. Steinberg, at Köln-Braunsfeld, by F. Fuss, has unusually interesting forms, and the Kalksteinwerk at Garbsen in Hanover, by Dr. Thiele, is really beautiful. The Gesellschaftshaus of the Garden City at Nürnberg by Leubert and Lehr is a charming development of local forms; and the Airport and Airport Restaurant in Halle, by H. Wittwer, equally delightful in a thoroughly constructivist modern manner. The Arts Club in Hamburg by K. Schneider is worthy of notice for its simple treatment and handsome interiors. Mendelsohn's own Columbus House, Berlin, is interesting, as is the Mendelsohnian Warehouse for Kops, in Cologne, by Riphahn and Grod. Characteristic and beautiful examples of the Hamburg School of simple brickwork are the Administration Building of the Rhenania Ossag, Hamburg, by Skopp and Vogtmann, and the Industrie and Handelskammer in Dortmund, by Pinno and Grund.

OTHER COUNTRIES. The depression seemed to have caused a marked falling off in the quantity of building in the Scandinavian countries. In Norway the most interesting published work was the new Oslo City Hall, by Arneberg and Poulsen, an imposing group of monumental plan. The New Theatre, Oslo, by Blakstad and Dunker, is simple and rather German in type, and the Fine Arts Club, Oslo, by Blakstad and Munthe-Kaas, is a freely experimental work. In Sweden, important work comprises the interesting Malmö Apartments, by F. Österkind; the Mendelsohn-like business building in Borlänge, by Sundahl and Rockstrom; the ingenious but ugly Filadelfia Church in Stockholm by B. Jansson, with large seating capacity, more like a theatre than a church; the classic Geological and Mineralogical Institute of Lund University, by T. Möller; and domestic work by Fant, Hörvik, Hjorth, and Markelins.

The outstanding work in Denmark was the stunning group of the State Radio and the Royal Theatre in Copenhagen by N. Carlsberg, in the typical Scandinavian modernized classic, lavishly

rich and beautifully detailed throughout, on a beautiful plan. The School at Burnan, on the other hand, by H. Meyer, has the characteristic "International" bleakness and lack of interest. The Solgaarden Apartments, Copenhagen, by H. Hansen, are attractively grouped around a large court. Finland built many interesting structures in its usual robust modern rather classic manner; the completion of the Capitol, by J. S. Siren, revealed a grand plan, magnificent interiors, and great scale and simplicity. Other typical examples comprise St. Paul's Church, Valigård, by B. Liljequist; the Torni Hotel, 13 stories high, by Jung and Jung; a High School at Helsingfors, by O. Kallio; and the classic Helsingfors Swimming Baths, by V. Vähäkallio.

The most important Austrian building was the great Viennese Stadium by O. E. Schweizer; the Himmelreich House, in Brunn, Czechoslovakia, by Hofmann and Augenfeld, has lovely Viennese delicacy. In Czechoslovakia, the dominance of the international school was seen in the Students' Building in Brunn, by B. Fuchs, the Catholic Church in Ursovice, Prague, by J. Gőcár, and the Children's Home and Kindergarten at Konigsgratz by J. Gőcár. The same tendency was shown in Poland, in the Warsaw apartments by J. Stefanowicz, and villas by Łachert and Szanójca. The Hungarian work was characterized by tremendous vitality, and an evident struggle between the "International" type, and a kind of robust modern classic not unlike that of Finland. The New Swimming Bath, St. Margaret's Island, Budapest, by A. Hajos; and the church by A. Arkay, at Győr-Gyarnarosi, both illustrate the latter tendency; the bad Le Corbusier of the Villa Delaj, by S. Pal and M. Farkas, illustrates the former.

The best of the larger Swiss buildings of the year were the General Post Office at Zurich, by Sihl, the Schmidhof, Zurich, by K. Knell, the Zurich Borse, by Henauer and Witschi, and the Bern High School by Salvisberg and Brechbuhl. The extraordinary Goetheanum at Dornach, by H. Ranzemberger—a large theatre building—also deserves notice if only for being a terrific example of the results of purely theoretic architecture—"anthroposophische" architecture it is called,—and its main tenet seems the rigorous avoidance of any right angles or symmetry of any kind, vertical or horizontal. A whole tortured fantastic community has been built in the style by R. Steiner and Ranzemberger since 1920. Other Swiss work of merit includes the great housing development of Neubühl, Zurich-Wollishofen, by Artaria and Schmidt, Haefeli, Hubacher and Steiger, and Moser and Roth—a community of modern single houses and apartments, simple and charmingly arranged.

The Dutch continued to use the superficially picturesque type of modern detail at which they are so skillful, developed a few years ago in much Rotterdam and Amsterdam housing. Exceedingly clever especially in its use of brick, it lacks the soundness of arrangement of the Mendelsohn work in Germany, and also the functionalist logic of the Le Corbusier "International" style. The most interesting examples were the Hotel Atlanta, Rotterdam, F. A. Vander Togt; the Amstel Brewery, Amsterdam, G. and A. Langhout; the interesting and lovely City Hall at Hilversum, by Dudok, and the Laboratory for the Batavia Petroleum Company, Amsterdam, by C. Abspoel. Dutch churches are usually over ro-



mantic, and tricky in design, and conservative in scheme though modern in detail. The best examples were the Reformed Church at Scheveningen, by W. C. Kuipers; the church at Eindhoven, by F. B. Jantzen; and the Reformed Church at Hengelo, by E. J. Rothnizen.

In Belgium, the "International" style was well represented by the Casino at Knocke, by Von Hoerlacker, Dens, and Stylen, with interesting curved glass end bays—a striking and effective composition;—and by the Airport at Antwerp by S. Jasinski, with interesting banded windows. The freer type of modernism was expressed in attractive houses at Brussels, by G. Hendricx; and at Luttich, by deKoninck and Nyst.

In Italy the most interesting work published was the design for the Lido Hotel at Ascona, by O. Zollinger, the designer of much other beautiful work at Ascona—a daring curved plan with effective curved glass bays, radical but convincing. The Villa Los Olivos, Valencia, Spain, by A. G. Davo, with its crude baroque detail seems an anticlimax and retrogression.

The best Canadian work included The Canada Life Assurance Co. building at Toronto, by Sproat and Rolph, with beautiful mass; the simple and attractive Architect's Building, Montreal, by Ross and Macdonald; and Whitner Hall, a Woman's Dormitory for the University of Toronto, by Mathers and Holdenby, a simple piece of pleasantly effective colonial work. In general, Canadian work was almost identical with that of the United States, though still somewhat more conservative. The most radical departure, and one lavish and effective, was in the interiors of the shop of T. Eaton and Co., Montreal, by J. Carlu, with murals by Natacha Carlu.

South American work was still chaotic in ideals—French, Spanish, American, Modernist, Baroque trends all pulling in different ways. Thus the City Hotel, Buenos Aires, by Madero, was merely a mediocre New York Gothic skyscraper; The Apartment House in the same city, by Calvo, Jacobs, and Gimenez, a charming restrained expression of the French classic ideals of 1890; the Ford Agency in Cordoba, by A. Lo Celso, a fine piece of superficial modernism, and the municipal housing called "Los Andes," by F. Bereterbide, a lavish "Spanish" group. The Dupont Building, Buenos Aires, by A. Christophersen, was more organized, with good rectangular massing; and the Banco Popular Argentina, by A. Y. C. Vilor was an extremely effective and lavish piece of Spanish Renaissance with a high Giralda-like tower. Of the smaller work, the Residencia Veraniega, Mar del Plata, by A. Gutierrez y Urguito, had beautiful simplicity, and the Villa La Cascada, in Aurumalan, by A. Bastillo, was charming in an atmospheric manner. An important piece of city planning was the removal of Monte Castello, at Rio de Janeiro, thus connecting separated parts of the town, and creating a new quarter. It was planned by A. Agache of Paris.

The chief event of the Far East was the planning and beginning of the great new governmental centre of Shanghai, of which Dr. Sheng Yi was engineer, and Dayu Doon architect. The scheme is in the Chinese style, magnificently planned with lagoon, bridge, monumental gate and pagoda, and the great Chinese City Government Building of Greater Shanghai, by Dayu Doon, was well under way. A great beginning also

was made on the government reconstruction of Nanking, under government architects. Of European work, the most interesting was all distinctly modernist in style, and comprised the Shanghai Jewish School, and the Ritz Theatre, both by C. H. Gonda; the Shanghai Commercial and Savings Bank, by F. E. Milne, and the Chinese Housing for the Morris Estate, by Lester, Johnson, and Morris. Good more conservative work included the Rivers Court Apartments, Shanghai, eight stories high, and with all improvements, and the Lieu On Kee Office Building, Shanghai, both by Eliot Hazzard. See BUILDING; and PHILOLOGY, MODERN, for bibliography.

**ARCTIC EXPLORATION.** See ANTHROPOLOGY, POLAR RESEARCH.

**ARGENTINA.** A federal republic occupying, with Chile, the southern third of South America; consisting of 14 Provinces, 10 territories, and the federal district. Capital, Buenos Aires.

**AREA AND POPULATION.** With an area of 1,153,119 square miles, Argentina had an estimated population on Jan. 1, 1930, of 11,470,908, compared with 7,885,237 at the census of 1914. With the exception of about 30,000 Indians, the inhabitants are of European antecedents. Over 30 per cent of the Argentinians live in 10 cities, Buenos Aires alone having an estimated total of 2,116,284 on Jan. 31, 1930, or 43,595 more than on the same date in 1929. Other leading cities are Rosario, with 500,000 inhabitants (estimated) in 1930; Córdoba, 239,000 on Jan. 1, 1930; La Plata, 165,813 in May, 1928; Tucumán, 91,216; Santa Fé, 105,000 in 1929; Mendoza, 58,790; Bahía Blanca, 44,143. The population of the Province of Buenos Aires, which receives the bulk of immigration, was 4,092,042 on Jan. 1, 1930, or almost double the total at the 1914 census. Births in 1929 totaled 312,621; deaths, 141,657; marriages, 79,738; immigrants, 140,086; emigrants, 58,365. Immigration, which consists mainly of Spaniards, Italians, and Slavs, showed a marked decline in 1931.

**EDUCATION.** Free and secular education is compulsory for children between the ages of 6 and 14. In 1929, there were 11,280 primary schools, with 1,381,604 pupils enrolled; 239 secondary, normal, and special schools, with 52,780 pupils; and 85 practice schools, with 30,407 pupils. In 1930, the 5096 national schools under the jurisdiction of the National Council of Education, enrolled 595,059 pupils. Private schools (1929) numbered 126, with 11,632 pupils. There are national universities at Buenos Aires (12,532 students in 1930), Córdoba (2500 in 1929), La Plata (3000), Tucumán (600), Rosario (4000), and provincial universities at Santa Fé, Cuyo, San Juan, and San Luis.

**PRODUCTION.** Argentina ranks among the first five nations of the world in agriculture and stock raising, the products of which are for the most part exported. Due to the lack of adequate mineral, fuel, and water power resources there is no basis for extensive industrial development. Manufacturing is confined principally to the preparation of foodstuffs. The area of land under crops and cultivated grasses totaled 62,479,000 acres, or 9 per cent of the total area, in 1928-29. It is estimated that nearly 30 per cent of the entire country is suitable for cultivation, but the system of land tenure, under which some 17,000,000 acres of farm land are held in estates of 25,000 acres or over, prevents the proper utili-



zation of the soil. The area devoted to orchards, vineyards, and yerba maté (1928-29) amounted to 2,600,000 acres; pasture land, 304,000,000 acres; forest, 186,000,000 acres.

Crop yields for the harvesting season ended in February, 1931, with comparative figures for 1929-30 in parentheses, were: Wheat, 238,830,000 bushels (162,575,000); rye, 4,724,000 bushels (4,401,000); barley, 14,238,000 bushels (16,132,000); oats, 49,604,000 bushels (68,294,000); corn, 371,054,000 bushels (249,160,000); linseed, 68,895,000 bushels (50,005,000); cane sugar, 382,000 metric tons (340,000). The cotton crop in 1929-30 totaled 71,700,000 pounds; potatoes, 32,283,000 bushels; wine, 218,229,000 gallons.

Argentina ranks third among the nations of the world in the production of sheep and fourth in the number of cattle. Livestock at the census of July 1, 1930, with 1914 census figures in parentheses, included: Cattle, 32,211,855 (25,866,763); sheep, 44,413,221 (43,225,452); horses, 9,858,111 (8,323,815); swine, 3,768,738 (2,900,585). There were also (1930) 5,647,396 goats, 1,039,420 mules and asses, and 37,428,427 poultry. Meat refrigeration is the leading industry. There were exported (1930) 529,500 metric tons of frozen and chilled meats, compared with 565,100 tons in 1929, and 109,400 metric tons of frozen meat sundries (122,800 tons in 1929). Flour mills have an annual average output of about 7,000,000 sacks. The dairy, quebracho extract, and textile industries have expanded, the latter under high tariff protection. The net value of manufactured products (1927) was \$500,000,000. The state-owned oil fields in 1930 produced 5,206,918 barrels and private fields 3,701,874 barrels. Mining is of limited importance, the principal metals worked being gold, silver, copper, and tin. Tungsten, coal, borate, salt, and limestone are also found.

Poor crops and low prices received for farm and livestock products in 1930 seriously affected the national economy. Large gold exports were followed by the abandonment of the gold standard and Argentine exchange depreciated in value about 29 per cent. The weakness of exchange added seriously to the burden of servicing the foreign debt and severely affected the profits of foreign companies operating in Argentina.

COMMERCE. The total foreign trade of Argentina declined more than 25 per cent in 1930, as compared with 1929, imports falling off 14 per cent and exports over 35 per cent. Imports amounted to 739,183,000 gold pesos (861,997,000 gold pesos in 1929) and exports were 614,104,000 gold pesos (953,744,000). The gold peso exchanged at an average of \$0.8351 in 1930. The above figures do not include gold shipments, imports of which in 1930 were 51,820 gold pesos (11,296 in 1929) and exports 25,165,174 gold pesos (174,397,522 in 1929). Of the 1930 exports, about 262,136,000 gold pesos, or 42.8 per cent of the total, represented pastoral products and 322,978,000 pesos, or 52.7 per cent, agricultural products. The period from 1926 to 1929 was marked by a steady growth in the value of agricultural exports and a comparative falling off in the value of pastoral exports. The volume of exports, however, remained relatively stable until 1930, when it declined sharply.

Leading imports, in order of value in 1930, were fuel oils and lubricants, textiles and textile products, machinery and vehicles, iron and iron products, foodstuffs, and chemical products. Im-

ports came principally from the United States, which supplied 21.6 per cent of the 1930 total (26.9 per cent in 1929); Great Britain, 21 per cent (18.6 per cent); Germany, 12.2 per cent (12.2); and Italy, 7.8 (7.1). The United Kingdom took 30.1 per cent of the total exports in 1930 (32.2 in 1929); Belgium, 11 per cent (10.7); Germany, 12.6 (10); the United States, 9.3 (9.8). The decline in the value of imports from the United States in 1930 was traceable to the smaller demand for automobiles. For the year ended Dec. 31, 1931, United States figures showed exports to Argentina of \$52,600,000 (\$129,900,000 in the previous 12 months) and imports from Argentina of \$36,000,000 (\$71,900,000).

FINANCE. Budget estimates of the Irigoyen Government placed 1930 receipts and expenditures at 733,144,300 paper pesos and 732,744,000 paper pesos, respectively. The Minister of Finance in the provisional Uriburu Government announced Nov. 29, 1930, that budget reports covering previous years were unreliable. He estimated the accumulated budget deficit to the end of 1929 at 698,000,000 paper pesos. Actual expenditure in 1929, he said, appeared to total 973,070,000 paper pesos; actual receipts, 718,000,000 pesos. Actual receipts for 1930 were placed by the Finance Minister at about 616,000,000 pesos but no report on expenditures had been issued. No budget was in operation in 1931. The Provisional Government estimated receipts for the year at 650,000,000 paper pesos. President Uriburu, however, was reported to have financed the government by monthly decrees authorizing the expenditure of one-twelfth of the 1930 budget for each 30-day period. It was estimated in May, 1931, that this procedure would result in a deficit of 100,000,000 paper pesos by the end of the year.

According to the Argentine Corporation of Bondholders, the national consolidated debt on June 30, 1930, consisted of 1,051,435,000 paper pesos held abroad and 1,225,002,743 paper pesos held in Argentina, or a total of 2,276,437,743 paper pesos. The floating debt was placed at 565,495,454 paper pesos. Including the aggregate indebtedness of the Provinces (1,038,645,220 paper pesos) and of the municipalities (279,502,706 paper pesos), the grand total was 4,156,081,123 paper pesos, compared with 3,889,576,000 on June 30, 1928.

Argentine currency consists of gold and paper pesos, with a par value for the former of \$0.9648 and for the latter of \$0.4245. The gold peso had an average exchange value of \$0.8351 in 1930; the paper peso an exchange value of \$0.4186 in 1929. For fluctuations in Argentine exchange in 1931, see below under *History*.

COMMUNICATIONS. On Jan. 1, 1930, there were 23,795 miles of railway lines in operation, of which 5011 miles were state owned and 19,784 miles privately owned. About four-fifths of the private railways, or 65 per cent of the total, were the property of British interests. During 1930, according to the Federal Bureau of Railway Administration, five additional lines aggregating over 1000 miles in length, were completed and opened to traffic. The new 4.6-mile double track Lacroze subway line under the city of Buenos Aires was opened on Oct. 18, 1930.

Highways in 1930 extended 131,697 miles, of which only about 500 miles were hard-surfaced roads suitable for all-year motor traffic. Con-

struction of 800 miles of hard-surfaced toll highways was authorized by a Presidential decree of Dec. 24, 1930. The toll roads were to connect Buenos Aires with Rosario, Córdoba, Azul, and Bahía Blanca. Air-mail and passenger lines radiated from Buenos Aires to numerous Argentine and foreign cities. In April, 1931, however, the French Aero-postal suspended service on two lines from the capital to Asunción, Paraguay, and to the southern cities of Bahía Blanca, Comodoro Rivadavia, and Rio Gallegos. The Argentine Postoffice Department in May authorized the Pan-American Airways to establish air-mail service between Buenos Aires and New York via the Atlantic coast and the service was put in operation November 1. A bi-weekly service between the two cities via the Pacific coast was already in operation.

In 1930, 8951 steamers of 13,209,525 tons entered the ports of Buenos Aires and 10,903 of 13,230,206 tons cleared; sailing vessels entered numbered 11,000 of 2,057,729 tons, and those cleared 10,710 of 1,181,367 tons.

NAVY. See NAVAL PROGRESS.

GOVERNMENT. The Constitution, which was suspended upon the overthrow of the Irigoyen Government Sept. 8, 1930, vested executive power in a president elected for six years, and legislative power in a national congress, comprising a senate of 30 members elected for nine years, and a chamber of deputies of 158 members elected for four years. The Governors of the Provinces were vested with extensive powers and their functions were independent of the central executive. Provisional President in 1931, Lieut.-Gen. Don José Francisco Uriburu.

### HISTORY

THE PRESIDENTIAL ELECTION. The revolution which overthrew President Irigoyen and his Radical Administration in September, 1930, brought into power a provisional government headed by General Uriburu and dominated by the minority Conservative party which controlled the country previous to the electoral reforms of 1912. Pledged to the early restoration of constitutional government, General Uriburu assumed the office of Provisional President with the support of the majority of the nation. He promised that neither he nor the members of his Cabinet would enter the contest for the Presidency, but made it plain that he would not permit the return of the Irigoyen wing of the Radical party to power, even if it secured a majority. His programme envisaged elections in the Province of Buenos Aires on Apr. 5, 1931, to be followed by elections in the Provinces of Santa Fé, Corrientes, and Córdoba.

The partisan activities of Conservative leaders, some of whom were members of the Provisional Cabinet, gradually alienated public support. Great indignation was aroused by the proposal to abolish the secret ballot, introduced in 1912. The elections in Buenos Aires Province, April 5, completely upset General Uriburu's plans by returning a Radical plurality. The Radicals were short of a majority, however, the Socialist party holding the balance of power between the Radicals and the Conservatives. Faced with the prospect that the Radicals would return to power if a presidential election were held, General Uriburu postponed the elections in the other Provinces until November 8 and temporarily voided the Buenos Aires election by postponing the

meeting of the provincial electoral college, also until November 8. About the same time (April 17) he reconstituted his Cabinet on a non-political basis, retaining from the former Cabinet only the Ministers of War, Foreign Affairs, and Public Works. He made no response to the growing demand for the election of a constitutional President. The state of siege declared in September, 1930, was continued. And the Provisional government's continued advocacy of constitutional reform as a preliminary to the restoration of constitutional government aroused fears that the presidential election would be indefinitely postponed.

The Provisional President met the rising storm of opposition by suspending or censoring offending newspapers, dispersing student and Radical demonstrations, and clapping political opponents into jail. The establishment under the Government's sponsorship of an "Argentine Civic Legion," with many resemblances to Italian Fascism, aroused further hostility among liberal elements. The uncertain political situation was definitely retarding business within Argentina and hurting the country's credit abroad.

Meanwhile Marcelo T. de Alvear, President of the Argentine Republic from 1922 to 1928, had returned to Buenos Aires from Paris (April 25) and undertaken the reorganization of the Radical party in preparation for the presidential elections. Ex-President Alvear was leader of the anti-Irigoyenista wing of the Radical party, but his effort to enlist the Irigoyenistas in support of his candidacy aroused the open hostility of General Uriburu. When an abortive uprising in Corrientes Province occurred July 20, under the leadership of one of Irigoyen's former adjutants, Uriburu seized the opportunity. Accusing Dr. Alvear and his associates of complicity in the revolt, the Provisional President expelled them from the country. Several hundred other Radical leaders were imprisoned or detained in their homes, and the Radical headquarters in Buenos Aires were closed. With Alvear in exile in Montevideo, Uruguay, Uriburu finally yielded to the demand for a presidential election (August 28) and fixed the date for November 8, the same date for which Congressional elections were scheduled.

During August and September a new alignment of political parties took place in anticipation of the election. The Conservatives and a group of former Radicals opposed to Irigoyen united as the National Democratic party and nominated Gen. Agustín P. Justo as their candidate. General Justo had aided General Uriburu in the revolution and for a short time served under him as Minister of War until a difference of opinion arose and Justo resigned. His support came principally from the upper classes, the Church, and the political bosses of the Provinces, but he appealed also to the independent vote. Opposing the Conservative coalition, the Democratic, Progressive, and Socialist parties united under the banner of the "Alianza Civil" in support of Dr. Lisandro de la Torre, a man of liberal views. In September, the Radicals defied the Provisional government and nominated Dr. Alvear as their candidate. General Uriburu retaliated with decrees vetoing Alvear's nomination, and annulling permanently the April elections in Buenos Aires Province. The Argentine Constitution stipulated that an interval of six years must elapse before the reelection of a

former President and the Provisional government contended that Alvear's nomination clearly violated this provision. The latter's supporters asserted that Uriburu had in fact suspended the Constitution and that therefore its provisions did not apply. Alvear, from Montevideo, sent in his resignation as Radical candidate. The party convention was unable to agree on a new candidate and accordingly the Radicals were not represented in the November elections.

Supported by the Provisional government, General Justo won an overwhelming victory over Dr. de la Torre, according to preliminary returns. The process of verifying and counting the ballots was not completed at the end of the year. However, press reports of November 26 gave Justo 234 votes in the electoral college, as compared with 134 for Dr. de la Torre. Julio Roca, Justo's running mate, was elected Vice President. The only disorder reported during the elections was a minor street fracas in Arequillo, Santa Fé Province. While indirect news reports in December indicated that the President-elect was selecting members of his Cabinet in anticipation of the early assumption of office, General Uriburu gave no indication as to the date on which the Provisional government would resign.

**THE ECONOMIC AND FINANCIAL SITUATION.** Unlike several neighboring states, the Argentine federal and provincial governments did not default on interest and amortization payments on their foreign debts during 1931. The economic situation was distinctly unfavorable, however. There was a budget deficit of about 100,000,000 paper pesos and the Government failed to maintain the exchange value of the peso despite a 30 per cent curtailment of imports, the creation of a favorable trade balance of about 80,000,000 gold pesos, and the renewal of a \$25,000,000 loan in the New York market on satisfactory terms. Exports increased about 72 per cent in volume and 1 per cent in value during 1931, as compared with 1930. The Government during the year shipped more than 163,200,000 gold pesos abroad, part of it to Argentine legations, in an effort to stabilize foreign exchange. On October 3, however, the National Bank was forced to abandon its plan for artificial stabilization of the paper peso, which then declined to \$0.233 (par value \$0.4246). Following the November election, the peso showed renewed strength and business generally improved, but a decline in cereal prices during December again reacted against trade.

**FOREIGN RELATIONS.** Official relations with the United States government continued on a more cordial basis than during President Irigoyen's Administration. The United States tariff remained a source of irritation and complaint in Argentina. The Argentinian Ambassador to Washington, Manuel E. Malbran, in an address before the Foreign Trade Council in New York May 28, 1931, declared that certain clauses of the American tariff were directly discriminatory against Argentina. He said that Argentina might be compelled to increase its tariff rates in self-defense. The Ambassador's address was strongly approved by *La Nación* and *La Prensa*, the great Buenos Aires dailies.

In the political field, the Provisional government pursued a policy of collaboration with the other Latin American states, in contrast to the Irigoyen policy of isolation. The good offices of

the Argentine Foreign Minister led to the resumption of diplomatic relations between Ecuador and Colombia August 17. The Foreign Office attempted also to bring about the renewal of diplomatic relations between Bolivia and Paraguay, severed following the revival of the Chaco dispute (see BOLIVIA under *History*). However, the tariff policies followed by the Provisional government of Argentina produced repeated disputes with Uruguay, Brazil, and Paraguay. The concentration of Argentine exiles in Montevideo and the searching by Argentine officials of Uruguayan vessels on the River Plate resulted in some friction between the two Governments (see URUGUAY under *History*). On August 3, Argentine police raided the offices of the Soviet Union's trade organization headquarters in Buenos Aires, the Government having charged that the organization served as a centre for Communist propaganda.

Consult F. A. Kirkpatrick, *A History of the Argentine Republic* (New York, 1931); "International Competition in the Trade of Argentina," *International Conciliation*, June, 1931, No. 271.

**ARISTOGENESIS.** See ZOOLOGY.

**ARIZONA. POPULATION.** According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 435,573, as against 334,162 in 1920. The chief elements of the population in 1930 were: native whites, 248,787; Mexicans, 114,173; Indians, 43,726; and foreign-born whites (not Mexican), 15,591. Phoenix, the capital, had, in 1930, 48,118 inhabitants; Tucson, 32,506.

**AGRICULTURE.** The following table gives the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton	1931	176,000	119,000*	.....
	1930	215,000	155,000*	.....
Hay, tame	1931	126,000	364,000 <sup>b</sup>	\$3,276,000
	1930	120,000	332,000 <sup>b</sup>	4,316,000
Wheat	1931	24,000	672,000	444,000
	1930	22,000	616,000	647,000
Corn	1931	36,000	566,000	495,000
	1930	31,000	576,000	570,000

\* Bales. <sup>b</sup> Tons.

**MINERAL PRODUCTION.** Arizona continued to produce, in 1930, more than 40 per cent of the United States' yearly yield of copper, but as the copper-mining industry had entered into a period of severe depression, Arizona's production, like that of other States, was radically reduced. It amounted, for 1930, to 570,897,080 pounds, as against 829,206,475 pounds for 1929. Because of a reduction in the average price for the year, the copper mined in 1930 had a value of less than \$80,000,000, as compared with a value of \$146,190,000 for the total of 1929. The effect of this decline on the State's mineral industry was the more severe as copper normally furnished more than 90 per cent of its mineral production. Since the gold output was in part subsidiary to the mining of silver, the production of both these precious metals likewise diminished in 1930, by reason of depression in the world's markets for silver. There were produced, in 1930, 148,681 fine ounces of gold and, in 1929, 211,108; by value, \$3,073,500 in 1930 and \$4,364,000 in 1929. The quantity of silver mined was 4,910,394 fine ounces for 1930 and 7,840,321 for 1929; the value, because of a much reduced price for bar silver, fell to \$1,890,502 for 1930, from

\$4,178,891 for 1929. Lead, the only other mineral listed as normally yielding value in excess of \$1,000,000 a year, was produced in 1929 to the quantity of 8027 short tons and to the value of \$1,011,410. Stone of grade averaging less than a dollar a ton was produced in 1929 to the total value of \$582,406. For 1929 the total value of the State's mineral production was \$157,959,792; for 1928, \$115,999,643.

The value of gold, silver, copper, and lead produced by mines in Arizona in 1931 was about \$36,529,235, a marked decrease from \$81,042,416, the value of these metals with that of zinc in 1930, according to estimates of the U. S. Bureau of Mines. There was a pronounced decrease in the output and value of all five metals and especially in copper, the average price of which in 1931 was less than any average price from 1850 to 1931. The copper output was less than any annual production since 1922. The copper smelting plants at Douglas, Hayden, Clifton, and Miami were active the entire year at a greatly reduced rate; the plants at Clemenceau and Superior were idle about three months; the smelter at Clarkdale closed in May; and the copper plant at Humboldt and the lead smelter at Douglas were idle the entire year. Despite the fact that many of the copper producers found that the cost per pound of producing copper exceeded the average sales price in 1931, Arizona retained its place as the largest producer of copper in the United States. It also exceeded all other States in the total value of the five metals, although the value in 1931 was less than that of any year since 1921. As in 1930 there was a large decrease in the output of gold and silver corresponding to the unusual decrease in the output of copper. There was also a large decrease in the lead output, and no zinc ore was mined or treated in 1931. The gold output decreased from \$3,501,610 in 1930 to about \$2,554,000 in 1931 due chiefly to the pronounced curtailment in the output of copper ore. There was a revival in gold mining in Arizona after the serious decline in other metal prices, as shown by the great number of smaller producers of gold ore and bullion, chiefly from Yavapai County. The silver output decreased from 5,540,732 ounces in 1930 to about 3,157,000 ounces in 1931, and the value from \$2,133,182 to about \$915,500 as the price of silver continued to decrease from an average of 38.5 cents an ounce in 1930 to 29 cents an ounce in 1931. The output of silver in 1931 was the smallest since 1921 and the average price was less than that of any year since 1850. The copper output decreased from 576,190,607 pounds in 1930 to about 397,600,000 pounds in 1931, and the value from \$74,904,779 to about \$33,000,000. The average price of copper decreased from 13 cents a pound in 1930 to 8.3 cents a pound in 1931, the lowest price recorded since 1850. The mines of Arizona, therefore, curtailed production decidedly and the copper output in 1931 was 31 per cent less than that of 1930; it was the smallest output since 1921. The lead production in Arizona decreased from 8,491,623 pounds in 1930 to about 1,550,000 pounds in 1931, and the value from \$424,581 to about \$58,900. As the average price of lead decreased from 5 cents a pound in 1930 to 3.8 cents a pound in 1931, all the large producers of lead in Arizona were idle, which resulted in an output less than that for any year since detailed statistics of production were recorded in 1903. No zinc was produced

from mines in Arizona in 1931 although the output in 1930 was 1,630,506 pounds valued at \$78,284.

**MANUFACTURES.** Federal Census data obtained in 1930 and covering 1929 gave the number of the State's manufacturing establishments as 347. These employed 10,500 wage earners, to whom were paid in the year wages totaling \$15,077,675. These wages exceeded the total for 1927 by nearly 25 per cent. The cost of the manufacturers' materials, fuel, and purchased electric current for 1929 was \$139,256,443. The manufactured products were valued at \$199,370,650.

**FINANCE.** State expenditures of the year ended June 30, 1930, as reported to the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$7,674,767 (of which \$2,134,505 was for local education); for interest on debt, \$123,980; for permanent improvements, \$4,268,418; total, \$12,067,165 (of which \$5,088,079 was for highways, \$1,483,580 being for maintenance and \$3,604,499 for construction). Revenues were \$12,692,234. Of these, property and special taxes formed 54.7 per cent; departmental earnings and remuneration to the State for officers' services, 4.2; sale of licenses, 21.6 (including gasoline sale taxes amounting to \$1,662,739). The State's funded debt outstanding on June 30, 1930, was \$351,710. Net of sinking-fund assets, it was \$295,160. On a property valuation of \$704,324,090 were levied in the year State taxes of \$6,627,463.

**TRANSPORTATION.** The total number of miles of railroad line in operation on Jan. 1, 1931, was 2403.84. There had been no important increase or decrease of line mileage in the year preceding. In 1931 was built 0.87 mile of new second track.

**EDUCATION.** There were enrolled in the public schools of the State, in 1930, 111,097 pupils. Of these, 95,838 were in common schools or elementary grades, and 15,259 were in high schools. Expenditures for public-school education in the academic year 1929-30 totaled \$11,512,921. Salaries of classroom teachers, by the year, averaged \$1945 in high school and \$1550 in elementary classes. State Superintendent Case, writing in the *Journal of the National Education Association*, stated that school boards had succeeded during 1931 in materially reducing maintenance budgets without reducing educational efficiency.

**CHARITIES AND CORRECTIONS.** The State institutions having the care or custody of individuals, under the law as existing in 1931, were under the control of the Board of Directors of State Institutions. Each institution was administered directly by a superintendent under the authority of this board. The Board consisted of three members, the Governor (who was president of the Board), the State Treasurer and a Secretary (C. M. Zander), who was executive officer and purchasing agent. The institutions thus controlled, with their populations as rendered in December, were: State Prison, Florence, 602; State Hospital for the Insane, Phoenix, 846; Pioneers' Home, Prescott 169; State Industrial School, Fort Grant, 80; State School for Girls (juvenile offenders), Randolph, 20.

**POLITICAL AND OTHER EVENTS.** Arizona lost in its effort to prevent the construction of the Hoover Dam on the Colorado River, on its western border. The U. S. Supreme Court, in a decision of May 18, refused the injunction that the State had sought against the construction of the dam.

The Court's majority opinion held the plan for the dam to be constitutional in spite of Arizona's objection, but allowed the State the right to take legal action in the future, in case that it should contend that its rights had by then actually been impaired. The decision brought to a close the persistent efforts of many years by which the State had sought to prevent the progress of the project, which had been planned on terms not judged sufficiently favorable to Arizona's rights and interests.

The extremely depressed state of the copper-mining industry was most severely felt in Arizona, which was not only the leading producer of copper among the States, but relied on this industry far more than any other State for its economic welfare. Governor Hunt led an effort on the part of the State's interests to induce the Tariff Commission to investigate imports of copper with a view to setting up a protective tariff on behalf of the domestic producers.

**LEGISLATION.** The tenth State Legislature held its regular session. It passed an act requiring that citizens of the State have preference in employment on all public work under State control, notably on road construction. This law bore in great part on immigrants from Mexico. A further step to restrict them was taken in the adoption of a memorial petitioning Congress to extend the quota system to apply to Mexican immigration. In another memorial Congress was petitioned to enact a tariff on imports of copper, the State's chief mining product, of which the reduction in output had severely affected Arizona. Building and loan associations were subjected to taxation on the same basis as banks. A highway patrol system was created. An act to abolish hanging as the method of capital punishment and to substitute death by lethal gas was passed, but was declared by the State Attorney General to be unconstitutional, in that hanging had been prescribed by an initiative measure of 1918 and that the State Constitution prohibited the Legislature's amending such a measure. A nepotism bill was enacted, forbidding officials from appointing relatives to office. Provision was made for the purchase, jointly with California, of a toll bridge crossing the Colorado River at Ehrenberg. The Legislature passed a measure for State control of trade in narcotics, independently of the Federal Harrison act.

**OFFICERS.** Governor, George W. P. Hunt; Secretary of State, Scott White; Attorney-General, K. Berry Peterson; Treasurer, Mit Simms; Auditor, Ana Frohmler; Superintendent of Public Education, C. O. Case.

**JUDICIARY.** Supreme Court: Chief Justice, A. G. McAlister; Associate Judges, Henry D. Ross, Alfred C. Lockwood.

**ARIZONA, UNIVERSITY OF.** A coeducational State institution of higher learning in Tucson, Ariz., founded in 1885. The 1931 autumn enrollment totaled 1903; the registration for the summer session of 1931 was 407. The faculty numbered 190. The endowment fund amounted to \$20,000, and the income for the year was \$1,478,700. The university receives both Federal and State support. The library contained approximately 85,700 volumes. President, Homer LeRoy Shantz, Ph.D., Sc.D.

**ARKANSAS. POPULATION.** According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 1,854,482, as against 1,752,204 in 1920. The number of native whites in-

creased to 1,364,733 for 1930, from 1,265,782 for 1920; that of the negroes, to 478,463 for 1930, from 472,220 for 1920; while the number of the foreign-born whites fell to 10,173, from 13,975. The capital, Little Rock, had, in 1930, 81,679 inhabitants. Forth Worth had 31,429.

The number of persons gainfully employed in 1930 was 548,652 males and 119,193 females. About two-fifths of the employed males were in the farm group, laborers on farms included. The farmers alone numbered 226,211. Factory operatives and laborers numbered 31,448 males and 2490 females.

**AGRICULTURE.** The following table shows the acreage, production and value of the principal crops for 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton	1931	3,562,000	1,855,000*	.....
	1930	3,908,000	874,000*	.....
Corn	1931	1,954,000	43,965,000	\$16,267,000
	1930	1,776,000	8,347,000	8,013,000
Hay, tame	1931	570,000	701,000*	5,818,000
	1930	486,000	482,000*	6,394,000
Rice	1931	177,000	9,381,000	5,722,000
	1930	172,000	8,170,000	6,373,000
Oats	1931	160,000	4,160,000	1,248,000
	1930	94,000	1,739,000	904,000
Potatoes	1931	43,000	3,784,000	2,081,000
	1930	31,000	2,697,000	3,102,000
Sweet potatoes	1931	32,000	2,880,000	1,584,000
	1930	23,000	1,932,000	1,835,000

\* Bales.    • Tons.

**MINERAL PRODUCTION.** The serious diminution in the production of petroleum, which had constituted the greater part of the State's yearly mineral product, continued in 1930. The quantity of petroleum produced was 19,663,000 barrels for 1930, as against 24,917,000 for 1929; the value, \$17,700,000 (estimated) for 1930, as against \$21,890,000 for 1929. The production of natural gas was, for 1929, 19,928,000 M cubic feet, delivered to consumers; the value, \$3,802,000. This was slightly less than the total for 1928 as to quantity, but somewhat greater as to value. There was a substantial production of gasoline from natural gas. Gasoline thus produced amounted in 1930 to 31,800,000 gallons and in 1929 to 33,455,000; the total for 1930 was valued at \$1,800,000 (estimate) and that for 1929 at \$2,419,000. Coal produced in 1930 amounted to 1,590,000 short tons; in 1929 to 1,695,108 tons valued at \$5,624,000. Arkansas continued to produce almost all the domestic supply of the aluminum ore, bauxite; the quantity mined in 1930 was 315,273 long tons, as against 351,054 in 1929; the value of this product was \$1,823,389 for 1930 and \$2,181,158 for 1929. Clay products totaled \$2,024,403 (1929). The total value of the State's mineral production was \$41,324,576 for 1929; for 1928, \$45,009,780.

**MANUFACTURES.** Federal Census data obtained in 1930 and covering 1929 gave the number of the State's manufacturing establishments as 1731. These employed 44,073 wage earners, to whom were paid wages, during 1929, totaling \$39,221,333. Both the number of wage earners and the total of the year's wages were up more than 10 per cent above the corresponding totals for 1927. Materials used in manufacture in 1929 cost \$110,796,257; fuel and purchased electricity, \$4,233,660. Products of manufacture were valued at \$208,897,093. The value added to them by manufacture was reckoned at \$93,867,176.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. De-



partment of Commerce, were: for maintenance and operation of governmental departments, \$16,545,942 (of which \$4,362,586 was for local education); for interest on debt, \$5,960,784; for permanent improvements, \$24,870,887; total, \$47,460,224 (of which \$24,660,783 was for highways, \$2,678,313 being for maintenance and 21,982,470 for construction). Revenues were \$24,776,007. Of these, property and special taxes formed 29.9 per cent; departmental earnings and remuneration to the State for its officers' services, 5.4; sales of licenses, 54 (including taxes of \$6,314,943 on sales of gasoline). The State's funded debt outstanding on June 30, 1930, was \$120,468,757 (for highways alone, \$104,016,590). Net of sinking-fund assets, it was \$120,443,316. On property bearing an assessed valuation of \$624,324,850 were levied in the year State taxes of \$4,932,160.

**TRANSPORTATION.** The total number of miles of railroad line in operation on Jan. 1, 1931, was 4826. Additions to the mileage of line during the year preceding had totaled 39.79, while mileage given up had amounted to 23.13. In 1931 there were built 2.37 miles of new second track.

**EDUCATION.** As reported in December, the school population of the State was 629,296. The enrollment of pupils in the public schools totaled 456,054. Of this total, 410,274 were in common schools or elementary grades, and 45,880 were in high schools. The salaries of teachers averaged \$667 a year. A move in the organization of the public school system was made by the legislative session of 1931. According to State Superintendent Hirst, writing in the *Journal of the National Education Association*, the enactments of 1931 provided for the election of the Commissioner of Education and the county superintendents by boards of education to be elected in their turn by popular vote; also for a system of school budgets and for the limitation of school indebtedness.

**LEGISLATION.** The forty-eighth regular biennial session of the Legislature extended from January 12 to March 12. Its appropriation bill provided \$68,000,000 for carrying on during the ensuing two years the State's programme of road construction. A statute was enacted to enable nonresidents to sue for divorce after a residence of 90 days in the State. The law on public education was recodified and provision was made for a State Superintendent of Public Instruction, to be appointed by a State Board of Education, the latter to consist of seven members to be appointed by the Governor. School districts were limited, in their bonded debt, to 7 per cent of assessed property valuation; the districts' budgets were made to depend on the endorsement of the State Board of Education; and provision was made for consolidations of existing school districts. The reaction to extensive bank failures in the previous autumn took the form of statutory restrictions upon the granting of loans by chain banks to officers, directors or proprietary interests. The State tax on sales of gasoline was raised to 6 cents a gallon, from 5 cents, to help provide for the service of highway bonds. Duty was placed on cigarettes at the rate of 50 cents a thousand, of which the proceeds were to augment the school fund; and a tax of 10 per cent on cigars was repealed.

To provide aid to agriculture, the Arkansas Agricultural Credit Board was created and the

issuance of \$1,500,000 in State bonds to provide relief for drought-stricken farmers was authorized. A State-wide system of audits for the accounts of counties and townships was created and the fiscal year for the counties was required to correspond with the calendar year. There were created a State Department of Aeronautics and a State Bureau of Criminal Investigation. Appropriation was made of \$3,000,000 to provide a new plant for the State Hospital for Nervous Diseases. Persons convicted of driving while intoxicated were prohibited by statute from operating motor vehicles for one year after conviction.

**POLITICAL AND OTHER EVENTS.** Rural destitution occasioned by the drought of 1930 came to a crisis in parts of Arkansas in January. In the town of England the stores were invaded by needy country inhabitants on January 3. The American Red Cross dispensed provisions there and elsewhere in the State for some weeks after. The State, despite its industrial depression, was able later to sell \$15,000,000 of its highway bonds, with the proceeds of which it was intended to complete the 9000-mile road programme started in 1927 and to furnish much needed employment for inhabitants. The Hudspeth chain of State banking institutions, which had temporarily suspended in November of 1930, was again involved in difficulties late in the summer. The State's "full crew" laws affecting railroads were sustained in the Federal Supreme Court on April 14, against the attack of the Missouri Pacific R.R. Co. The Arkansas River area suffered in April a severe affliction of buffalo gnats causing considerable loss to livestock in that region.

Thaddeus H. Caraway, (q.v.) the State's junior senator, died on November 6, about a month before the convening of Congress. On November 13 Governor Parnell appointed the late senator's widow, Hattie Caraway, to be senator *ad interim* to succeed her husband. An election to fill the seat for the unexpired term to end March 4, 1933, was called for January 12, and the Governor called on the Democratic State Committee to make Mrs. Caraway the nominee.

**OFFICERS.** Governor, Harvey Parnell; Secretary of State, Ed. F. McDonald; Treasurer, Ralph Koonce; Auditor, J. O. Humphries; Attorney-General, Hal L. Norwood; Superintendent of Public Instruction, C. M. Hirst.

**JUDICIARY.** Supreme Court: Chief Justice; Jesse C. Hart; Associate Justices, Frank G. Smith, T. H. Humphreys, William F. Kirby, Thomas M. Mehaffey, E. L. McHancey and Turner Butler.

**ARKANSAS, UNIVERSITY OF.** A coeducational State institution of higher learning in Fayetteville, Ark., founded in 1871. It comprises the colleges of arts and sciences, education, engineering (including experiment station), agriculture (including experiment station), graduate school and schools of law, business administration, and medicine, the last named being in Little Rock. In the autumn of 1931 the enrollment was approximately 2000, and for the summer session it was 1017. The number of faculty members was 200. The endowment amounted to \$132,000, and the income for the fiscal year ending June 30, 1931, was \$1,480,000. The library contained approximately 105,000 volumes. Among the important gifts received during the year was \$5,000 a year for three years, beginning January, 1931, for museum purposes from the Carnegie Founda-

tion. The Legislature also appropriated in March, 1931, \$1,000,000 for the construction of a library, chemistry building, and medical school building. President, John Clinton Futrell, LL.D.

**ARMAMENTS, LIMITATION OF.** See **DISARMAMENT**; **NAVAL PROGRESS**; **MILITARY PROGRESS**; **GREAT BRITAIN, FRANCE, AND ITALY under History.**

**ARMENIA.** The name applied, since Dec. 2, 1920, to the Socialist Soviet Republic of Armenia. On Jan. 16, 1923, Armenia became one of the three constituent republics of the Transcaucasian Socialist Federated Soviet Republic (q.v.), which is a member of the Union of Soviet Socialist Republics. Capital, Erivan, with a population of about 75,000 in 1929.

Occupying the southwest frontier region of Transcaucasia, and bounded by Turkey and Persia on the west and south, respectively, Armenia has an area of 11,945 square miles and a population of 876,557 (1926 census). About 100,000 pupils are enrolled in elementary schools. The country is essentially agricultural, with a cultivated area of about 1,000,000 acres in 1929-30, including more than 44,000 acres devoted to cotton. On May 10, 1931, there were reported to be 682 collective farms, comprising 37,755 households, or 25 per cent of the total peasant households. In the first ten years of the Soviet régime, the construction of 187 miles of canals placed 900,000 acres of land under irrigation. Ten new hydro-electric plants were constructed also. The production of Armenian state industry (1929-30) was valued at 49,000,000 rubles (1 ruble equals about \$0.515 in the Soviet Union). See **UNION OF SOVIET SOCIALIST REPUBLICS.**

A severe earthquake shook the region on the Armenian-Persian frontier in March, 1931, killing about 500 persons, injuring more than 11,000, and destroying numerous villages and thousands of horses, cattle, sheep, and goats.

**ARMIES.** See **MILITARY PROGRESS.**

**ART.** See **PHILOLOGY, MODERN**, for bibliography.

**ARTERIAL DISEASE, PERIPHERAL.** See **SURGERY, PROGRESS OF.**

**ART EXHIBITIONS.** IN EUROPE. The Exhibition of Persian Art which opened in London at Burlington House January 6 was a revelation to the majority of Occidentals who thronged its rooms, of the vast and immensely ancient culture of Persia. It is not impossible that this exhibition may count in the future as a landmark in the development of international artistic appreciation, so vividly did it present a panorama of the ancient culture whose influence upon Western art in the past is being more and more stressed by archaeologists and art historians, and which stands to-day as a symbol of that East to which economic and political attention is being constantly attracted. The crafts of medieval and renaissance Persia, especially in the fields of illuminated manuscripts and rugs, have hitherto been the best-known forms of Persian art in Europe, but this exhibition traced the development of Persian art for over 5000 years, through examples of early pottery and carvings as well as photographs of architectural work and colossal rock sculpture recalling originals which could not otherwise be represented in London. Silk carpets, faience, glass, ceramics, metalwork, textiles, ivories, enamels, and manuscripts were present in abundance, lent by the Persian government, by public and private collectors, and by

dealers in Europe and the United States. It is probable that no such collection of objects illustrating the art and culture of any one people has ever before been assembled. Already its influence has been shown in the spread of interest in Near Eastern art—in the publicity received by the American Institute for Persian Art and Archaeology, for instance, in Persian and Islamic exhibitions in the United States, and even in so popular a fashion as an increased demand for reproductions of Near East paintings for decorative purposes.

Later in the season an exhibition of Indian Art was held in London by the Burlington Fine Arts Club as a sequel to the Persian Exhibition. This exhibition, which covered more than 2000 years of artistic development, included sculpture and painting lent by the King and by the ruling princes of India and private collectors, as well as examples of Indian art and craftsmanship in various fields.

Another interesting, though less widely known London exhibition, was that of Scottish art, including personal historical relics and a group of paintings which gave an excellent idea of the development of this art in Scotland from the fifteenth century to the present, with its varying French and Flemish trends.

The Exhibition of Byzantine Art held in Paris at the Musée des Arts Décoratifs during the summer was of especial interest to those who find pleasure in fine decoration and in the subtleties of blended Eastern and Western traditions which characterize Byzantine work. This exhibition, which embraced ivories, enamels, metalwork and jewelry, textiles, and parchments, included also examples of work of the first centuries of the Christian Era technically classified as Early Christian, but essential for completeness and contrast in such a collection. The exhibition was assembled by the College Art Association and included many American loans.

The great Colonial Exposition held at Vincennes from May to November (see **EXPOSITIONS**) was, of course, the occasion for assembling many examples of the arts as well as the economic products of the countries represented, an outstanding example being the reproduction of the great temple of Angkor. The Museum of the Colonies was to be preserved as a permanent institution.

The exhibition of early German paintings held at the Germanic National Museum in Nuremberg during the summer was of especial importance for students of the Germanic primitives.

London's interest in the Near East was paralleled in Berlin by an exhibition of one hundred and forty-seven paintings by an almost equal number of contemporary Japanese artists, an interesting blend of the modern and Far Eastern trends.

IN THE UNITED STATES. In the United States modern French paintings took first place among exhibitions, with a steadily growing amount of contemporary and older American work and a considerable interest in the Near East, reflected from the Persian Exhibition in London.

The Brooklyn Museum held a loan exhibition of Persian Art, including pottery, textiles, metalwork, and illuminations, in the early spring, emphasizing, as did the London exhibition, the early development of Persian culture. In May and June the Metropolitan Museum held a loan exhibition, which had been contemplated



for many months, of Near Eastern ceramics from the seventh to the eighteenth century, including examples of special interest to designers as well as to students of Islamic art, and in November the Cleveland Museum held an exhibition of Persian Art in which were shown a number of pieces lent during the winter to the London Exhibition.

With regard to French paintings, the memorial exhibition of the work of Jules Pascin at the Downtown Galleries in New York was carried over through the first of the year, and early in January the Marie Harriman Galleries opened the first one-man show of the work of Henri Rousseau, whose simple and direct but imaginative interpretations have been growing steadily in popularity. From this time on the exhibitions of the New York galleries featured an almost continuous presentation of Matisse, Fernand Leger, Picasso, Braque, Derain, Dufy, and the earlier men from whom they stemmed.

Outstanding among the exhibitions of modern French work in museums were, of course, those of the French Museum under the able guidance of Maud Dale. The year at the French Museum began with "Paintings of Women, Romanticism to Surrealism." Next came canvases by Picasso, Braque, and Leger, followed, in March, by the first of two exhibitions assembled to illustrate selected themes. The March exhibition showed "Degas and His Tradition," including examples of the Oriental work which influenced this painter and his group so strongly, while in November came its companion, perhaps a little more far-fetched, "Renoir and His Tradition," tracing the development of this line of influence from the sixteenth century.

The Museum of Modern Art showed, early in the year, a finely contrasted exhibition of the works of the racy, full-blooded, often satiric Toulouse-Lautrec combined with that of the poet-mystic, Odilon Redon. After an exhibition of the work of contemporary German painters and sculptors during the spring, this museum opened in May a memorial exhibition of the collection of Lizzie P. Bliss, the greater part of which consisted of the works of Cézanne, Renoir, Degas, Gauguin, and other members of the "modern" Frenchmen of the nineteenth and early twentieth centuries, with examples of their American disciples. The greater part of this collection becomes the property of the Modern Museum if it is able to comply with certain conditions which will undoubtedly be met. The museum's fall season opened with an exhibition of paintings by Matisse, the fifth and most comprehensive of such shows held in the United States.

French exhibitions were by no means confined to New York. The Cincinnati Museum arranged an exhibition of paintings by Derain to open the holiday season of 1930-31; the City Art Museum of St. Louis held, early in the year, an exhibition of French painting from David to Corot, Courbet, Millet, Daumier, Manet, Monet, Pissarro, Renoir, and Degas, followed in the spring by an exhibition of the Post-Impressionists. The Carnegie Institute of Pittsburgh exhibited in May and June twenty-nine examples of outstanding modern French paintings from the Chester Dale Collection; and the Detroit Institute of Arts opened in May an exhibition of French paintings from Renoir to the present.

Among the outstanding exhibitions of American painting during the year was that which

opened the new Whitney Museum of American Art in November. The Forty-fourth Annual Exhibition by American Painters and Sculptors at the Art Institute of Chicago from October 29 to December 31 was also an event of considerable importance, displaying American work of a class perhaps equal to that shown at the Carnegie International at Pittsburgh. The Chicago Exhibition included 218 paintings and 62 pieces of sculpture, the paintings, especially, being marked by a lively contemporary character, and including a number from the West and the Middle West. The first prize, the Mr. and Mrs. Frank G. Logan Medal and \$2500, went to Morris Kantor for his painting, "Haunted House." The other two Logan Medals went to sculpture, the second, with \$1500, to William Zorach for his group "Mother and Child," and the third, with \$500, to John Storrs for "Seated Torso." The Twenty-sixth Annual Exhibition of Paintings by American Artists at the City Art Museum of Saint Louis recalled the fact that America is an out-of-door country and that landscapes have long held a first place in American painting, for the show abounded in typically American shore and street scenes.

The Detroit Institute of Arts showed at its Seventeenth Annual Exhibition of American Art work ranging from that of the Munich school, represented by a room hung with the paintings of Julius Rolshoven, to the present. One room was devoted to paintings by Arthur B. Davies, while the gallery of work by living artists contained 60 examples. Another interesting exhibition which had the advantage possessed by the Carnegie International of showing American work in its relation to that of Europe, was held at the Pennsylvania Museum. It included 75 canvases by living artists, about half of them American, selected to illustrate definite contributions to modern painting. Two exhibitions at the Metropolitan Museum were devoted to American work—the Twelfth Annual Exhibition of Industrial Art and the Memorial Exhibition of the Work of Robert Henri.

Several extremely interesting exhibitions fell outside the fields of French, American, or Near Eastern influence. One of the most unusual of these was that of Russian icons, shown at various American museums beginning with the Museum of Fine Arts in Boston and the Metropolitan Museum, arranged by the American-Russian Institute. Covering about a thousand years of the Byzantine tradition, this exhibition not only illustrated the little-known phases of Orthodox Russian painting on a larger scale than the small icons hitherto known in this country, but presented as well a great body of late medieval and early Renaissance work in which the influences forming the background for Giotto and the other early Italian rebels from tradition could be studied clearly.

Among the various exhibitions held at the Metropolitan Museum aside from those already mentioned were a loan exhibition of armor and tapestries which included several fine Gothic hangings from the collection of Clarence Mackay, such as the "King Arthur" and "Hector and Andromache"; and an Exhibition of Chinese Court Robes and Accessories which was a revelation of the fineness of Chinese weaving and embroidery and of its elaborate symbolism.

Another notable subject exhibition was that of landscape painting from the fifteenth century

to the present opened in January at the Wadsworth Atheneum and Morgan Memorial in Hartford, and echoed later by various galleries. The Hartford exhibition traced the development of landscape from a purely subordinate place as mere background to the dominant position it came to occupy among many artists of later times.

The Exhibition of American Primitive Painting which opened at the Newark Museum in 1930 was carried over into 1931, and was followed in the fall by a second step toward the tracing of American beginnings—an Exhibition of American Folk Sculpture. This included such work as ships' figureheads, cigar-store figures, and Pennsylvania Dutch stove plates, and is more fully discussed under the heading of Sculpture (q.v.). The American Folk Art Gallery, opened about the same time, exhibited later in the fall a group of "primitive American" paintings similar to those shown in 1930-31 at Newark.

The Exhibition of Modern Hungarian Art, assembled by the College Art Association for circulation and shown first at the Silberman Galleries in New York, showed certain close relationships to the "American primitive" work in its direct transcription of objects as seen by untrained or "natural" painters. An interesting subject exhibition might, indeed, be formed by a combination of paintings from these two groups with those of Rousseau, for the same simplicity, though expressed with considerable more genius, marks the work of that humble custom's clerk. Another expedition into primitive work, of a different type, was also made by the College Art Association in assembling its Exhibition of the Tribal Arts of the American Indians which opened in the fall at the Grand Central Galleries in New York.

Other interesting exhibitions were that of Byzantine Art held at the University of Chicago during the fall and showing a number of examples from the Paris Exhibition, and an Exhibition of Japanese Art presented at the Toledo Museum.

The Third International Antiques Exhibition at Grand Central Palace also attracted much attention. Period rooms and alcoves decorated in period styles furnished the background for the exhibits, and the first prize was awarded to Charles of London for a Gothic interior.

CARNEGIE INTERNATIONAL. The Thirtieth Carnegie Institute International Exhibition of Paintings opened in Pittsburgh October 15 with a total of 496 paintings, the largest for many years. Of this total, 332 were by Europeans and 164 by Americans. Two hundred and eighty-one artists were represented, including 157 from European countries and 124 from the United States, while 16 nations took part in the exhibition. It was an American year, the French, German, and English groups being less forceful than usual. The Polish work was unusually interesting. Five out of the seven awards went to painters from the United States, an unusual number. The first Carnegie Prize of \$1500 and the Lehman prize of \$2000 for the best painting for sale went to a young Philadelphian, Franklin G. Watkins, for "Suicide in Costume," thus concentrating two awards upon one American artist. The second Carnegie Prize of \$1000 was awarded to an Italian, Mario Sironi of Milan, for "Fishermen"; the third prize of \$500 went to Raoul Ruyf, the French modernist, for "The Avenue of the Bois de Boulogne,"

First honorable mention, which carries a cash award of \$300, went to the American, Judson Smith, for "A Deserted Village"; and an honorable mention to Yasuo Kuniyoshi, born in Japan but a resident in the United States, for "Still Life." The Allegheny County Garden Club Prize for the best painting of gardens or flowers went to Andrew Dasburg, an American, for "Bouquet." Most of the artists were represented by groups of two or three paintings in order to give a better opportunity for studying the character of their work. The prizes were awarded by a jury of six composed of Henri Eugene Le Sidaner of Paris; Cipriano Oppo of Rome; Paul Nash of London; and three Americans, Randall Davey, Jonas Lie, and Eugene Speicher, with Homer Saint-Gaudens presiding.

PENNSYLVANIA ACADEMY EXHIBITION. The One-hundred-and-Twenty-sixth Annual Exhibition of the Pennsylvania Academy of Fine Arts at Philadelphia, held from January 25 to March 15, included 301 paintings and 148 pieces of sculpture, and represented the work of 388 artists. The exhibition was varied in character, including work by both the conservative and the modern schools in landscape, portraiture, and "subject-pictures," as well as small bronzes and larger sculpture. The influence of the French school, both direct and indirect, was noticeable, as was to be expected. The prizes were awarded as follows: the Temple Gold Medal to Alexander Brook of New York for "The Intruder"; the Walter Lippincott Prize to Sidney E. Dickinson of New York for "Mary"; the Mary Smith Prize to Mildred B. Miller of Chester Springs, Pennsylvania, for "Yuan Shi Kuo"; the Jennie Sesnan Gold Medal to John Folinsbee of New Hope, Pennsylvania, for "Canal and River"; the Carol H. Beck Gold Medal to John Sloan of New York for "The Sculptor Vagis." The sculpture prizes, two in number, went to Gladys E. Bates of Mystic, Connecticut, for "Eve," and Edward McCartan of New York for "Dionysius."

THE NATIONAL ACADEMY OF DESIGN. The National Academy of Design awarded three sets of prizes in 1931 due to the fact that the autumn show of 1930 was confined to members and no prizes were then given. The principal prizes held over for the One Hundred and Sixth Exhibition in the spring of 1931 were awarded as follows: the First Altman Prize of \$1000 to Gifford Beale for his painting, "Man with Lobster Pots"; the Second Altman Prize of \$500 to Jerome Myers for the painting, "Street Scene." The First Altman Prize regularly awarded in the spring went to Aldro T. Hibbard for "Rockport in Winter"; and the Second to Spencer Nichols for "Jeweled Hills." The Altman prizes awarded at the fall exhibition of the Academy were: First Prize to Eugene Higgins for "The Black Cloud," and Second to Charles E. Chambers for "Mr. John Alonzo Williams." The exhibits throughout the year were marked by close adherence to the conservative school.

PRIX DE ROME AWARDS. The American Academy in Rome awarded in May, 1931, the following fellowships: In sculpture to Warren T. Mosman of Bridgeport, Conn., in painting to Harry G. Ackermann of New York City, both graduates of the Yale School of Fine Arts.

See ART MUSEUMS; PAINTING; SCULPTURE.

ARTIFICIAL SILK. See RAYON.

ARTILLERY. See MILITARY PROGRESS.

**ART INSTITUTE OF CHICAGO.** See **ART EXHIBITIONS**; **ART MUSEUMS**; **SCULPTURE**.

**ARTISTS.** See **MUSIC**; **PAINTING**; **SCULPTURE**.

**ART MUSEUMS.** The year 1931 was marked by the passing of several great private collections into the hands of museums or municipalities, and by the opening of important new sections or additions in several museums.

At the close of the year the collection of Colonel Michael Friedsam passed to the Metropolitan Museum, New York, for exhibition during 1932. This collection is especially rich in French and Flemish primitives, as well as paintings of the Dutch and Italian schools, including Botticelli, Titian, and Rembrandt, and works by Goya, Velázquez, and Murillo, with fine examples of sculpture, enamel, bronzes, and ceramics. Its acceptance was delayed for some months because of the necessity of reaching a solution of the problem presented by Colonel Friedsam's desire that the collection be kept together, which presented difficulties in Museum arrangement, but such a solution was finally reached, and while a nucleus of the collection will be displayed by itself and all objects will be labeled to show their origin, the collection will not be static, but may be changed from time to time and objects from it displayed in other galleries with the regular collections.

Early in December the Metropolitan Museum opened an addition to the American Wing consisting of a reconstruction of the great hallway of the Van Rensselaer manor house at Albany, built between 1765 and 1768, containing the original woodwork and painted scenic wall paper, given to the Museum by the late Dr. Howard Van Rensselaer and Mrs. William Bayard Van Rensselaer. The hall is furnished with pieces of the period, though not from the Rensselaer house. Adjoining it is a smaller room, connecting it with the main body of the American Wing, lined with woodwork from a house in Providence, R. I., built in 1795.

In this year, also, the Theodore M. Davis Bequest, which for a long time has been the subject of litigation, became the property of the Museum. This bequest includes many important Egyptian antiquities, for Mr. Davis was a tireless worker in the field of Egyptology, as well as a number of fine paintings, such as an early Madonna and Child by Giovanni Bellini, a signed work by Bartolommeo Vivarini, a Madonna and Child once attributed to Masolino, several portraits by Moroni, a Madonna and Child probably by Dirk Bouts, and works by Cuyp, Guardi, Monet, Corot, Rousseau, and Monticelli. The collection also includes sculpture and decorative arts. Among other acquisitions of the Metropolitan Museum were three paintings by Arthur B. Davies, together with a Byzantine painting and fine metalwork, by bequest of Lizzie P. Bliss; a polychrome vase from Centuripe, a rare Scythian gold sword guard of the fifth century B.C., a Roman copy of a Greek head from the Lansdowne collection, and an exceptionally fine Greek gem, all welcome additions to the Classical Department. Among the accessions of the Department of Decorative Arts were a number of pieces of furniture, including eighteenth-century chairs, and a fine carved ebony cabinet of the period of Louis XIII. The Far and Near Eastern collections received, among other accessions, a Chinese memorial stele of the T'ang Period and ceramics and other objects from the Near East, including five stucco panels from

the frieze of a Sassanian palace at Nizanabad, of the sixth or seventh century, and two important reliefs of enameled tiles which once formed part of the decoration of the Processional Street of Babylon.

In February the Philadelphia Museum opened its new medieval section, containing much architectural material as well as sculpture, paintings, tapestries, stained glass, metalwork, furniture, and other medieval decorative arts. The centre of the wing contains the stonework from a Romanesque cloister, with columns and arches of pinkish marble. Around it are ranged an almoner's chapel, a Venetian Gothic room from the Palazzo Soranzo, a Florentine Gothic room, and a room from a fifteenth-century French château, with wainscoting and hooded fireplace. Another room contains painting and sculpture from the northern European countries, of the Gothic period. One of the outstanding architectural details is the façade of Saint Laurent l'Abbaye, thirteenth-century work, which dominates the great hall.

Among its accessions the Pennsylvania Museum received a capsula from the Guelph Treasure, a figure of Saint Sebastian by Pierre Puget, and, in the more modern vein, Renoir's notable portrait of Mme. Renoir. The Museum also opened, during the year, a branch museum housed in the 69th Street Arts and Crafts Community Centre.

The Boston Museum opened in February its newly arranged galleries of Italian Paintings and late Egyptian Art, and, in the fall, a room from the house of George Jaffery in Portsmouth, New Hampshire, to be used as the setting for a collection of silver made by Paul Revere and of portraits belonging to that famous silversmith or his family. Notable among these are a portrait by Copley showing Paul Revere at his work bench and two portraits by Gilbert Stuart of Paul Revere and his wife painted in their old age.

Among its accessions during the year the Boston Museum counts a rare portrait by Veronese of The Dead Christ Supported by Angels, 50 drawings by Sargent, three small terra cotta heads of Greek workmanship, a Central Asian head in stucco, a bust of Turgot by Houdon, several fine prints, including works by Dürer, the Master E.S., and Veit Stoss, 34 pieces of Early American silver, a Chinese scroll painting of the Sung Period, a long-lost pastel by Whistler, and Weymouth Bay, by Constable.

The City Art Museum of Saint Louis opened, in October, a series of five American period rooms, consisting of a main exhibition hall and four original interiors, one from 61 Tradd Street, Charleston, S. C., of the second quarter of the eighteenth century, one from 201 South Lee Street, Alexandria, Va., built about 1780; one from the Putnam-Hanson House in Salem, Mass., about 1800; and one from Newburyport, Mass., of about 1810. This museum opened in December a fine Gothic section, including four characteristic examples of architectural stonework and a beautiful sixteenth-century wooden staircase, with balconies, from the exterior of a house in Morlaix, Brittany.

Among the Saint Louis Museum's acquisitions during the year were five early American portraits—a Self-Portrait by Ralph Earle, Colonel Mendes I. Cohen by Rembrandt Peale, Mrs. Bergen by S. F. B. Morse, Mrs. William Steele by

Samuel L. Waldo, and Thomas Birch by John Neagle. Another interesting accession was a bust of Voltaire by Pigalle.

Two American Colonial period rooms were opened in the spring by the Minneapolis Institute of Arts. These Pre-Revolutionary interiors were brought from a house in Charleston, S. C. Among its accessions the Minneapolis Museum received a Greek grave stele of the fifth century B.C., and a Portrait of Lewis Warrenton, by Rembrandt Peale.

The collection of paintings, ceramics, and enamels belonging to the late Charles P. Taft became, upon the death of his widow in 1931, the property of the City of Cincinnati under the direction of the Cincinnati Museum, which owed its beginning to the Taft family. With the collection was left the Taft home and an endowment of \$1,000,000.

Similarly, upon the death of Mrs. Henry Clay Frick, the magnificent Frick Collection came into the hands of the City of New York. The collection is rich in the works of Rembrandt, Vermeer, Hals, and Holbein, as well as in other Dutch, Flemish, and German masters, and contains, also, fine examples of the work of Gentile Bellini, Veronese, Titian, and Veneziano, together with a number of eighteenth-century English paintings, including Lawrence's Lady Peale, a series of fine Fragonard paintings, formerly in the Morgan Collection, and bronzes and rare enamels. It probably would be opened to the public in 1932.

Late in the autumn the great collection of paintings, sculpture, porcelains, and other objects of art acquired by Henry Walters and his father passed, with Mr. Walters' death, to the city of Baltimore. It was not yet known whether this collection would be placed under the direction of the Baltimore Museum or administered separately.

The Brooklyn Museum acquired during 1931 a unique collection of Russian art, including icons, costumes, embroideries, and various types of decorative art. Among the acquisitions of the Fogg Museum were an ivory casket from the Guelph Treasure; paintings by El Greco, Murillo, Hals, and Rembrandt; a Portrait of M. de Caliasanne by Corneille de Lyon; a Portrait of a Woman attributed to Holbein; a Portrait of Dorothy Murray by Copley; and two interesting Chinese portraits of the Ming Period, as well as a number of Luristan bronzes. The Kansas City Museum acquired Rembrandt's Portrait of a Boy, formerly in the collection of Lord Leconfield; El Greco's Penitent Magdalen; Murillo's "Little Conception"; Veronese's Christ and the Centurion; David's Portrait of a Boy; Rubens' Portrait of Old Parr; and works by Hals, Gainsborough, Claude Lorraine, Corot and others; as well as several objects from the Guelph Treasure, a bronze by Giovanni Bologna, and a fourth-century Greek statue.

Among the acquisitions of the Detroit Institute of Arts were a dragon relief in glazed tiles which once formed part of the Ishtar Gate of Babylon; a Madonna and Child by Giovanni de Pisa; El Greco's Saint Francis in Ecstasy; a painting by Lurcat entitled "Yellow Silk," and several Egyptian reliefs of the Old Kingdom.

Among the acquisitions of the Art Institute of Chicago were a cross from the Guelph Treasure, several Luristan bronzes, a fine "Damascus" rug, an important collection of Rouen ware, a replica of Carl Milles' famous "Fountain of the

Tritons," which has been installed in McKimlock Court, and a number of paintings. The San Diego Art Gallery acquired a Penitent Magdalen by Murillo, a Holy Family by Rubens, and the Martyrdom of Christ by Bassano. A Virgin and Child by Filippino Lippi was among the outstanding acquisitions of the Toledo Museum; a fifteenth-century French polychrome statue, probably of Louis XI, in those of the Albright Art Gallery at Buffalo; and the Worcester Museum acquired its first example of Assyrian art, a slab of relief from the Palace of Assur-nazir-pal at Calah. The Carnegie Institute acquired, among other accessions, a painting by Arthur B. Davies—At the Chestnut Root—and Joseph Woodnell by Eakins. The Corcoran Gallery in Washington received four paintings by Davies from the collection of Miss Lizzie P. Bliss, and also acquired Bellows' well-known canvas, Forty-two Kids. The Brooklyn Museum, the Newark Museum, the Memorial Art Gallery of Rochester, the Saint Paul Art Association, the San Francisco Art Association, and the Rhode Island School of Design also received bequests from Miss Bliss, as well as the Metropolitan Museum already mentioned.

The Museum of Modern Art was, most fittingly, the chief beneficiary of the estate of Miss Bliss, whose collections were especially rich in modern paintings of the French school and works by Davies. Among its acquisitions from this bequest were a magnificent group of 21 Cézannes, a landscape by Renoir, two paintings by Degas, two Gauguins, three paintings by Derain, two by Picasso, and two by Matisse.

An outstanding event of the year was the opening in November of the Whitney Museum of American Art. This museum, on Eighth Street, New York, consists of three houses thrown together and has nine galleries on four levels. A small section is devoted to the earlier men and there are canvases by Eakins, Ryder, Blakelock, La Farge, Theodore Robinson, and Twachtman, but most of the emphasis is placed upon the moderns. The exhibition which opened the museum was to remain intact until the first of the year, 1932, when a second selection from the great collections was to be installed. There is a separate hall for sculpture, and other pieces are tucked away in hallways and available niches among the paintings.

EUROPEAN MUSEUMS. The fate of the artistic treasures of Spain was of great interest to art lovers during the year. The Spanish government was taking great precautions to guard them, and the Royal Palace at Madrid was established as a museum. The famous tapestries of the Cathedral at Zamora were made available for inspection in a near-by building, properly protected from danger.

One of the buildings of the French Colonial Exposition at Vincennes during the summer was to remain as a Museum of the Colonies. Leipzig opened, in February, a Museum of Chinese Art which had been in preparation for some time. It contains, among other collections, a dragon frieze from a Buddhist temple near Peking said to be the only one of its kind in any museum of the world. The Staatlichen Museen in Berlin opened in the Prinzessinpalais a museum showing various materials related to the well-known German architect, C. F. Schinkel, and reported, as well, a continual increase in visitors to the new wings opened in 1930, followed by gifts for further excavations at Pergamon. The Kaiser

Friedrich Museum, one of the component parts of the Staatlichen group, listed, among its acquisitions for 1931, two panels by an anonymous fifteenth-century German painter known as the "Hausbuch Meister," whose work is very rare. These two panels which represent the Last Supper and Maundy are characteristic of the medieval spirit and manner of representation.

The burning of the Munich Glaspalast on June 6 was a serious loss to German art. More than 3000 paintings and other works of art from about forty galleries and museums were assembled at the time. The loss is felt most severely in connection with the German Romantic School, of which a comparative exhibition was on display, but valuable works by Picasso, Chirico, and many other moderns were also destroyed.

The British Museum listed among its acquisitions a fine Sumerian statue, a small group of extremely rare and finely preserved woodcuts by Dürer and his school, and a valuable collection of Chinese porcelains. Among outstanding acquisitions of the Victoria and Albert Museum were the "Great Bed of Ware," one of the most famous pieces of Elizabethan furniture, mentioned by Shakespeare in *Twelfth Night*; the "Thomas à Becket" cup, sixteenth-century English work but traditionally associated with that saint because of initials which form part of its decoration; and a *Pieta* by Perugino. The Fitzwilliam Museum at Cambridge opened new quarters in which its collections may be seen to far better advantage than before.

The Luxembourg, from the limited fund set aside for the purchase of foreign work, acquired three paintings by Scottish artists, Peploe, Ferguson, and Leslie Hunter, which had been shown at the Exhibition of Scottish Painters at the Galerie Georges Petit in Paris. The Louvre added to its Persian collections two large marble reliefs from the palace at Persepolis, showing warriors of King Darius and a priest, as well as several fine examples of Egyptian sculpture and tomb furniture. An interesting phase of the work of the Louvre was called to public attention by the opening in October of the new scientific laboratory which offers greater facilities for the examination of works of art by photography and X-ray and for the study of their proper restoration.

**ART SALES.** The outstanding European sales of 1931 were undoubtedly the Nemes Sale at Munich in June and the Stroganoff Sale in Berlin in May. The Nemes sale, held under the combined auspices of F. Muller & Company, P. Cassirer, and H. Helbing, included such famous paintings as Rembrandt's *Fabius Maximus*, El Greco's *Concert of the Angels*, a fine Filippino Lippi *Virgin and Child*, a Fra Angelico *Adoration of the Magi*, Titian's *Federigo Gonzago*, Duke of Mantua, a version of his *Danaë*, and his *Venus with a Mirror*, together with fine examples of the slightly less famous Italian and northern painters and an outstanding collection of enamels, brocades, tapestries, and ecclesiastical vestments. Although its returns did not reach those of the Figdor and Spiridon Sales, the total amount received was 3,500,000 marks. Rembrandt's *Fabius Maximus* brought the highest price of any single object, 300,000 marks (about \$80,400). El Greco's *Concert of the Angels* sold for 275,000 marks (about \$66,000), and the Fra Angelico *Adoration of the Magi* for 100,000 marks (about \$24,000). The Titian *Danaë*

and *Venus with a Mirror* were reported to be unsold because the reserve was not obtained.

The Stroganoff Collection, founded by Count Alexander Stroganoff, a friend of Catherine II of Russia, included, besides representative paintings of various schools, fine furniture, sculpture, and bronzes. The outstanding price of the sale, which was held at Lepke's in Berlin, was given for two Vandykes, Balthasarine von Linick and Nicholas Rookox, which, together, brought 660,000 marks (about \$157,080). These portraits went to a Dutch dealer. The second highest price was that paid for Rembrandt's *Christ and the Samaritan Woman at the Well*, which was bought by the house of Goldschmidt in Berlin for 210,000 marks (about \$49,980). Romney's splendid portrait of Countess Woronzoff went for the comparatively low price of 50,000 marks (about \$11,900). The two fine Poussins, one of which was the well-known *Bacchanal*, were withdrawn because of the lowness of the offers. The total of the sale was 2,290,000 marks.

Other important European sales were the Goldschmidt-Rothschild sale in March, including French furniture, fine porcelains, textiles, and paintings; the Van Dirksen sale in April, which offered carpets, woodwork, sculpture, bronzes, ceramics, metalwork, and other objects of art; the Wendland sale of paintings, sculpture, furniture and decorative arts in April; and the "Herr H." sale in September, including such paintings as El Greco's *Jesus at the House of Simon* and works by Tintoretto, Velázquez, Cézanne, Degas, Daumier, and others. All these sales were held in Berlin.

An important Paris sale of the year was that of M. G. de Miré's collection of Negro and Mayan art, one of the most extensive ever made of this type of work.

Two items of unusual interest sold in London during 1931 were the so-called "Thomas à Becket" cup of ivory and silver gilt, the sole object of an entire sale at Christie's, which brought the Duke of Norfolk £11,000; and the "Canning jewel" attributed to Cellini, the property of Lord Harewood, which sold for £10,000. The cup found its way to the Victoria and Albert Museum, while the Canning jewel came into the hands of a private collector in America. The highest price paid for a painting in London during the season was £6825 for a *Portrait of a Child* by Romney.

In New York the "Collection of a Swiss Nobleman" sold at the American-Anderson Galleries for a total of \$211,490. This collection included paintings from the royal Hohenzollern and Hapsburg collections. Another sale of objects from dispersed European collections was that of furniture, glass, silver, china, tapestries, embroideries, and other objects of art from famous palaces of the former Russian Empire, sold at the Wallace Day Galleries for a total of \$69,136.

The other outstanding New York sales were chiefly concerned with American furniture and other Americana. The sale of the Frances P. Garvan Collection of early American furniture and other arts in January at the American-Anderson Galleries was one of the most important of these. The highest price at this sale was for a Chippendale mahogany highboy attributed to William Savery, which brought \$11,000. The total of the sales receipts was \$242,852. Other important sales of American work were those of the Israel Sack Collection of furniture and silver sold



at the American-Anderson Galleries for a total of \$90,550, the highest single price being given for a New Hampshire claw-and-ball foot highboy of about 1750, \$3000.

The King Hooper Collection of American furniture, silver, china, and other arts sold at the National Art Galleries for \$141,080, the highest price paid for a single piece being \$2300 for a curly maple block-front chest of drawers of about 1765. A sale of American furniture and woodwork from the Fleyderman Collection at the American-Anderson Galleries in April, including woodwork by Samuel McIntire from a room of the Putnam-Hanson House in Salem, brought \$86,320, the woodwork of the room selling for \$3300.

A sale of portraits by the Ehrich Galleries at the American-Anderson Galleries included the portrait of Lincoln by Carpenter, which sold for \$8500, and a portrait of Washington by Charles Willson Peale, which brought \$4300. Another item of Americana which aroused considerable interest was the discovery of a little-known Stuart portrait of Washington among the objects to be sold for the Estate of Chlanucey M. Depew at the Plaza Galleries, and its withdrawal from the sale by the executors. The sale of the Clark Collection of American portraits, which was heralded as one of the events of the year, was postponed.

**ARTS AND LETTERS, AMERICAN ACADEMY OF, AND NATIONAL INSTITUTE OF.** See **ACADEMY OF ARTS AND LETTERS, AMERICAN.**

**ASCENSION, ISLAND OF.** See **ST. HELENA.**

**ASHANTI.** See **GOLD COAST.**

**ASHMEAD-BARTLETT, ELLIS.** A British journalist, died in Lisbon, Portugal, May 4, 1931. Born in 1881, he was educated at Marlborough. His career as a war correspondent began in 1904 when he accompanied the Japanese Army during the Russo-Japanese War. He also accompanied the Spanish Army against the Riffs in Morocco in 1909 and the Italian Army in Tripoli in 1911, and was at the Turkish headquarters during the first Balkan War (1912) and at the Serbian headquarters during the second Balkan War (1913). During the World War he was selected by the British Press Association as its representative for the Dardanelles Expedition of 1915 and at Joffre's headquarters in 1916. Most of his correspondence following the War was for the London *Daily Telegraph*, his assignments taking him to India, China, Russia, and other countries. He was also a member of the House of Commons from 1924 to 1926, representing North Hammersmith as a Conservative. Among his publications are *Despatches from the Dardanelles* (1915); *Some of My Experiences in the Great War* (1918); *The Tragedy of Central Europe* (1923); *Uncensored Dardanelles* (1928); and *The Riddle of Russia* (1929).

**ASIA.** See **CHINA, JAPAN, SOVIET CENTRAL ASIA, SIBERIA, INDIA,** and the other articles on the subdivisions of the continent. See also the articles on **ARCHÆOLOGY** and **EXPLORATION.**

**ASIR.** See **ARABIA.**

**ASSOCIATION FOOTBALL.** See **SOCCER.**

**ASTRONOMY.** None of the mutually conflicting theories of stellar constitution and evolution that have been developed during the past twenty years is free from serious objections. On the basis of Eddington's theory, the capacity of stellar material as determined astronomically is of an altogether different order of magnitude

from that indicated by physics; in this theory, the perfect gas law is assumed to hold throughout a star, and the luminosity is uniquely determined by the mass. It is maintained by Jeans, however, that the major portion of the mass of a star must be liquid rather than gaseous, in order to give stability and to account for binary fission, and that mass and luminosity must be mutually independent—i.e. the observed mass-luminosity law is not deducible from fundamental physical laws alone, and must be an accidental circumstance that is brought about by the physical conditions that happen to exist in the stars; but Jeans is forced to postulate the presence of hypothetical chemical elements of high atomic weights as a source of stellar energy.

Still another theory of internal stellar structure has been developed by Milne, by a method which avoids the assumptions about the interior that were used by Eddington and by Jeans; Milne is led to the conclusion that a star of any given mass can in general adjust itself to suit any arbitrary rate of generation of energy, and thus may have any luminosity, but he finds that under existing conditions the stars will fall into two classes: One type consists of an exceedingly hot and dense core surrounded by an extensive gaseous envelope, and comprises ordinary giant and dwarf stars; the other type is of extreme density throughout, except for a thin outer shell, and comprises the white dwarfs. It is possible that a nova is caused by the passage of a star from the former to the latter condition, accompanied by a sudden decrease of the external radius and the release of a large amount of gravitational potential energy in the form of radiation as the gaseous envelope collapses onto the dense core.

On Milne's theory, the central temperatures of stars may amount to ten or a hundred billion degrees, and this is ample to account for the conversion of matter into energy without postulating new elements of high atomic weight; but the discrepancy between the physical and the astronomical values of the opacity is far greater on Milne's theory than on Eddington's theory. Menzel has suggested that the difficulty about the opacity may be overcome by assuming a star to be composed almost entirely of hydrogen; while Jeffreys suggests that the discrepancy may be an indication that the chief mode of transfer of energy within a star is by vertical convection currents instead of by radiation and absorption. However, it has recently been found that according to the quantum theory the opacity of a gas which is in the condition of that in the white dwarfs is probably very low; and as a result, the central temperatures of these stars may be as small as 15,000,000 degrees.

Milne's investigations have stimulated a large amount of work on the problem by others. It appears, however, that no conclusive theory of stellar constitution is at present possible; the principal difficulty lies in our ignorance of the law of generation of energy: The source of stellar energy is one of the outstanding problems of astrophysics, and we seem to be as far as ever from a final solution of this problem. There are three main processes which must be considered, viz. the annihilation of electrons and protons, the synthesis of helium, and the building up of complex elements. Until recently,

it has not been possible to calculate the rate at which any of these processes might take place, but modern quantum mechanics has now made it possible to attempt such calculations; the results, however, are not promising: The rate of annihilation as calculated by Dirac is inconsistent with the known stability of matter; and A. H. Wilson has found that a building up of complex elements at a reasonably rapid rate would require a temperature of ten or a hundred billion degrees, which only Milne's theory provides.

Milne's theory of stellar atmospheres also has been questioned by Menzel, who maintains that the chromosphere cannot be supported by radiation pressure alone.

**EXTRAGALACTIC SYSTEMS.** The displacements of lines toward the red in the spectra of forty-six extragalactic nebulae as obtained at Mount Wilson have, with only one exception, confirmed the relation between distance and apparent radial velocity found by Hubble in 1929, and have extended this relation to a distance of 105,000,000 light years; to within an accuracy of 10 per cent, these distant systems exhibit an apparent velocity of recession of 558 kilometers per second for each million parsecs distance. The greatest displacement yet found is in the spectrum of one of the members of a cluster of nebulae in Leo, for which the apparent velocity of recession is 12,000 miles per second. The interpretation of these spectral shifts is still problematical, although several authorities maintain that they represent an actual expansion of the universe.

It has been suggested that the light from the distant extragalactic systems may have a velocity different from that of light from nearby objects; but by comparing the aberration for nearby stars with that for the Ursa Major nebula, which lie at a distance of 70,000,000 light years, Strömberg has shown that the velocities of the light from the two are the same to within at least one tenth of a per cent.

**NEBULÆ.** A redetermination of the distance of the Orion nebula by Trumpler has given the value 1800 light years, which is about three times as large as the previously accepted figure. The stars in the nebula were photographed through color filters which cut out most of the nebular light, and the distance of the cluster was then determined by the method previously developed by Trumpler for galactic clusters; the result was checked by two other methods. The diameter of the nebula is 26 light years. Hopfield has succeeded in producing nebulium lines in the laboratory for the first time.

**STARS.** The general grouping of the stars into giants, dwarfs, and white dwarfs is well known; within these groups, however, a number of sub-groups exist, and methods for detecting the latter have been devised by Strömberg, who has used for this purpose the parallactic and peculiar reduced proper motions and the radial velocities. The distribution of absolute magnitudes as thus determined for stars of spectral types KO to K2 brighter than the sixth apparent magnitude, e.g., shows four distinct groups, while among types K3 to K9 three groups are revealed.

The principle that the period of variation of a Cepheid variable gives a measure of the absolute magnitude, and hence of the distance, of the star, has been very widely used in es-

timating distances of globular clusters and spiral nebulae. The calibration of this scale of absolute magnitude, however, requires the independent determination of the distances of some of the Cepheids, and this is a difficult task because they all are too far away for accurate trigonometric parallaxes to be obtained. Originally the distances were estimated from proper motions, and were admittedly uncertain; considerable improvement has been effected by subsequent investigations, and although still further corrections may be found necessary it is now quite improbable that anything like the reduction to one-tenth the original estimates, that was at first favored by Curtis, Kapteyn, and Van Rhijn, is possible; Shapley has adopted a correction which decreases his original distances by 11 per cent, but a redetermination of proper motions by Gerasimović, together with a study of the radial velocities, indicates that the correction needed may possibly be as much as 30 or 35 per cent.

On the other hand, we have every reason to believe that the galaxy is completely analogous to the typical spiral nebulae; and yet the distances of the globular clusters given by the Cepheid variables therein indicate dimensions for the galactic system that are several times as great as those of the nearer spirals. Seares has concluded, however, that the light from these variables is greatly dimmed by clouds of obscuring nebulosity in the galaxy, and that the estimated brightness and distances are therefore much too great, so that in reality the galaxy is of quite ordinary size. From counts of extragalactic nebulae in different parts of the sky, Hubble infers that partial obscuration extends to galactic latitude  $40^\circ$  in the direction of the galactic centre.

The nature of the so-called Wolf-Rayet stars, viz. those which show broad atomic emission bands in their spectra, has long been an enigma. These stars are confined to spectral types O and early B; their spectra have many similarities to the spectra of novæ, and some novæ have been seen apparently to change into Wolf-Rayet stars. From an extensive study of these stars, Beals has concluded that probably the emission lines come from gaseous material that is being continuously ejected in a radial direction with high velocity by selective radiation pressure; the broadening of the lines is the result of a Doppler effect. Beals shows that not enough mass would be lost by such a process to invalidate his theory.

McLaughlin has suggested that the BE stars, the spectra of which show bright lines divided by dark lines into two portions that continually change in intensity, are stars with very extensive atmospheres; the bright line is produced in the inner atmosphere, while the dark line is caused by absorption in the outer atmosphere; these stars periodically explode every few months or every few years—the gases are blown away from the star by radiation pressure, and later fall back.

Another explanation has been suggested by Struve, however: He finds that the B stars which have widely separated double bright lines are characterized by extremely flat and broad absorption lines that are now known to indicate rapid axial rotation; but the stars in which the emission lines are single, narrow, and few in number, show little evidence of rotation.



Hence the B stars which show bright lines may be rapidly rotating, unstable, lens-shaped bodies, surrounded by a revolving nebulous ring that is formed from material ejected at the equator the width of the emission lines would depend on the inclination of the axis of rotation to the line of sight.

The investigation of stellar rotations by means of the contours of spectral lines has shown that rapid rotation, although by no means so rare as formerly supposed, is peculiar to the earliest spectral types. The equatorial speed of rotation on the sun is only four kilometers per second; in the case of both Eta Ursæ Majoris and the brighter component of the binary Alpha Virginis, it is two hundred kilometers per second, which is not much below the critical speed at which the Maclaurin ellipsoids of rotation become unstable. Hence in the earliest spectral types, a transition may exist between spectroscopic binaries and rapidly rotating single stars, but the direction in which such a transition may take place is not indicated by the observational facts; there are several objections to the fission theory of binaries. However, a distinct correlation between the periods of orbital revolution and axial rotation has been found in the case of spectroscopic binaries; this correlation disappears with increasing eccentricity, and favors the fission theory. The periods of variation of Cepheids and of long period M variables are also related to the period of axial rotation.

H. Van Gent, of the Leyden Observatory, discovered a variable star in Puppis with a period of only 100.4 minutes; the magnitude ranges from 14 to 15.

SUN. Lyot, of the Meudon Observatory, has partially solved the long-standing problem of the observation of the solar corona without a total eclipse: In the extraordinarily pure summer atmosphere of the Pic du Midi, at an elevation of 9439 feet, he found the diffraction and scattering by the air to be so reduced that he could observe the prominences without a spectroscope, merely by interposing in the optical train a metal disk slightly larger than the image of the sun formed by an objective four centimeters in diameter. With a direct vision spectroscope, two of the bright coronal lines were visible; and it is possible that spectroheliograms of the corona could be secured. Furthermore, with a highly sensitive polariscope, an exploration of the sky near the sun resulted in the detection of the inner corona by means of the polarization of its light; the form of the corona could be traced out in this way.

A new calculation, by Hopfield, of the wave lengths of the metastable lines of oxygen, from recent and more accurate values of the wave lengths of the principal oxygen lines, has given one which seems to be identical with the hitherto unidentified coronal line. A study of the solar prominences has led Pettit to conclude that local electrical fields on the sun are responsible for the forces which cause their characteristic forms.

That sunspots are cooler than the rest of the solar surface has long been established; Pettit and Nicholson at Mount Wilson, with a large image of the sun and a delicate thermocouple, find the total heat radiation from a spot to be only 40 per cent of that from an equal area of the disk; the spot temperature is  $4760^{\circ}$  Abs., or  $1200^{\circ}$  less than the temperature of the disk.

Sunspots are known to be vortices, in which the motions are upward and outward; expansion of the rising material causes cooling, and the vertical temperature gradient in the sun is such that this cooling by expansion exceeds the upward rate of decrease of temperature in the surrounding solar atmosphere. On Milne's theory of the solar atmosphere, an ascent of 30 miles would more than account for the observed relative cooling, but the spots, because of their immense size, certainly must go much deeper than this. However, Unsöld has shown that at a depth of 1000 miles within the sun, where the temperature is  $15,000^{\circ}$ , hydrogen is almost entirely ionized; the recombination of the ions during an ascent liberates enough heat to keep the ascending current going; this source of heat ceases a little below the photosphere, but the ascending column is forced on upward by its momentum, cooling by expansion. Thus the spots are cool only near the surface; deeper down, they are relatively hot.

PLANETS AND SATELLITES. Pluto has been found on two plates taken at the Lowell Observatory in 1915; eleven predisccovery images are now known.

While as many as 100,000 minor planets may exist, their total mass probably is not over 1/1000 that of the earth. Hirayama has shown that they may be grouped into families, the members of each family undoubtedly being of common origin. The fluctuations in brightness show these bodies to be irregular fragments. They could not have been formed in the same way as the other planets, because their masses are too small for them to have condensed from a gas. Neither is an explosion theory tenable: No satisfactory reason can be given for the occurrence of an explosion; furthermore the explosion would have had to be feeble, else the fragments would not have followed nearly the same orbit as the parent body, yet a feeble explosion could not have produced a disruption into so many fragments; again, several successive explosions would be needed to account for the families; and finally, most of the parent body must have been removed from the solar system without leaving a trace. Now, minor planets are in many respects analogous to comets, especially in regard to orbital elements; sometimes it is uncertain whether a newly discovered object is a comet or a minor planet, and several objects are now known which could be classified as either.

The continuous spectra of comets when near the sun are due to reflected solar light, and are similar to the spectra of the minor planets. Comets are known to lose their gaseous envelopes, and disintegrate into swarms of meteors. Bobrovnikoff therefore suggests that the minor planets are the disintegration products of comets, or perhaps of a single large comet after capture by Jupiter. Some comets have masses comparable to the total mass of the minor planets—e.g. Donati, and 1882 II. A disintegration in successive stages, as illustrated by the comet groups that have originated from one body, would explain the Hirayama families.

ASTRONOMICAL PHENOMENA. The minor planet Eros came to opposition on February 17, only a month after passing perihelion; hence it approached the earth nearly as closely as it ever can. The closest approach was on January 30, to within about 16,000,000 miles; and advantage

was taken of the circumstance to redetermine the solar parallax and the mass of the moon. Comparison stars had been under observation since 1925. The perturbations of Eros when near the earth give an accurate value of the combined mass of the earth and the moon. Furthermore, the motion of the earth around the centre of gravity of the earth and the moon produces an apparent motion of Eros with a period equal to that of the revolution of the moon, which if carefully determined over several lunations gives as reliable a measure of the solar parallax as does the direct trigonometric determination at the time of closest approach. For a trigonometric determination, either the diurnal parallax of Eros at a single station, or the geocentric parallax between distant stations, may be used. The opposition of 1938 will be inferior to that of 1931, though better than in 1901; that of 1968 will be about the same as in 1938; the next really favorable oppositions are in 1975 and 2012.

Eros was more than a magnitude fainter in October and September, 1930, than had been expected. The brightness periodically varied by 1.02 magnitudes during December; during January the range of variation rapidly decreased to half a magnitude, while the period remained unchanged. The period of axial rotation is 5h. 16m. 13s., according to L. Campbell; the variability in brightness is due to unequal reflection from different parts of the surface, and the fluctuations in the amount of this variability are probably due to changes in the relative positions of the sun, the earth, and Eros.

Four comets appeared, including the 38th observed return of Encke, and a return of 1913 III (c) Neujmin, one of the two members of Saturn's family to be observed more than once.

Comet 1930 (b) Beyer was observed for 617 days. Comet 1925 II Schwassmann-Wachmann I, discovered in 1927, remained visible during 1931, although it passed perihelion six years ago, and is now over seven astronomical units from the sun; in February, it suddenly increased a hundredfold in brightness for a few days; a similar short outburst occurred in December, 1929. This comet was identified with a hitherto undiscovered comet found on four plates taken in 1902; since it was then near aphelion, it must have been photographed during one of its peculiar outbursts, the cause of which is unknown. The orbit is nearly circular, lying between Jupiter and Saturn. This comet is the first one to be observed all the way around its orbit. Stearn's comet, under observation for four years, was followed to over 12 astronomical units from the sun, a record.

The most brilliant shower of Leonids that has been seen since 1866 occurred; the greatest display took place early on the morning of November 17. This gives an increased hope that in 1932 or 1933 a shower rivaling that of 1833 may occur.

A group of 13 craters caused by meteoric impact, similar to the famous one in Arizona, was found in Australia; the largest is an oval 220 by 120 yards.

MISCELLANEOUS. The 69-inch mirror for the Perkins Observatory of Ohio Wesleyan University was completed. This mirror has been made entirely in the United States; the glass was cast at the Bureau of Standards, and the mirror was figured by the J. W. Fecker Co., in Pitts-

burgh. Three years were required for the figuring, which took a total of nearly 16,000 hours of work.

The plates taken by the Potsdam solar eclipse expedition in May, 1929, to test the gravitational deflection of light, have been discussed by Freundlich. The displacements of the star images are due to both the relativity deflection and the effect of small variations in the focal length of the observing telescope; a correction for the latter leaves 2".24 for the gravitational deflection, instead of the theoretical value of 1".75. Moreover, a recalculation of the results obtained by the Lick Observatory, in which this correction is applied, gives 2".2.

NECROLOGY. Solon Irving Bailey, June 5; W. F. Denning, June 9; Edward S. King, September 11 (q.v.).

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ASTROPHYSICS. See ASTRONOMY.

ATHENS, GREECE. For new waterworks, See AQUEDUCTS. See also ARCHEOLOGY.

ATHLETICS, TRACK AND FIELD. The track season of 1931 developed into a demonstration by United States athletes that they would be ready to defend their laurels in the summer of 1932 when the Olympic games were to be staged at Los Angeles. New world's records were set. Other American records were shattered, reshattered, and stellar performances in almost every event studded both the outdoor and indoor seasons. Percy Morris Beard, of Greensboro, Ala., representing the New York Athletic Club, George Spitz, a New York University freshman, Frank Wyckoff, the University of Southern California sprinter, Paavo Nurmi, of Finland, who has been setting records for a decade, and Jules Ladoumègue of France were probably the outstanding performers of the year.

Beard, an engineering instructor at Alabama Polytechnic Institute, an unknown, sprang into prominence in the indoor campaign, and then put the finishing touches on one of the greatest individual performances on record by breaking the 11-year-old 120-yard world's high hurdles mark of Earl Thomson's on the cinders at Lincoln, Nebraska in July. Beard's time was 14½ seconds. Spitz, former Flushing High School student, jumping against a group of stars, including Anton Burg, indoor and outdoor national champion, and Harold Osborn, outdoor record holder, leaped 6 feet 7 inches in the running high jump at the Millrose games in New York City to break the world's record for the event. It was the most noteworthy feat of the entire indoor season.

Frank Wyckoff, did the 100 yards at the National Championships at Lincoln, Nebraska, in 9½ seconds, and also won the Intercollegiate hundred in the meet at Franklin Field, Philadelphia, in May. Wyckoff was unbeaten in the sprints

throughout the year and in the year before the Olympics gave warning that he would be a dangerous foe for Percy Williams, Olympic champion, at Los Angeles in August, 1932. Paavo Nurmi, his shorter distance days behind him, was again a perfect performer in 1931. This runner ran 2 miles in 8:59%, lowering the outdoor record of 9:01%. The new outdoor mark does not approach Nurmi's remarkable indoor mark set in New York in 1926 of 8:58%, a mark that was considered unbeatable by all experts.

Ladoumègue, the handsome Parisian, attacked Nurmi's mile record successfully after many trials. In a record trial in Colombes Stadium, the Frenchman eclipsed Nurmi's six-year-old, 4:10% record by 1% seconds when he did the distance in 4:09%. Ladoumègue had been considered the premier 1500-meter runner of the world for three years. There were several other world records by Americans in this pre-Olympic year. Ben Eastman, Stanford University sophomore, equaled Ted Meredith's grand record of 47% seconds for the quarter mile in beating Vic Williams of Southern California on the Pacific Coast, and Williams in the Intercollegiate A.A.A.A. championships at Philadelphia also duplicated those figures with a dynamic charge down the stretch that carried him past Eastman. The United States also maintained its relay traditions by bettering both the indoor and outdoor world's record for the mile. In the Indoor intercollegiates in March in New York City, the University of Pennsylvania quartet went over the distance in 3:17%, beating the old mark of 3:20%, set by Harvard in 1930. In May on the Pacific Coast a Stanford four—Maynor Stove, Alvin and Les Hables and Ben Eastman—ran the mile outdoors in 3:12%, eclipsing the record set by a picked Olympic four in 1928 of 3:13%.

Japan's warning that the East would make a real assault on the Olympics was forecast when Chuhei Nambu, who was placed fourth in the hop, step, and jump, in the 1928 Olympics at Amsterdam, broad jumped 26 feet 2½ inches for a new world's record at Tokio.

Other star performers whose feats were notable in 1931 were Carl Coan, University of Pennsylvania mile runner, Joe McCluskey, Fordham University two miler and steeplechaser, Eddie Tolan, Michigan University negro sprinter, Russell Chapman, Bates College half miler, Gus Moore, two miler, Bernard Gridley and Victor Burke, hurdlers, Herman Brix, shotputter, Emmett Topolino, Loyola University of Chicago, sprinter, Kenneth Church, javelin thrower, Levi Casey, hop, step, and jump champion, Jess Mortensen, Los Angeles A. C., decathlon performer, and Norwood Wright, hammer thrower.

**ATMOSPHERE.** See METEOROLOGY.

**ATOM, ATOMIC THEORY.** See PHYSICS.

**ATOMIC WEIGHTS.** See CHEMISTRY.

**AUSTRALASIAN METHODIST CHURCH.** See METHODISTS.

**AUSTRALIA, COMMONWEALTH OF.** A self-governing dominion of the British Empire, consisting of the six original States (formerly colonies) of New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania, together with the Northern Territory and the Federal Territory, and comprising the island continent of Australia with its dependencies. Capital, Canberra.

**AREA AND POPULATION.** With an area of 2,974,581 miles, Australia had an estimated popula-

tion on Mar. 31, 1931, of 6,488,707, as compared with 6,429,207 a year earlier. The area of the several states, with the respective populations on March 31 in 1931 and 1930, is shown in the accompanying table compiled from estimates of the Commonwealth Statistician.

AREA AND POPULATION OF AUSTRALIA

States and Territories	Area in square miles	Population Mar. 31, 1931	Population Mar. 31, 1930
New South Wales ..	309,432	2,504,536	2,488,645
Victoria .....	87,884	1,795,522	1,783,649
Queensland .....	670,500	952,483	934,643
South Australia ..	380,070	582,928	580,249
Western Australia ..	975,920	420,124	417,423
Tasmania .....	26,215	219,694	215,969
Northern Territory	523,620	4,613	4,584
Federal Capital Territory .....	940	8,807	9,045
Total .....	2,974,581	6,488,707	6,429,207

The excess of births over deaths in the calendar year 1930 was 73,068, as against 68,623 in 1929 and 74,700 in 1928. However, 11,408 more persons left Australia during the year than the number arriving from overseas, whereas in 1929 immigrants outnumbered emigrants by 8963. The total estimated increase of population in 1930 accordingly was but 61,000, compared with 77,586 in 1929 and 101,932 in 1928. With slight variations, the birth rate has shown a steady decline from 42 per 1000 inhabitants in 1860 to 19.93 per 1000 in 1930; the death rate slumped from 21 per 1000 in 1860 to 8.59 per 1000 in 1930. Marriages in 1930 numbered 43,255 (47,501 in 1929). The estimated population of the state capitals on Jan. 1, 1931, with figures for Jan. 1, 1930, in parentheses, was: Sydney, New South Wales, 2,504,536 (2,483,645); Melbourne, Victoria, 1,795,522 (1,783,649); Brisbane, Queensland, 313,251 (318,631); Adelaide, South Australia, 324,420 (324,898); Perth, Western Australia, 204,780 (202,888); Hobart, Tasmania, 57,800 on Mar. 31, 1931 (57,500 in 1930). The population of Canberra, the Federal capital, on June 30, 1930, was 7290 (6878 on June 30, 1929). Almost half of the total population was concentrated in these seven capital cities, which include the largest municipalities.

**EDUCATION.** Primary education is free and compulsory throughout the Commonwealth and state aid is extended to the higher state schools, the secondary schools, and the universities. In 1930, there were 10,263 state schools, with 32,391 teachers and an enrollment of 929,299 pupils, the average attendance being 777,626. Private schools, most of them parochial institutions, numbered 1779, with 237,713 pupils in 1928; the average attendance was 184,464. There are six state universities—one at each of the state capitals—with a total of 7988 matriculated and non-matriculated students in 1928. For details of education in the respective states and territories, consult the individual articles.

**PRODUCTION.** Australia is primarily an agricultural and pastoral country, despite the concentration of population in the large cities and efforts to foster manufacturing. Of the total area, roughly equivalent to that of the United States, only 6.21 per cent, or 118,252,152 acres, had been actually alienated by 1928; 3.36 per cent, or 63,959,383 acres, were in process of alienation; and 50.1 per cent, or 953,689,982 acres, were held under various forms of leases

and licenses. The estimated value of all production in 1929-30 was £391,490,000, as compared with £447,863,000 in 1928-29 and £454,108,000 in 1924-25. The value of production by principal industries in 1927-28, 1928-29, and 1929-30 is shown in the accompanying table from the *Quarterly Summary of Australian Statistics*.

VALUE OF AUSTRALIAN PRODUCTION, YEARS  
ENDED JUNE 30

[In thousands of pounds sterling]

Item	1928	1929	1930
Agricultural .....	£ 84,328	£ 89,440	£ 77,109
Pastoral .....	124,554	116,733	86,483
Dairy, poultry, bee farming .....	50,261	50,717	49,898
Forestry and fisheries	12,181	11,617	11,371
Mining .....	22,983	19,597	17,945
Manufacturing* .....	158,562	159,759	149,184
Total .....	452,869	447,863	391,490

\* Value added in process of manufacture.

The decline in the value of production in 1929-30, particularly in agricultural and pastoral output, was due to the sharp drop in farm prices and to other effects of the world-wide depression. The declines continued throughout 1930-31. The net profits of 28 of the largest companies operating in the Commonwealth declined from £2,071,000 in 1929 to £794,000 for 1930—a decline from 11 to 4 per cent in net profits on capital invested before making allowances for reserves. The estimated national income dropped from £650,000,000 in 1927-28 to £564,000,000 in 1929-30 and £485,000,000 in 1930-31. Of the total income, wages and salaries amounted to £363,000,000 in the calendar year 1928, £367,000,000 in 1929, and £341,000,000 in 1930. The income of shopkeepers, farmers, etc., was £126,000,000, £128,000,000, and £118,000,000, respectively; and other incomes, £162,000,000, £150,000,000, and £139,000,000, respectively. The decline in income was partially offset by the fall in the cost of living. Lower living costs for the quarter ended June 30, 1931, caused the Federal Arbitration Board to reduce the weekly basic wage as of August 1, the reductions ranging from 3 shillings (about \$0.73) at Melbourne to 6 pence (about \$0.12) at Brisbane.

The principal crop is wheat, to which 18,213,426 acres, or more than 70 per cent of the total cultivated acreage, were devoted in 1930-31. The 1930-31 crop of 212,628,669 bushels (final estimate) established a record for Australia. The previous record production of 179,065,703 bushels was harvested in 1915-16. Production of the chief crops in 1929-30 was: Wheat, 126,884,622 bushels; oats, 14,424,186 bushels; maize, 7,946,430 bushels; hay, 2,725,244 tons; sugar cane, 3,755,375 tons. The estimated production of cane sugar for the calendar year 1930 was 532,477 tons. Other crops are potatoes and other vegetables, grapes, apples (over 9,500,000 bushels in 1929-30), oranges, bananas, apricots, peaches, pears, raisins, currants, and other small fruits. The wine production in 1928-29 was 18,600,249 gallons. Livestock in 1929 included 104,558,342 sheep, 11,202,134 cattle, 1,845,614 horses, and 1,018,324 swine. In 1931 the sheep population rose to 106,400,000, the highest since 1891. Wool production, as in the grease, in 1929-30 amounted to 937,596,816 lbs. (968,152,935 lbs. in 1928-29). Frozen beef, mutton, and lamb is exported in large quantities. In 1929-30, the output of butter was 299,080,545 lbs., cheese 30,173,020 lbs., bacon

and ham, 70,101,981 lbs. The final estimate for the 1931-32 wheat crop totaled 170,011,000 bushels.

Mineral production for the calendar year 1929 was as follows: Gold, £1,814,457 (£1,981,972 in 1930); silver and lead, £3,293,863; copper, £1,075,146; tin, £459,686; coal, £8,676,324; all minerals, £17,944,625 (£19,596,634 in 1928). There were 22,700 manufacturing establishments in 1929-30, with 419,194 employees, who drew salaries and wages of £84,717,033. This contrasted with 22,918 establishments, 450,482 employees, and £90,986,908 paid in salaries and wages in the previous year. The principal articles manufactured are foods and drinks, metal products and machinery, clothing and textile fabrics, books, paper, wood products, stone, clay, and glass articles, and vehicles and harness. Statistics of production, etc., for the several states are given in articles on each. In the second quarter of 1931, more than a quarter of a million workers were unemployed, including 118,424 trade unionists, or 27.6 per cent of the total trade union membership.

COMMERCE. Australia's total trade for the fiscal year ended June 30, 1931, declined to £149,369,095 from the previous year's total of £256,208,408. However, a favorable balance of trade of £41,380,303 was recorded, as compared with an excess of imports of £5,954,172 during 1929-30. If adjustment is made for the abnormal rate of exchange prevailing during the year, the excess of exports was about £36,000,000 in Australian and £28,300,000 in British currency. In Australian currency, exports in 1930-31 totaled £102,038,398, or £23,088,750 less than in 1929-30, while imports were approximately £68,200,000. Of the exports, £12,273,562 represented gold shipments, which were £14,594,977 below the 1929-30 figure, and merchandise and silver shipments were valued at £89,704,836, or £8,493,773 less than in the previous year. The value of exports in sterling values was estimated at £88,800,000. Imports, expressed in British currency, totaled £60,558,095—a decrease of £70,523,335, or 54 per cent. Merchandise represented £60,159,042 of the total imports, and specie and bullion, £399,053. Australia's overseas trade, by states, for 1929-30 and 1930-31 is shown in the accompanying table. The values are expressed in Australian currency without adjustment for its depreciation.

AUSTRALIAN FOREIGN TRADE, BY STATES

State	1929-30	1930-31	Decrease
IMPORTS			
New South Wales	£57,127,427	£25,897,460	£31,229,967
Victoria .....	42,301,093	20,310,352	21,990,741
Queensland .....	11,540,083	5,567,817	5,972,266
South Australia ..	9,360,275	3,911,596	5,448,679
Western Australia	8,879,010	4,061,255	4,817,755
Tasmania .....	1,834,530	790,902	1,043,628
Northern Territory	38,902	16,713	22,189
Total .....	131,081,820	60,558,095	70,523,225
EXPORTS			
New South Wales	35,761,807	31,480,985	4,280,822
Victoria .....	36,499,943	25,854,785	10,645,158
Queensland .....	18,821,824	16,754,567	2,067,257
South Australia ..	15,009,496	10,087,986	4,921,510
Western Australia	16,004,694	15,543,178	461,516
Tasmania .....	2,970,913	2,317,472	653,441
Northern Territory	58,471	19,425	39,046
Total .....	125,127,148	102,038,398	23,088,750

The Commonwealth's foreign trade showed a steady decline after 1926-27, when imports

amounted to £164,716,594 and exports to £144,084,597. Imports declined more sharply than exports, gradually reversing the heavy unfavorable balance of trade. The most noticeable import decreases for 1930-31 were recorded for motor cars, iron and steel, piece goods, machinery,

Australian states, before and after the adjustments made under the so-called Copland or Melbourne economy plan of 1931, are shown in the accompanying table reprinted in *Foreign Policy Reports*, Sept. 16, 1931, from *The Argus* (Melbourne), of July 11, 1931.

STATE BUDGETS FOR 1931-32 BEFORE AND AFTER THE JUNE, 1931, AGREEMENT

	New South Wales	Victoria	South Australia	Queensland	Western Australia	Tasmania
<i>Original estimate</i>						
(a) Expenditure .....	£59,560,000	£26,500,000	£13,090,000	£16,240,000	£9,930,000	£2,900,000
(b) Revenue .....	48,050,000	28,440,000	10,690,000	14,610,000	8,070,000	2,680,000
(c) Deficit .....	11,510,000	8,060,000	2,400,000	1,630,000	1,860,000	220,000
<i>Adjustments under Copland Plan</i>						
(d) Reduction in (a) ....	4,600,000	1,750,000	900,000	870,000	660,000	130,000
(e) Additions to (b) ....	1,500,000	.....	.....	.....	.....	.....
(f) Reduced deficit .....	5,410,000	1,310,000	1,500,000	760,000	1,200,000	90,000

timber, petrol (gasoline), apparel, yarns, tea, and spirits. Exports of butter, wheat, dried fruits, cheese, eggs, and coal increased, as compared with 1929-30, while exports of wool, hides and skins, flour, lead, meats, sugar, fresh fruits, and copra declined. The five leading exports in order of value in 1930-31 were wool, wheat, gold, butter, and flour; the five leading imports were cotton and linen piece goods, petroleum, machinery (excluding electrical), silk piece goods, and electrical machinery. The United States in 1930-31 furnished about 19 per cent of Australia's imports, as compared with 24.6 per cent in 1928-29.

**FINANCE.** The Commonwealth budget for the fiscal year ended June 30, 1931, showed a deficit of £10,757,619, the total receipts of the Consolidated Revenue Fund amounting to £69,566,920 and the total expenditures from revenue to £80,324,539. This compared with revenue receipts of £77,143,389 and expenditures of £78,614,393 in 1929-30. In addition to the 1930-31 deficit, there was an accumulated deficit of £6,458,723 on operations of previous years and £3,834,149 (net) expended to meet interest payments on the New South Wales debt defaulted by that state, bringing the total Commonwealth deficit to £21,050,491. The Commonwealth Treasurer, in his budget speech of July 10, 1931, said that loan authority was available to meet £7,000,000 of this deficit, but that further loan appropriations would be necessary to cover the remaining £14,000,000.

Loan expenditure during 1930-31, not included in the above totals, amounted to £1,988,820, as against £4,127,000 in the previous year. The Commonwealth applied £4,644,359 to debt redemption, while the amount made available from the national debt sinking fund for the redemption of state debts amounted to £3,514,509.

For 1931-32, the Treasurer in his budget speech of July 10, 1931, estimated Commonwealth expenditures at £59,311,300 and revenues at £54,135,000, leaving a deficit of £5,176,300. The suspension of payments on the war debt to Great Britain was calculated to reduce the deficit by £4,028,000, leaving a final deficit for 1931-32 of £1,148,300. The budget was based on a programme calling for economies totaling £8,155,000 in addition to those inaugurated in 1930 and for additional tax revenue of £1,500,000. The conversion of the internal debt to a lower rate of interest was expected to save £2,470,000 net. For further details of the 1931-32 budget, see below under *History*. The budgets of the six

The gross Commonwealth debt increased by £15,761,183 during 1930-31 to £388,718,545, of which about £212,000,000 was held in Australia, £157,400,000 in London, and £17,100,000 in New York. The London debt included the war debt owing to Great Britain, which totaled £79,924,221 on June 30, 1931. The net Commonwealth debt amounted to about £366,700,000, compared with £349,700,000 a year earlier. The combined debt of the six states increased by £39,676,536 during 1930-31 to a total of £767,316,372.

**COMMUNICATIONS.** Federal and state railway systems had 26,605 miles of line in operation in 1929-30, divided as follows: Commonwealth, 2145; New South Wales, 5974; Victoria, 4713; Queensland, 6447; South Australia, 2536; West Australia, 4111; and Tasmania, 679. For the year ended June 30, 1931, the railways reported an aggregate operating profit of £8,268,348. Taking into account interest on railway loan funds, there was a deficit for 1929-30 of £8,491,639, divided as follows: New South Wales, £2,756,374; Victoria, £1,021,270; Queensland, £1,559,931; South Australia, £1,796,228; Western Australia, £404,480; Tasmania, £312,411; and the Commonwealth Railways, £640,936. The cumulative railway deficit for the five years ended June 30, 1930, totaled more than £30,000,000 (about \$150,000,000).

Highways in 1930 extended 329,662 miles, of which 6500 miles were macadam, 127,623 miles were improved in various other ways, and 105,539 miles were unimproved earth. For Federal-aid road bill of 1931, see under *History*. Civil aviation operations declined somewhat in 1930-31 due to the economic depression. On June 30, 1931, there were 231 registered aircraft, 407 private and 205 commercial registered pilots, and 54 government and 59 public aerodromes. The first air-mail from England reached Darwin, North Australia, on Apr. 25, 1931. During the year, the Melbourne-Tasmania air service was increased from tri-weekly to daily, but failure to secure a government subsidy forced the suspension of the Sydney-Brisbane and Sydney-Melbourne services. The year was marked by the inauguration of direct telephone service between Perth and Brisbane.

**ARMY AND NAVY.** See **MILITARY PROGRESS**; **NAVAL PROGRESS**.

**GOVERNMENT.** The executive power is vested in the King, who acts through a governor-general, assisted by an executive council of responsible ministers, who must be members of the Federal Parliament, comprising the Senate and House of

Representatives. The Senate consists of at least six members from each of the original states, elected for six years, half of whom are renewed every three years; while the House of Representatives consists of approximately twice as many members as there are senators, the representation being apportioned among the several states according to the population shown at the last census. The number in the House in 1931 was 75 and in the Senate, 36. The composition of the House following the election of Oct. 12, 1929, was: Labor, 46; Nationalist, 14; Country party, 10; Independents, 5. Governor-General in 1931, Sir Isaac Isaacs, appointed Dec. 2, 1930. The Labor Ministry, formed Oct. 22, 1929, and reconstituted in February, 1931, was as follows: Prime Minister, Minister for External Affairs, and Industry, J. H. Scullin; Treasurer, E. G. Theodore; Vice President of the Executive Council, John Barnes; Attorney-General, F. Brennan; Postmaster General and Minister for Works and Railways, Albert Ernest Green; Trade and Customs, Michael Forde; Home Affairs, Arthur Blakeley; Health and Repatriation, John McNeill; Defense, J. B. Chifley; Markets and Transport, Parker John Moloney; Assistant Ministers, Senator J. B. Dooley, E. J. Holloway, C. E. Culley. The United Kingdom in 1931 appointed a High Commissioner to Australia, following similar action with regard to Canada and South Africa. The post was temporarily filled by E. T. Crutchley. For the Commonwealth election of 1931 see under *History*.

#### HISTORY

Sinking their political and class differences, the Australian people united in June and July of 1931 to combat on a basis of equal sacrifice the most menacing economic crisis in the Commonwealth's history. The entente ended the constitutional dispute between the governments of the Commonwealth and of the state of New South Wales, then before the Australian High Court. Union was achieved, however, only under the direst economic necessity and after a prolonged political struggle during which recalcitrant political leaders were forced by a great tide of public sentiment to fall in line. At the end of the year the country was engaged in a strenuous effort to balance the budget, restore Australia's credit, and set the wheels of industry moving normally once more.

The effort to extricate the country from its financial morass in 1930 through adoption of the Niemeyer programme had been frustrated by the victory of the radical Labor candidate, J. T. Lang, in the New South Wales state election of November (see 1930 YEAR BOOK). Mr. Lang won overwhelmingly on a platform of violent opposition to the Niemeyer retrenchment proposals, which he attacked as undermining the standard of living of the laboring masses. In the months that followed the nation drifted slowly toward economic catastrophe, while a fierce struggle raged within the predominant Labor party. Parliament remained in a stalemate, with the radical element vetoing economies intended to balance the budget and the moderate element rejecting the radical proposals for monetary inflation.

The stalemate ended early in January, 1931, with the return of Prime Minister Scullin to Australia from England. Soon afterward he restored to office E. G. Theodore, a resourceful and enigmatic politician, who had been forced to re-

sign the post of Federal Treasurer the previous June. Mr. Theodore had retired after a Royal Commission charged him with dishonestly exploiting the government of Queensland during his term as Premier of that state. In the meantime he had further aroused the ire of the Opposition and of moderate elements within the Federal Labor party by espousing the left wing policy of inflation as a way out of the depression. His reappointment caused the resignation from the Federal Labor Cabinet of the Acting Treasurer, J. A. Lyons, and of J. E. Fenton, Acting Prime Minister in Mr. Scullin's absence.

Instead of turning more definitely to the left upon the withdrawal of the two moderate Ministers and their followers, the Labor party split into two violently hostile groups. One group, headed by the Prime Minister and Mr. Theodore, stood for the latter's programme of inflation. The other espoused the so-called "Lang plan" and attempted to read out of the party those who opposed it. With the approval of the Federal Cabinet, the Commonwealth Labor caucus, and three of the six state Premiers, Mr. Theodore introduced his bill for currency inflation in March. It provided for the immediate issuance of £18,000,000 of fiduciary currency, of which £12,000,000 was to be used for the relief of unemployment and £6,000,000 for farm relief. The issue was to have no gold backing at first, but when market conditions permitted a loan was to be raised to cover it.

Mr. Lang's plan, which he presented at a Conference of the state Premiers on Feb. 9, 1931, was even more radical. He proposed that no further interest be paid on Australia's war debt to Great Britain or on government loans raised on the London market until the mother country granted Australia terms at least as favorable as those which Britain had obtained from the United States. He further demanded the reduction of the interest rate on Australian internal bonds to 3 per cent and the complete abandonment of the gold standard. A currency based "on the productive capacity of the country" was to be substituted.

The New South Wales Premier put his policies into effect by defaulting on interest payments totaling £729,251 due on the state debt in London April 1. He repeated his default on other interest payments due in London and New York July 1. The Commonwealth Government immediately met these obligations under authority of the Financial Agreement Validation Act of 1929. And on April 13, it brought suit for reimbursement in the Australian High Court, at the same time withholding sums due to New South Wales from the Commonwealth Treasury.

The default of New South Wales had numerous repercussions. A wave of resentment toward Mr. Lang swept the Commonwealth, as the threat of repudiation undermined Australian bonds on the world money markets. In New South Wales there arose active movements for secession from the state, centering in the Riverina section in the southwest and the New England district in the northeast. Within the Commonwealth, Premier Lang's action intensified the state's rights sentiment already active in Western Australia, South Australia, and Queensland. In these states there were agitations for withdrawal from the Federation, partly based on a desire to end the compulsory association with "repudiationist" New South Wales. An "All for Australia League"



was formed toward the end of February in response to Mr. Lang's threat of default. It inaugurated a widespread campaign for a non-partisan effort to save Australia's credit, meet all debt payments in full, and end the régime of "machine politics."

On April 7 all elements opposed to the policies of both Mr. Theodore and Mr. Lang formed a United Australia party, headed by Mr. Lyons and with J. G. Latham, leader of the Nationalist party, as deputy leader. The Country party alone retained its independent status. Anxious though it was to join in overthrowing the Federal Labor Cabinet, it held out for a 25 per cent reduction in the tariff and the free importation of agricultural machinery, which the United Australia party was not prepared to concede. A state election in Tasmania and various party conferences indicated a popular swing away from the radical Labor policies.

Meanwhile Premier Lang had introduced bills into the New South Wales Legislature reducing to 3 per cent the interest on government bonds, the rate which banks might legally pay to depositors or charge for loans, and the rate which mortgagees might charge on mortgage loans. Although promptly rejected by the State Legislative Council, these measures created a panic among depositors in the New South Wales Government Savings Bank at Sydney. The bank was the largest bondholder in the state, owning £30,000,000 of bonds on which the Premier was trying to reduce the interest. A "run" developed which forced the bank to suspend operations temporarily on April 23.

The suspension of the bank, in which the funds of a million depositors aggregating £54,000,000 were tied up, proved a death blow not only to Premier Lang's bid for control of the Australian Labor party but also to the inflation scheme of the Federal Treasurer. Further development of a panic, which next threatened to close the Commonwealth Savings Bank in Sydney, was prevented by the intervention of the Commonwealth Bank Board, an institution corresponding to the Federal Reserve Board in the United States.

Mr. Theodore's fiduciary currency bill and allied measures experienced hard sledding in the Federal Parliament, which convened Mar. 5, 1931. His other measures provided for distribution of the proposed £6,000,000 farm relief fund, for an increase in taxes on incomes derived from government bonds and on salaries of civil servants, and for the creation of a board to advise the governments (State and Federal) on the reduction of bank interest rates. Another bill authorized the government to requisition gold from the Commonwealth Bank Board to meet overseas interest payments. The Commonwealth Bank, in return, was to receive an equal amount of government securities and to be relieved of the duty of redeeming notes with gold upon demand.

While Premier Lang assailed Mr. Theodore's measures on the ground that a bolder attack on the gold standard was needed, the Opposition parties in the Federal Parliament considered them a futile effort to evade economic realities. Three motions of censure were introduced by the Opposition between March and May in efforts to overthrow the Cabinet. And each time Prime Minister Scullin was forced to turn for support to the five deputies from New South Wales con-

trolled by Premier Lang. The Cabinet's margin of safety dwindled from five votes on the first motion to two on the third.

Passed in the House of Representatives by a majority of only five votes on the second reading March 25, the Fiduciary Notes Bill was sent to the Senate, where the Nationalist majority rejected it on April 17. The Prime Minister indicated that he would again pass the bill in the House and return it to the Senate, and that Parliament would be dissolved after the customary three-months interval if the Senate rejected it a second time. An election on the issue of inflation was averted, however, by the pressing necessity of immediate action to avert national default. Both the Federal and State Governments were spending in excess of their receipts. Since the foreign loan markets had been closed to Australia, the governments had been forced to resort to short-term credits from London and Australian banks. The short-term indebtedness of the Federal Government had increased from £5,000,000 on June 20, 1929, to about £55,512,000 on Feb. 28, 1931. If these loans were called it meant disaster.

On April 15, the Prime Minister obtained some slight relief from the British Government, which agreed to prolong for two years the period within which the Commonwealth had contracted to pay its war debt to Great Britain. This relieved the government of the necessity of finding £3,200,000 for war debt payments over two years. The Prime Minister was compelled, however, to find £5,000,000 to redeem Treasury bills maturing in London on June 30. His hopes that the Australian banks would advance this sum were dispelled when the Commonwealth Bank Board on April 17 notified the Federal and State Governments that no further short-term credits would be extended them beyond the £25,000,000 needed to carry them to the end of the fiscal year (June 30). Thus further economies were essential.

With the consent of the Cabinet, the Australian Loan Council at its April meeting appointed an economic committee to report on the steps necessary to balance the Federal and State budgets. On May 23, the Copland Committee, as it was called, reported that under existing budget and price levels the deficit of the Commonwealth and states would amount to £31,150,000 for the fiscal year ending June 30, 1931, and to £39,080,000 for the year 1931-32. Condemning Mr. Theodore's fiduciary currency bill, the committee recommended that the budget deficits be reduced in three ways. It suggested a 20 per cent cut in government wages and salaries as of June 30, 1930, estimated to save £8,900,000, and reductions in old-age, invalid, and war pensions, calculated to save £4,200,000. It recommended an increase in income taxes and in entertainment, sales, and primage taxes, which it estimated would yield an additional £12,000,000. A third measure, the conversion of the internal debt to a lower rate of interest, was calculated to save £5,500,000. A reduction of bank rates of interest on deposits and advances and lower mortgage interest rates were provided for. These savings and increased income totaled £30,500,000, leaving an estimated deficit of about £9,000,000 for the 1931-32 fiscal year for both State and Federal Governments. The committee recommended that this gap be met by borrowing.

The Copland Plan was formally accepted by the Federal and all the State Governments, with



the exception of New South Wales, on June 10. Mr. Scullin invited and secured the coöperation and approval of the Opposition parties in the Federal Parliament, but not until he had yielded to their insistence that the bond conversion operation be voluntary rather than compulsory. Mr. Lang held out stubbornly for compulsory conversion, but finally approved the plan with a face-saving reservation. New South Wales would not put into effect the 20 per cent cut in expenditure, but stipulated, until the conversion loan had been successfully carried out. Before the conversion loan was launched, however, the New South Wales Treasury became so depleted that Premier Lang appealed to the Commonwealth Government for assistance. He stated that £3,500,000 would be required to carry the state through July, August, and September. The Commonwealth Loan Council, to which Prime Minister Scullin submitted Mr. Lang's appeal, offered to advance the needed funds if Mr. Lang would assume responsibility for the payment of interest on the public debt, resume active membership in the Loan Council, and give immediate effect to the Copland plan.

The New South Wales Premier capitulated on July 28 and the Commonwealth Government immediately arranged to meet £832,000 in interest payments on the state's debt due in London and New York July 31. Further credits were withheld pending actual introduction of the 20 per cent reduction in New South Wales Government expenditures. The Legislative Council of the state rejected Mr. Lang's first economy bill, which provided for a cut in all of the higher salaries to a maximum of £500, or less than \$2500 a year. On August 6, the state was unable to pay civil service salaries totaling £270,000 due on that date, and the Premier accordingly introduced a second economy bill acceptable to the Legislative Council. This bill, which called for a slash of one-third in salaries of £1500 and over, with smaller reductions in lower brackets, was passed August 7. On the following day, the Loan Council advanced a credit of £500,000 to New South Wales. All six states were advised by the Loan Council that any evasion of the economy measures adopted would be punished by the withholding of further credits. On October 10, the Federal Treasurer announced in Parliament that New South Wales had agreed to meet all future interest payments on the state debt and to refund to the Commonwealth the net debt of about £4,550,000, representing defaulted interest payments shouldered by the Commonwealth less the sum which the Commonwealth had withheld from distribution to the state. In return, the Federal Government dropped the suit for recovery of the debt which was still awaiting a hearing before the High Court of Australia.

The bills putting into effect the Copland plan were passed in the Federal Parliament by large majorities, composed of the Opposition and many Labor members. A small section of the Labor party refused to accept the plan and two members of the Scullin Ministry resigned. Both the Federal Labor party caucus and its executive committee condemned the wage and pension cuts imposed, but admitted that the plan "must be accepted in the circumstances." The Melbourne municipal elections, held while the Federal Labor party executive was in session in that city at the end of August, was fought on the issue

of the reduction of wages of municipal employees. Labor lost 12 seats on the municipal council.

With the passage of the economy legislation, the attitude of the banks toward the Federal Government changed. They renewed nearly £22,000,000 worth of Treasury bills, which they had threatened to present for redemption, and reduced the interest rate on these credits from 6 to 4 per cent, thus saving the government £434,000 annually. Mr. Theodore was able, also, to secure approval of a bill to ship £5,000,000 of the gold reserves of the Commonwealth Bank to London to meet payments due on June 30. The bill provided that the gold reserve might be reduced to 15 per cent in 1933, but that by 1934 it must reach 18 per cent and by June, 1935, the normal level of 25 per cent.

The effect of the Copland plan upon the Federal and state finances for 1931-32 is set forth above under *Finance*. A conference of the state Premiers held at Melbourne early in September to examine the financial position of their governments reported that the aggregate deficit for 1931-32 would exceed by at least £3,000,000 the aggregate deficit as estimated the previous June. The Premiers agreed to initiate further economies to wipe out £2,000,000 of this new deficit, while the banks agreed to advance credits to cover the remaining £1,000,000. In Victoria, the Hogan Ministry added 25 per cent to the state income tax, and thus reduced to £500,000 the estimated state deficit for the fiscal year 1931-32.

**CONVERSION LOAN SUCCEEDS.** Meanwhile the Australian Conversion Loan, which was opened in the middle of August, was pushed through successfully in three weeks. About 97 per cent of the holders of Australian internal (Federal and state) obligations totaling £556,000,000 voluntarily converted their bonds, carrying an average rate of interest of 5.4 per cent, to new securities with an average rate of 4 per cent. The saving on the interest burden of the taxpayers was about £6,500,000 annually. About 25,000 bondholders owning bonds aggregating £18,293,259 rejected the appeal. In accordance with a decision reached at the Premiers' Conference of September, however, they were forced to convert on the same terms as those who had done so voluntarily.

**REFERENDUM ON UNITARY GOVERNMENT.** The Scullin Government on October 12 announced that it would hold a referendum after Christmas on the question of abolishing the State Parliaments, centralizing all sovereign powers in the Federal Parliament, and delegating local powers to provincial councils in local governing areas. The government also asked that the Federal Parliament be given the right to alter the Constitution at will.

The Labor Government's proposal was a shrewd effort to take advantage of the wide spread demand for economy and unified action in the face of the economic crisis in order to realize one of the party's major aims—the super session of the states by the Federal Government. With control of a unitary Federal Parliament, Labor would be in a much more favorable position to put into effect the socialization of the means of production, distribution, and exchange, which was its primary objective. Moreover, every party which had obtained control of the Federal Parliament had found its power inadequate to meet problems confronting it

**LABOR GOVERNMENT OVERTHROWN.** Before the referendum measure could be submitted to the people, the Scullin government was defeated in Parliament (November 25), by a vote of 37 to 32. The Government's defeat after 25 months in office came as a result of a switch to the Opposition of the five Lang adherents in Parliament. The issue involved was a patronage dispute between Federal Treasurer Theodore and John Albert Beasley, one of the extreme Left Laborites. Parliament was prorogued the following day, the general election being fixed for December 19. The coalition of the United Australia and Country parties won a striking victory in the election, capturing an anti-Labor majority of some 39 seats in the House of Representatives. The standing of the parties following the election, according to the complete results, was: United Australia party, 39; Country party, 16; Independents, 2; Federal Labor party 14; Lang Laborites, 4.

Prime Minister Scullin retained his seat in Parliament, but Mr. Theodore and most of the other Cabinet members were defeated, while former Premier Stanley Bruce, who was defeated in 1929, was elected to Parliament by a 20,000 majority. Mr. Scullin resigned as Prime Minister December 21, without awaiting final returns, and Joseph A. Lyons was called by the Governor General to form a new Cabinet. The new Ministry, announced Dec. 31, 1931, was composed as follows: Prime Minister, Joseph A. Lyons; Attorney General, John Latham; Defense, George Pearce; Trade and Customs, H. S. Gullett; Vice President Executive Council, Alexander McLachlan; Home Affairs, Archdale Parkhill; Markets and Transport, Edward Hawker; Health and Repatriation, Charles Marr; Postmaster General, James Fenton; Ministers without Portfolio, Stanley Bruce, Massey Greene, Josiah Francis, and John A. Perkins. Mr. Lyons immediately gave assurance that the finances of the Commonwealth would be conducted in a manner to sustain complete confidence in its financial stability and honor. He himself assumed the direction of the Treasury.

**OTHER EVENTS.** Australia during 1931 took a prominent part in the movement toward the economic collaboration of the various units of the British Commonwealth of Nations. Of chief importance in this connection was the conclusion of a commercial treaty with Canada, negotiations having been under way since the breakup of the Imperial Conference in 1930. By the agreement each Dominion granted the other the benefit of British preferential tariff rates on practically all commodities exchanged. In some cases preferences greater than those accorded British goods in the two Dominions were mutually extended, along with various other mutual concessions intended to stimulate trade. In line with this trend toward economic unity within the British Commonwealth, was the Empire Wool Conference held in Melbourne during June under the auspices of the Woolgrowers' Association of Australia.

On Jan. 22, 1931, the Commonwealth Arbitration Court authorized a 10 per cent reduction in the basic wage scales for at least 12 months, as an emergency measure. The Federal Attorney General applied to the Court for a postponement of the award on the ground that it might hinder the Government's plans for stimulating industry, but the Court on February 5 rejected the application. In accordance with an agree-

ment reached between officials of the Commonwealth and of the states, an amended Federal-aid roads bill was introduced in the Federal Parliament in October. The agreement provided that, effective July 1, 1931, the Commonwealth would pay the state a sum equal to about \$0.05 a gallon on imports of gasoline, and a further sum equal to about \$0.03 a gallon on gasoline refined in Australia. In introducing the bill, the Prime Minister said that provision had been made in the 1931-32 budget for the distribution of about £1,360,000 to the states, based on the current consumption of gasoline. The new arrangement replaced the 10-year Federal-aid road agreement of 1926, under which the Commonwealth paid the states about £1,940,000 a year to match a total of about £1,450,000 a year contributed by the states.

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**AUSTRIA.** A federated republic of central Europe proclaimed Nov. 12, 1918, and consisting of the nine provinces of Vienna (City of), Lower Austria, Upper Austria, Salzburg, Styria, Carinthia, Tirol, Vorarlberg, and Burgenland. Capital, Vienna.

**AREA AND POPULATION.** At the census of 1923 the area was 32,369 square miles and the population, 6,534,481, as compared with an area of 39,017 square miles and a population of 7,529,935 in 1910. The estimated population Jan. 1, 1930, was 6,704,467. At the 1923 census the City of Vienna had 1,865,780 inhabitants, or 28.55 per cent of the total population; in 1930, the estimated population of the city was 1,842,763. Other chief cities, with their populations in 1923, are: Graz, 152,706; Linz, 102,081; Innsbruck, 56,401; and Salzburg, 37,856. The movement of population in 1929 was: Births, 112,121; deaths, 97,428; marriages, 51,523; divorces, 5350. Emigrants in the same year totaled 4850, of whom 1268 went to the United States.

**EDUCATION.** Elementary education is compulsory for children between the ages of 6 and 14 years. In 1928, there were 5315 public and private elementary schools, with 722,896 pupils; 151 secondary schools, with 49,197 pupils; and various commercial and vocational high schools. The three state universities at Vienna, Graz, and Innsbruck had 10,500, 1870, and 1871 students, respectively, in 1928. In the same year, there were 35 normal colleges, with 5182 students.

**PRODUCTION.** Agriculture is the main support of the population, with manufacturing, lumbering, and mining occupying important subsidiary rôles. In 1929, there were about 4,782,000 acres of arable land, or 23 per cent of the total area; 5,713,000 acres of permanent meadow and pasture; 305,000 acres of trees, shrubs, and bushes; and 7,752,000 acres of woods and forests. The principal crops, with the production during 1929 and 1930, are shown in the accompanying table from the 1931 *Commerce Yearbook*.

The mining, lumbering, and manufacturing industries were severely affected by the economic depression during 1930 and 1931. In November of the latter year, many industries were operating at less than 50 per cent of capacity. Statistics of mineral and manufacturing production for

## AUSTRIAN CROPS: AREA AND PRODUCTION

Crop	Area (thousands of acres)		Production <sup>1</sup>	
	1929	1930	1929	1930
Wheat .....	515	508	11,559	12,008
Rye .....	925	927	20,097	20,636
Barley .....	391	430	12,374	12,278
Oats .....	783	773	81,074	27,606
Corn .....	138	143	4,617	4,756
Potatoes .....	469	467	102,993	97,482
Sugar beets ...	75	88	691*	973*
Beet sugar <sup>b</sup> ..	...	...	120*	150*
Grapevines ...	85	81	15,128*	25,915*
Flax .....	12	16	15,605*	14,615*
Fodder roots ...	235	140*	2,287*	1,771*
Clover .....	617	586	1,400*	1,527*

\* Unit, metric ton.

<sup>b</sup> Seasons ended following year.

\* Unit, gallon of wine.

\* Unit, pound.

\* Mangolds only.

<sup>1</sup> Thousands of units—bushels except as indicated.

1930, with figures for 1929 in parentheses, were: Coal, 216,000 metric tons (208,000); lignite, 3,063,000 metric tons (3,525,000); iron ore, 1,178,000 metric tons (1,891,000); magnesite (sintered), 124,226 metric tons (140,410); crude steel, 528,000 metric tons (631,933); pig iron, 287,001 metric tons (462,240); copper, 3654 metric tons (3895); lead (smelter), 6923 metric tons (6569); wood pulp, 103,470 metric tons (104,210); cellulose, 213,460 metric tons (224,450); paper, 210,260 metric tons (229,550); cotton yarn, 43,550,000 pounds (54,723,000); beer, 134,286,000 gallons (138,001,000).

Iron and steel production in 1930 was lower than in 1926, the worst year of the preceding depression period. The number of unemployed in March, 1931, was 304,082, or 64,988 more than on the same date of 1930. In 1930 there were but 80 strikes and five lockouts, compared with 202 strikes and 24 lockouts in the preceding year.

COMMERCE. Austria's foreign trade declined sharply in 1930, as compared with 1929, and the heavy excess of imports continued. Exports were valued at \$261,000,000, as against \$307,900,000 in 1929, while imports totaled \$379,200,000, as against \$459,000,000 in the previous year. The adverse visible balance of trade was \$118,200,000 in 1930 and \$151,100,000 in 1929. According to preliminary figures for 1931, imports declined 457,000,000 schillings (\$63,980,000 at par), or 17 per cent, below the 1930 total. Exports decreased 530,000,000 schillings (\$74,571,000 at par), or 28 per cent.

As compared with 1929, the 1930 imports declined 17.6 per cent in value and exports, 15.2 per cent. Exports of livestock, foodstuffs, and beverages increased, but those of timber, cotton goods, motor vehicles, and machinery declined considerably. Germany accounted for 21 per cent of the total value of Austrian imports, followed by Czechoslovakia with 17.8 per cent, Hungary with 10.6 per cent, and the United States with 5.4 per cent. Germany also took 17.3 per cent of all Austrian exports (15.7 per cent in 1929), while Czechoslovakia took 11.9 per cent (13.5), Hungary 6.4 (7.5), and the United States 2.7 (3.5).

FINANCE. Austrian budget operations for the fiscal calendar year 1930 resulted in a deficit of about 13,000,000 schillings or about \$1,830,000 (1 schilling equals \$0.1407 at par), the first deficit in current accounts for seven years. Expenditures on current account totaled 2,040,000,000 schillings, or 91,000,000 schillings above the

budget estimates, and revenues were 2,207,000,000 schillings, or 45,500,000 schillings more than anticipated. Unemployment benefits and subventions to agriculture and industry accounted for the major part of the rise in expenditures. For capital investments 248,400,000 schillings, or 17,000,000 less than anticipated, were expended out of the League of Nations loan and the Austrian international loan of 1930. Including these sums, the budget deficit in 1930 was 261,000,000 schillings.

Budget estimates for 1931, as passed by the National Assembly, anticipated revenues of 2,160,000,000 schillings and expenditures of 2,130,000,000 schillings, leaving a surplus of 36,000,000 schillings. Faced by a budget deficit and outside demands (see below under *History*), Parliament on Oct. 3, 1931, passed an emergency bill calculated to produce additional revenues amounting to 100,000,000 schillings (about \$14,000,000) and to reduce expenditures by 220,000,000 schillings (\$30,950,000). On Jan. 1, 1931, the Federal debts totaled 2,776,000,000 schillings while Federal claims amounted to 1,564,000,000 schillings, mainly against the Federal railways for advances on capital investments. Included in the Federal debt was the League of Nations loan (873,000,000 schillings), the Austrian international loan of 1930 (439,000,000 schillings), the currency debts (243,000,000 schillings), and the so-called "kronen and schilling" debts (137,000,000 schillings). See also under *History* below.

COMMUNICATIONS. At the beginning of 1929, Austria had 4156 miles of railway line, of which 3029 miles were owned and operated by the Government, 533 miles operated by private companies, and 594 miles operated for private companies by the Government. Beginning in 1923, the Federal Railways were operated as an autonomous enterprise. The railway budget estimates for 1931 anticipated a deficit of 27,800,000 schillings, after payment of interest charges on loans. Highway mileage in 1931 totaled 21,273 miles, of which 2450 were national roads, 1029 miles provincial roads, 11,926 miles departmental, and 5868 miles municipal roads. Regular air services were maintained by the state-subsidized Austrian Air Transportation Company. Various airlines linked Vienna with the principal European capitals. Direct radio-telegraph service between the United States and Austria was inaugurated Apr. 22, 1931.

GOVERNMENT. Under the Constitution adopted Oct. 1, 1920, and amended Dec. 7, 1929, executive power is vested in a president, elected by popular vote for six years, who appoints the Ministry and has power to dissolve Parliament. Legislative power rests with an assembly (Nationalrat), elected by popular vote for four years, and a first chamber (Bundesrat), chosen by the Provincial Diets in proportion to the population of the respective Provinces. The composition of the Nationalrat following the election of Nov. 9, 1930, was: Social Democrats, 72; Christian Socialists, 66; National Economic party, 19; Heimwehr, 8. President of the Republic, Dr. Wilhelm Miklas, elected Dec. 5, 1928. The Ministry constituted Oct. 3, 1930, represented a coalition of the Christian Socialist and National Economic parties. The members were: Chancellor, Dr. Otto Ender (Christian Socialist); Vice Chancellor and Minister of Foreign Affairs, Dr. Johann Schober; Defense, Karl Vaugoin (Christian Socialist); Justice, Dr. Hans Schurr; Agriculture and

Forestry, Dr. Engelbert Dollfus (Christian Socialist); Finance, Dr. Otto Juch (Christian Socialist); Commerce and Communications, Dr. Eduard Heindl (Christian Socialist); Education, Dr. Emmerich Czermak (Christian Socialist); and Interior, Franz Winkler.

### HISTORY

Austria during 1931 was scourged by the worldwide economic depression, by serious financial and exchange difficulties, and by the strife of political factions, all three factors forming a vicious circle of mutual aggravation. Moreover, Austria threw in her lot with Germany in a sanguinary diplomatic and financial struggle against France—a struggle which materially aided the forces of chaos and disintegration in Europe. The conflict opened with the announcement of the Austro-German Customs Union project on Mar. 21, 1931. It closed on September 3, when Austria and Germany formally renounced the customs union protocol. Decisively beaten by France's overwhelming financial strength and political prestige, the German and Austrian Governments were forced to go hat in hand to Paris, begging aid to prevent their impending financial and administrative collapse. France proved a close bargainer, however, and the half-hearted help she finally extended in collaboration with Great Britain, American banking interests, and the International Bank proved insufficient to repair the damage done to international confidence and credit. The end of the year found Austria perceptibly closer to the brink of chaos and insolvency than at its opening. (See GERMANY under *History* for a more detailed account of the Customs Union project and its repercussions.)

The storm aroused in Europe by the Austro-German Customs Union proposal was followed by the withdrawal of French and other foreign short-term credits from Austrian banks. Whether or not the French withdrawals were politically inspired, as was widely charged, they helped to precipitate a crisis in the affairs of the *Credit-Anstalt*, Austria's oldest private bank, which controlled between 70 and 80 per cent of the banking resources and industry of the country. Gross mismanagement, the weakening of the bank by its fusion with the *Boden Credit-Anstalt* in 1929, and the devaluation of Austrian and foreign stocks were other factors contributing to the *Credit-Anstalt's* critical condition, which became publicly known on May 11. To avert its collapse, the Austrian Government placed at the bank's disposal about \$14,000,000 of new capital, to be raised by an issue of three-year treasury notes. The Bank of Austria and the House of Rothschild, which held controlling interests in the *Credit-Anstalt*, also contributed about \$4,000,000 each. On May 14, Parliament authorized the Government to float a \$21,000,000 loan, of which \$14,500,000 was required to place the finances of the bank on a sound basis.

The Bank of International Settlements on May 18 extended a three-months' credit of \$14,000,000 to Austria. But the efforts to raise a loan of \$21,000,000 met the stubborn refusal of French bankers to participate unless Austria first abandoned the customs union and submitted to international financial control. When the French conditions were revealed to British leaders, the Bank of England stepped into the breach on June 17 and advanced Austria an interim credit

of \$21,000,000 without guarantee, subject to renewal as long as necessary. The British action was prompted in part by the fact that of the *Credit-Anstalt's* total foreign debts of about \$375,000,000, some \$135,000,000 was due to British creditors, who stood to lose everything if the bank collapsed. American interests had loaned nearly \$120,000,000 to the *Credit-Anstalt*, France, the Netherlands, and Switzerland about \$30,000,000 each, and Germany about \$25,000,000. On June 16, a committee representing the creditors of the bank undertook not to withdraw their credits for two years, provided the Austrian Government guaranteed the bank's liabilities. On June 26, the Government guaranteed both the domestic and foreign liabilities of the *Credit-Anstalt*, estimated at a total of \$450,000,000.

The financial situation had already caused one Cabinet crisis, the Pan-Germans having threatened to withdraw from the Government coalition on May 19, when Chancellor Ender proposed to balance the budget by drastic cuts in the salaries and pensions of state employees and a further tax on salaries. The Cabinet weathered this storm only to fall on June 16, when the Peasants' party withdrew its support from the coalition. The Peasants objected to the assumption of such far-reaching financial obligations by the Government. Four days later (June 20), after Dr. Ender, former Finance Minister Guertler, and the former Chancellor, Mgr. Seipel, had successively failed to form a new government, a second coalition cabinet was formed by Dr. Karl Buresch, Governor of the Province of Lower Austria. Dr. Johann Schober retained the portfolio of Foreign Affairs, the other members being: Interior and Vice Chancellor, Franz Winkler; Social Welfare, Dr. Josef Resch; Justice, Hans Schuerff; Army, Karl Vaugin; Trade, Edward Heini; Agriculture, Engelberg Dolphus; Education, Emmerich Czermak; and Finance, Dr. Joseph Redlich. Dr. Redlich was widely known in the United States as a professor in the Harvard Law School. With measures for the rehabilitation of the national finances absorbing the attention of the new Government, there was little disposition to push the customs union proposal. Then, too, the financial crisis in Germany had become increasingly severe and the Christian Socialists seized the opportunity to point out that British and French financial aid was more to be relied upon than the hope of economic union with Germany.

Despite foreign aid, the Government fought a losing struggle against the financial crisis. On August 11, it was compelled to appeal once more to the League of Nations for assistance. It asked the Council of the League to examine Austria's economic and financial problems and recommend methods for meeting them. League representatives were immediately sent to Austria to study the financial situation and on September 17 the financial committee of the League agreed to advance a temporary credit of 250,000,000 schillings (about \$35,175,000). It stipulated, however, that Austria must first reduce its expenditures for the 1931 fiscal year by 35,000,000 schillings (about \$4,900,000), cut the 1932 budget expenditures to 1,900,000,000 schillings (about \$267,300,000), and set aside for both 1932 and 1933 a sum of 100,000,000 schillings (\$14,000,000) for service of the loan. The League finance committee further recommended that Austria balance the budgets of the Federal Railways and the postal service, reduce governmental expenditures, cut

the cost of production in industry, and take measures to improve the position of the *Credit-Anstalt* and other Austrian banks. Figures issued by the Austrian Government showed that its expenditures had increased from \$150,000,000 in 1926 to \$286,000,000 in 1929 and \$305,000,000 in 1930. For 1931 they were estimated at \$329,000,000, the deficit for the year being provisionally estimated by Chancellor Buresch in September at \$23,000,000.

With payments of 200,000,000 schillings (\$28,600,000) due the Bank of International Settlements and the Bank of England on October 16, Austria was virtually forced to accept these conditions. An emergency bill, providing for a reduction of expenditures by 220,000,000 schillings (\$30,950,000) annually and for increased taxation calculated to bring in about 100,000,000 schillings (\$14,000,000) annually, was passed by Parliament October 3 with only eight dissenting votes. Despite the large majority received in Parliament, the tax increases and salary cuts aroused bitter opposition among sections of the population. Hostile demonstrations against tax collectors in rural sections of the Provinces became increasingly alarming and on November 19 the Cabinet announced a relaxation of the tax laws affecting peasants and small traders.

Nor did the emergency measures halt the steady drain on Austria's gold reserves. On October 8, the Government restricted foreign exchange transactions to the Bank of Austria, or institutions designated by it, following the lead of the other countries of southeastern Europe. Thus the entire region returned to the state of near chaos prevailing immediately after the World War. The inability of the Government to meet the payments to the Bank of International Settlements and the Bank of England on October 16 caused both institutions to renew their credits; the period for repayment of the \$14,000,000 owing the Bank of England was postponed to Jan. 16, 1932. It was officially announced on October 22 that the Bank of France had advanced an \$8,500,000 credit to the Austrian National Bank through the medium of the International Bank, with the aid of which it was planned to moderate the exchange restrictions. The loan, however, was held up by the International Bank pending the acceptance by Austria of its recommendations not adopted in the Austrian emergency budget law of October 3, including the reorganization of the *Credit-Anstalt*. The Buresch Government on October 19 dismissed 25 of the 28 directors of the Bank, but it apparently hesitated to face the political repercussions feared as a result of the closing of many factories and other drastic measures involved in reorganization of the institution. While some \$70,000,000 of foreign short- and medium-term credits remained in the *Credit-Anstalt*, the greater part of the Austrian deposits had been withdrawn. It was costing the Austrian National Bank, in other words, the Government, \$15,000 a day to maintain the *Credit-Anstalt*, with the possibility that a continued drain of this size would bankrupt the Government.

**THE HEIMWEHR REVOLT.** National concern aroused by the development of the financial crisis was temporarily diverted on September 13 by the long-anticipated effort of the Heimwehr to seize control of the Government. The attempted *putsch*, which was launched by the reactionary military organization under the leadership of Dr. Walter Pfriemer in Upper Styria early Sunday morning,

proved an inglorious failure. Late the same night, after Federal troops had been rushed to the scene, Dr. Pfriemer instructed his followers to disband peaceably and he himself fled across the Yugoslav border. The revolt cost three lives and some \$250,000 which the hard-pressed Government could ill afford to spare.

The Heimwehr launched its offensive by occupying public buildings in many towns throughout Upper Styria and mounting machine guns. Proclamations were posted stating that Dr. Pfriemer had assumed the reins of government. Another manifesto issued by the Heimwehr leader declared martial law and announced a new provisional Constitution under which about 100 articles of the existing Constitution were suspended. Meanwhile members of the Socialist *Schützbund*—rival military organization—mobilized and warned Chancellor Buresch that they would take action if the Government did not immediately suppress the revolt. The Federal authorities acted promptly, sending troops to the scene of the revolt from Vienna, Carinthia, and Graz, the Styrian capital. The Heimwehr made no effort to resist and either disbanded of their own accord or submitted to being disarmed. The only casualties occurred at Kapfenberg, where several Socialist workers were killed.

Documents subsequently seized indicated that a plan for a concerted movement by the Heimwehr organizations in other Provinces had been frustrated by a premature move on the part of Dr. Pfriemer. On September 14 a number of Heimwehr leaders, including Prince von Starhemberg, former Minister of the Interior, were arrested on charges of complicity, but were released on bail. Dr. Pfriemer returned to Austria and submitted to arrest on December 7. Tried with seven of his adherents for high treason, he was acquitted by a jury at Graz December 18. On November 3, the leaders of the Austrian Heimwehr decided to cooperate with the National Socialists (Hitlerites) of Germany in opposing the coalition Government in Austria.

**OTHER DEVELOPMENTS.** The abortive Austro-German Customs Union proposal was but one of a number of moves made by the Austrian Government during the year in an effort to improve the country's economic situation. A trade agreement including Italy, Austria, and Hungary, announced May 11, 1931, was calculated to increase mutual trade by cheaper rates of discount on each other's trade acceptances and bills, and a reduction in railroad rates and storage charges. Another trade agreement with Hungary signed July 1, 1931, extended to each country the equivalent of tariff preferences by means of camouflaged rebates. Austria's commercial treaty with Czechoslovakia was abrogated effective July 15.

Other notable events of the year were the resignation of Dr. Redlich from the post of Finance Minister on October 5, the removal of Dr. Straffella from the general-managership of the Austrian Federal Railways on June 5, and the announcement on October 7 that, in order to reduce expenses, the successor to President Miklas would be elected by Parliamentary vote, as provided under the old Constitution, instead of by national plebiscite, as provided by the amended Constitution of 1929. The appointment of Dr. Straffella to the railway post, on the insistence of Karl Vaugoin, Heimwehr leader and Minister of War, caused the resignation of the Schober Cabinet in November, 1930. Clashes between So-



cialists, Fascists (Heimwehr), and Communists marked the observance on November 12 of the 13th anniversary of the proclamation of the Austrian Republic. See GERMANY, FRANCE, ITALY, GREAT BRITAIN under *History*; LEAGUE OF NATIONS.

**AUSTRO-GERMAN CUSTOMS UNION.** See AUSTRIA, GERMANY, and FRANCE under *History*.

**AUTHORS' LEAGUE OF AMERICA.** A national organization of authors, dramatists, and screen writers. It was founded and incorporated in 1912 for the purpose of procuring adequate copyright legislation, both international and domestic; protecting the rights and property of all those who create copyrightable material; advising all such in the disposal of their productions and obtaining for them prompt remuneration therefor; and disseminating information among them as to their just rights and remedies. The league supplies to its members confidential information relating to publishers, theatrical and motion-picture producers, and other persons and companies engaged in the purchase, sale, publication, or production of copyrightable material. The league includes the dramatists' guild, the authors' guild, and the screen writers' guild. Closely affiliated with it is the Authors' League fund, an agency formed by the league to meet its obligations with respect to the care of the sick, the aged, and the unfortunate, the endowment amounting to about \$80,000. The officers in 1931-32 were: President, Inez Haynes Irwin; vice president, Marc Connelly; secretary and treasurer, Luise Sillcox. Headquarters are at 2 East Twenty-third Street, New York City.

**AUTOGIRO.** See AERONAUTICS.

**AUTOMOBILE RACING.** Louis Schneider of Indianapolis was the outstanding figure in automobile racing in 1931. This former motorcycle policeman succeeded Billy Arnold as American Automobile Association champion, because of his remarkable triumph in the 500-mile Memorial Day race at Indianapolis and because of other victories of importance on dirt tracks. In that Memorial Day race, Schneider's winning was a great surprise. Arnold, 1930 winner, escaped death by the narrowest margin in the race and saw his car burn. Fred Frame of Los Angeles finished in second place, Ralph Hepburn of Los Angeles third, and Louis Myer, of Southgate, California fourth. Schneider's time for the 500 miles was 5:10:27.04. In the A.A.A. standings, compiled upon results in races at Indianapolis, Detroit, Altoona, and Syracuse, Schneider scored 712.5 points. Frame was second with 540, and Hepburn third with 362. Shorty Cantlon, driving a Bowes Seal Fast, won at Altoona, L. Moore, in a Boyle Valve, won at Syracuse, and Lou Meyer, in a Jadson, captured honors at Detroit.

Captain Malcolm Campbell, British racing driver, set a new world's record for speed in a test spin at Daytona Beach, Florida, in the first week in February, when he was timed at the speed of 245.733 miles an hour.

**AUTOMOBILES.** With the business depression continuing throughout 1931 motor vehicle production in the United States fell still lower than in 1930 by over a million, upsetting the three-year cycle that had prevailed since 1918, according to which it should have been a normal year. Instead it was the lowest that had been recorded since 1921. The production of cars and

trucks in the United States and Canada was only 2,460,000, less than half that of the peak year 1929 when it was 5,621,715.

Production had been so carefully gauged to demand by this time that the effects of the overproduction of 1929 had been completely wiped out and many manufacturers and dealers showed a better financial statement at the close of the year than they had in 1930. Meantime cars in use were being worn out as fast or faster, as shown by the increased gasoline consumption and the falling off in registration, building up a replacement market that must in time be supplied; the longer that is deferred the more will be the accumulation. So the demand side of the scales was growing heavier while the supply side was becoming lighter and the swing was in a direction promising much better business in 1932 which, if realized, would have a marked effect on restoring better general business conditions, because of the very great number of people affected by the prosperity of this largest of all American manufacturing industries.

A striking result from the slump of sales in the year was the stimulus given to the improvement of product and the effort to offer greater value for the price. More innovations were developed and changes in new models were more pronounced than in any year since the earlier ones of the industry. Most important was that most of them were adopted by nearly all makes, differing in detail but in general following similar principles as to purposes accomplished. Free-wheeling, for example, was found on almost every new model from the lowest to the highest in price. Not all were of the pioneer type incorporating an over-running clutch, for several brought forward the newer idea of providing for automatic disengagement of the main clutch when pressure on the accelerator pedal is released, actuated by vacuum from the engine manifold, typified by the Buick so-called Wizard control. All forms provided for cutting out the free-wheeling action at will allowing the car to run in the orthodox manner with engine and wheels connected, so that the engine compression may be used to retard the car, which is especially desirable when descending long or steep grades.

Either synchronizing devices in transmissions making silent shifting of sliding gears possible, or constant-mesh helical gears for quiet operation, not only in second but other speeds, were as definite a trend as free-wheeling.

Other outstanding improvements developed during the year and very generally adopted on the high and medium priced cars particularly, were ride control whereby the shock absorbers may be regulated from the dash according to the character of the road and automatic starting that cranks the car without the driver stepping on a starting button. The starter operates with the turning on of the ignition switch and if the engine stalls for any reason the electric cranking motor is reengaged.

Nearly every maker adopted new forms of rubber suspensions for the power plant and four makes introduced two-point floating power, all for the purpose of reducing the transmission of engine vibration to the car and its passengers.

There was a pronounced tendency to make functions automatic that were formerly manually controlled and hence dependent upon human judgment, for example, automatic control of the



air intake to the carburetor by means of a thermostat, the choke being fully closed when the engine is cold and gradually opening as the engine warms up. Three makes had this feature and four made the control of the heat to the intake manifold automatic, also through a thermostat. Less and less was being left to the doubtful skill of inexperienced operators.

While the foregoing were by no means all of the new things, they include the more important and those that were the most generally adopted. Individual makes had numerous others. Cadillac and Lincoln had vacuum service brakes and several had the new pearlite iridescent lacquer, both of which may be forerunners of coming common practice.

Trends in refinements and changes in treatment of designs were quite as interesting. There was a move toward still higher engine compressions and more engine power through larger cylinders or more of them. As it stood at the end of 1931 there were only three four-cylinder cars left. Twenty different chassis models carried six-cylinder engines, 34 had eights, six were twelves and two 16-cylinder jobs. Ford did not announce its new models before the close of the year, but it was expected that they would be disclosed possibly before the end of January and that they would include a V-eight and a four interchangeable on a chassis of somewhat longer wheelbase than that of the Model A.

Longer wheelbases, wider, heavier and lower cars were characteristic of most of the new models. Because of this frames were very generally redesigned for greater strength and stiffness. Wheels were in general smaller with tires of larger cross section and steering gears and springs were revamped to do away with shimmy and wheel fight so called. Rear axles had some changes, more using hypoid gears and one make, the Auburn, brought out a dual-ratio rear axle on its new 12-cylinder chassis and also on the customs models of its eight-cylinder line. A planetary gear provides the change from a 4½-to-1 to a 3-to-1 ratio. Selection of the ratio desired is through a lever on the dash but actual shifting is accomplished by suction from the vacuum in the engine manifold when the clutch pedal is depressed.

Bodies as usual showed the most conspicuous changes. Many times in the past when one builder made a striking departure that caught the public fancy, others copied it the following year. Thus, at different times, Nash, Chrysler, Hupmobile or others have set the style. This time it was the Reo Royale of a year previous and the so-called "aerodynamic" lines were found in nearly all of the new cars. There was more in this instance than eye appeal, for there was the utility value of decreased wind resistance that becomes quite pronounced as speeds have been increasing. Another advantage is the doing away with angles and pockets that have been effective dust catchers and hard to clean. So great was the attention being given to this phase of design that it was freely predicted that in the near future there would be even more radical approaches to the "tear-drop" form.

Front ends in keeping with body lines showed a pronounced tendency away from bluntness. Radiators, or at least their grills, were usually pointed, rounded or slanting backward as in the Graham. In general, cooling area was increased as required by the more

powerful engines, and fans were reshaped in order to secure greater efficiency and quietness.

Other refinements in power plants were: better manifolds and fuel mixture heating, combustion chambers, carburetors, cooled fuel lines to prevent vapor lock, oiling-systems, etc.

One of the surprises among announcements at the end of the year was the decision to drop the Oakland from the General Motors line, the Oakland company continuing, however, concentrating its production on Pontiac, but building it in both six and V-eight models. Another company, DeSoto, dropped its eight, continuing with a six only, while the Oldsmobile, that had only a six a year before, adopted a straight eight as well.

The only new make of car of the year was the Rockne which, while produced by a new company of that name, was an added member of the Studebaker family. It was a six-cylinder car in the lower-priced group well supplied with the popular new features including free-wheeling and a silent second, synchronizing transmission.

**STATISTICS.** The annual preliminary statement of Facts and Figures of the Automobile Industry given out toward the close of the year by the National Automobile Chamber of Commerce was the source of the following figures for the year 1931: The total production of cars and trucks in the United States and Canada was 2,460,000. Of this number 2,040,000 were passenger cars and 420,000 motor trucks. Of the passenger cars 92 per cent or 1,880,000 were of closed types. The wholesale value of the passenger cars was \$1,170,000,000 and of the trucks \$260,000,000, making a total of \$1,430,000,000. The average retail price of passenger cars was \$765 and of commercial vehicles \$824.

During the year tire factories in the United States shipped about 51,000,000. The wholesale value of those sold for replacement, i.e. to car owners, was \$325,000,000. (See RUBBER.) The wholesale value of parts and accessories for replacement and service equipment was \$341,000,000. These figures added to the wholesale value of vehicles produced shows the year's grand total of automotive business, including motor vehicles, accessories, service equipment and replacements of parts and tires was \$2,101,000,000—the lowest annual volume since 1921.

The registration in the United States at the beginning of 1931 showed almost no gain and at the end of the year for the first time showed a decline, being only 25,940,000 motor vehicles made up of 22,450,000 passenger cars and 3,490,000 motor trucks. The estimated world registration at the same time was 34,575,000 so that the United States had three-fourths of all the motor vehicles in use. Rather interesting is a comparison of the farm use of motor vehicles and telephones. The latest year for which comparative figures are available is 1930. In that year there were registered on farms 4,134,675 passenger cars and 900,385 motor trucks. Their combined figure, 5,035,060, was nearly 2½ times the number of telephones on farms—2,139,194. The mileage of surfaced highways in the United States increased to 725,000 and the total miles of highways of all types to 3,024,233. During 1931 the expenditure on streets and highways was \$2,400,000,000. See ROADS AND PAVEMENTS.

In spite of the recession in the automobile industry for two years it still remained the largest American industry based on the value of

finished products and it was the largest purchaser of gasoline, rubber, steel, lubricating oil, plate glass, nickel, and lead. As indicative of what the automobile industry meant in American business life, the following figures are significant: 4,020,000 persons were employed in motor vehicle and allied lines. State government revenue from gasoline taxes in 1931 was \$524,000,000 and from motor vehicle taxes \$1,022,000,000. The railroads hauled 3,090,000 carloads of automotive freight. Other industries were largely supported by the automobile industry, which in 1931 took 83 per cent of the rubber production, 60 per cent of the plate glass, 16 per cent of the iron and steel, 17 per cent of the hardwood lumber, 14 per cent of the copper, 26 per cent of the lead, 17 per cent of the aluminum, 30 per cent of the nickel, 11 per cent of the tin, 8 per cent of the zinc, 85 per cent of the gasoline (342,000,000 barrels were consumed by motor vehicles in 1931—an increase over all previous years in spite of the depression), 50 per cent of lubricants (10,300,000 barrels).

The crude rubber used by the motor industry in 1931 totaled 649,700,000 pounds and cotton fabric used in tires 191,500,000 pounds. Retail business created by the sale of vehicles and supplies afforded a living for a great number in addition to those employed in manufacturing for there were 46,000 car and truck dealers, 98,000 garages, service stations and repair shops, 75,000 supply stores and 350,000 gasoline filling stations.

Individual personal transportation takes the larger part of motor vehicles used but the purely commercial use is still considerable. Motor trucks in use numbered 3,400,000 and 26 per cent of these were used by farmers. There were 96,500 motor busses operating. Forty-nine thousand of them were used by 17,000 consolidated schools which meant much for the better education of children in the rural districts. Two hundred and seventy street railways were operating 12,500 busses, 80 steam railroads, 5000; and 85 railroads were using 10,000 motor trucks as part of their shipping service, which serves to show how the older forms of transportation were turning to the use of motor equipment as auxiliary to their facilities. Motor trucks used by the Railway Express Agency added 9427 to the number that were supplementing railroad service.

As the business depression was world-wide there was naturally a great falling off in export business, for there were only 315,000 American motor vehicles sold outside of this country in 1931, this including United States exports and the output of Canadian plants of United States manufacturers. This was a 44 per cent decrease in foreign sales under 1930 and represented 13 per cent of production. The value of motor vehicles, parts and tires exported from the United States and Canada during the year was \$162,500,000. Hardly to be mentioned by comparison were the 710 motor vehicles imported in 1931.

**LEGISLATION.** With 44 State legislatures in session, 1931 had a large output of new or revised laws, and a goodly share of them pertained to motor vehicles or highways. Some 7500 bills were presented, about a fifth of which were enacted into law. Very many of the measures dealt with taxation or highway construction, the effect of efforts to meet shrinking State revenues and relieve unemployment distress. Second in importance were those aimed to increase traffic

safety as through periodic vehicle inspection, licensing of drivers, and installing of safety devices, as well as those regulating vehicle operation.

There was increasing accord of legislation with the Uniform Motor Vehicle Code compiled and recommended by the National Conference on Street and Highway Safety. It represented the joint effort of authorities from every State seeking to standardize regulations covering the use of highways to the end of facilitating interstate operation of vehicles and relieving drivers or tourists away from home territory of the annoyance and embarrassment of violating unfamiliar rules. As finally revised in 1930 it had the official endorsement of the American Bar Association and the National Conference of Commissioners on Uniform State Laws. The Code consists of four acts covering: I, registration; II, car theft; III, operators' and chauffeurs' licensing; and IV, traffic regulation on highways. During 1931 seven States adopted completely or in part one or more of the four acts which raised the total number of States in that category to 23, and the number of acts they had adopted based on the Code, 44.

In 1931 Colorado led by adopting Acts I, III, and IV; Oregon adopted the latter two; California, Nebraska, and Utah the regulatory act, and Iowa, Kansas, Michigan, and West Virginia the drivers' license. In addition Nevada revised its registration and drivers' license laws to practical conformity. Twenty-six States at the end of 1931 had drivers' license laws but in seven of them such measures were not as effective as they might be because of lack of provision for compulsory examination of prospective operators.

The American Automobile Association in 1930 launched a campaign to promote adoption of a uniform financial responsibility measure and during the past year was rewarded by having it enacted into law by Indiana, North Carolina, and Wisconsin.

Insurance companies were especially interested in progress made to combat the "guest suit" evil which had been increasing alarmingly. This is the filing of damages, usually exorbitant, against owners of private vehicles for injuries sustained, or claimed to be, by persons riding with them. Defendants protected by insurance generally make little effort to fight the action and actual collusion between defendant and plaintiff was not uncommon. Colorado, Idaho, Illinois, Kansas, Montana, Nebraska, and North Dakota passed new laws denying compensation for injuries received in automobile accidents where recklessness, carelessness, or deliberate intent of drivers was not established. Texas went even farther by making it apply whether or not the injured party was a passenger.

Requirements relating to safety devices for motor vehicles were revised by nearly half of the Legislatures meeting during the year. To mention one of the most significant, Michigan decreed that all vehicles manufactured after July 1, 1932, to be used in carrying passengers for hire, must be equipped with shatter-proof glass. The passing of the solid tire apparently was to be accelerated by law. Two States adopted legislation banning vehicles so equipped from their highways, Kansas making it effective July, 1932, and Wisconsin two years thereafter. Illinois took action almost as drastic by limiting solid-tired commercial vehicles to a 10-mile-per-hour speed.

Several States increased penalties against reckless or drunken drivers. Michigan defined reckless driving resulting in injuries, but not death, as "felonious driving" and provided a fine not to exceed \$1000 or two years imprisonment or both. In addition the Secretary of State may be directed by the court to suspend the convicted operator's driving license for an indefinite period. New Hampshire made reckless driving resulting in death, subject to fine of \$1000 or up to five years' imprisonment with freedom to also prosecute the offender for manslaughter.

Reciprocity in visiting motorists' privileges spread to four more States: Massachusetts, North Dakota, Nebraska, and Nevada passed laws permitting vehicles from other States to use their highways the same length of time that the visitors' States allow to outsiders, but most of them excepted common carrier commercial vehicles.

Railroads continued to agitate for regulation by the Interstate Commerce Commission of trucks and busses doing an interstate business. Hearings begun in 1930 were carried on into 1931 but no action was taken during the year. See RAILWAYS.

Toward the end of the year the automobile industry was aroused by President Hoover's proposal to increase government revenue by restoring the 5 per cent excise tax on passenger cars and 3 per cent on trucks. It took many years following the World War to get it removed and the year ended with the manufacturers organizing to protest against it as a sales resistance that would retard the return of prosperity by undoing much of the manufacturers' effort to revive business by offering a greatly improved product at a minimum price.

**AVIATION.** See AERONAUTICS.

**AVIATION, NAVAL.** See NAVAL PROGRESS.

**AZERBAIJAN, A'zër-bi-jän' (AZERBAIDZHAN).** The Azerbaijan Socialist Soviet Republic, established Apr. 28, 1920, united with Armenia and Georgia on Jan. 16, 1923, to form the Transcaucasian Socialist Federated Soviet Republic (q.v.). Occupying the southeastern frontier region of Transcaucasia between the Caspian Sea and Persia, Azerbaijan has an area of 32,686 square miles and a population of 2,313,172 (1926 census), of whom about 75 per cent are Moslems. Capital, Baku, with a population of 452,000.

In 1929-30 there were 1479 elementary schools, with 180,200 pupils; 40 technical schools, with 10,000 pupils; and five institutions of higher education, with 5500 students. Agriculture, cattle-breeding, and the exploitation of the extensive Baku oil fields are the principal industries. There were 2,008,000 acres under cultivation in 1928-29, of which (in 1929-30) 370,000 acres were devoted to cotton. In January, 1931, 12.5 per cent of all farms were collectivized. Oil production in 1928-29 was 8,802,000 tons (7,560,000 tons in 1927-28). Copper, textiles, fisheries, and salt are other leading industries. See UNION OF SOVIET SOCIALIST REPUBLICS.

**AZORES, ä-zörz'.** An archipelago in the North Atlantic, situated about 800 miles west of Portugal, of which the Azores are politically an integral part. Area, 922 square miles; population, estimated in 1929 at 240,000. The capital is Angra on the island of Terceira. For the revolt against the Carmona dictatorship in 1931, consult the article on PORTUGAL under History.

**BABCOCK, STEPHEN MOULTON.** An American agricultural chemist, died in Madison, Wis., July 2, 1931. He was born in Bridgewater, N. Y., Oct. 22, 1843, and was graduated from Tufts College in 1866, later studying chemistry at Cornell University (1872-75) and at the University of Göttingen (Ph.D., 1879). From 1882 to 1887 he served as chemist to the New York State Agricultural Experiment Station in Geneva, N. Y. In 1887 he became professor of agricultural chemistry at the University of Wisconsin and chemist to the Wisconsin Agricultural Experiment Station. He also became assistant director of the station in 1901, but retired from all active service in 1913. He investigated especially the chemistry of milk, cheese, and other dairy products, his best-known service being the invention in 1890 of the Babcock test for ascertaining the amount of fat in milk, cream, etc. The Wisconsin Legislature presented him with a bronze medal in 1899 in recognition of this and other services to agriculture, and rewards of merit were granted him by the Paris and St. Louis expositions. In 1930 he received the Capper award for "the contribution of greatest importance to American agriculture."

**BADEN, bā'den.** A constituent state of the German Republic, with a republican form of government established by the Constitution of Mar. 21, 1910. Formerly a grand duchy in the German Empire, it borders on Alsace-Lorraine and Switzerland on the west and south, respectively. Area, 5819 square miles; population in 1925, 2,312,462, as compared with 2,195,580 in 1919. In 1929 there were 44,545 births, 29,872 deaths, and 19,844 marriages. Capital, Karlsruhe, with 145,604 inhabitants in 1925. The largest city is Mannheim (247,486 in 1925). The majority of the population is Roman Catholic. Education is free, general, and compulsory, the schools being under the jurisdiction of the state. For higher education, there are universities at Heidelberg and Freiburg. In 1930 the total area under cultivation was 2,061,172 acres. Among the agricultural products, oats, rye, barley, wheat, potatoes, and vegetables are the most important. There are numerous manufacturing industries and salt and potash are mined.

In the budgets for both 1930 and 1931, ordinary revenues were fixed at 289,800,000 gold marks (1 mark equals \$0.2382), ordinary expenditures at 283,500,000 marks, extraordinary revenue at 9,100,000 marks, extraordinary expenditure at 20,800,000 marks. Executive power rests in a cabinet comprising the State President, four Ministers, and one State Councillor (Minister without portfolio), all nominated or elected by the Landtag (legislature). The Landtag elected Oct. 27, 1929, for the term ending Oct. 27, 1933, had 88 members, including 34 Centrists, 18 Socialists, and representatives of eight other parties. State President in 1931, Josef Wittenman (Centre party). See GERMANY.

**BAER, WILLIAM STEVENSON.** An American surgeon, died Apr. 7, 1931, in Baltimore, Md., where he was born Nov. 25, 1872. He was graduated from the medical school of Johns Hopkins University in 1896, and three years later became assistant resident surgeon at the Johns Hopkins Hospital. In 1901 he joined the faculty of the Johns Hopkins medical school, being advanced from instructor to associate professor of clinical orthopedic surgery in 1914. During the World War he was assistant and then chief

consultant in orthopedic surgery with the American Expeditionary Forces, discovering, as a result of observation at this time, a new method of treatment of osteomyelitis with maggots that destroyed the infected bone matter but refused to ingest living tissue. He was also visiting orthopedic surgeon and consulting orthopedist at the Sheppard Pratt Hospital, Baltimore, and the Hospital for Women of Maryland, and was surgeon-general of Maryland from 1916 to 1920. His writings include numerous articles, chiefly on orthopedic surgery, in various medical journals.

**BAHAMAS.** A group of British-owned islands off the southeast coast of Florida, 29 in number, of which 20 are inhabited. They also include 661 keys and over 3000 reefs. The islands, which are of coral formation, have an area of 4404 square miles and a population, according to the census of 1931 of 59,828, or 6797 more than at the census of 1921. The important islands with their populations in 1921, are as follows: New Providence, containing the capital, Nassau, 12,975; Andros, 6976; Eleuthera, 6048; Long Island, 4659; Abaco, 3993; Exuma, 3730; Cat Island, 4273. Government primary schools in 1929 enrolled 9351 pupils; aided schools, 3812 pupils; private schools, 1256. In the same year, attendance at private and government secondary schools totaled 326.

Declared imports greatly exceed declared exports, the totals in 1929 being £1,963,776 and £144,021, respectively. Spirits and wines, the leading imports, were valued at £826,787 in 1929, compared with £57,114 for petroleum products, which ranked second in value. Sponges and sisal are the chief exports. Imports from the United States (1929) were valued at £740,865; Canada, £521,508; United Kingdom, £420,421. Revenues in the fiscal year 1929-30 totaled £550,799; expenditures, £578,584. The public debt in 1929 stood at £180,000. Vessels entering the ports in 1929 numbered 1362 of 1,054,712 tons and vessels clearing, 1378 of 1,057,152 tons. Regular air-mail and passenger service between Palm Beach and the Bahamas was inaugurated June 5, 1931. The islands are administered by a governor who is assisted by an executive council and a legislative council, each of nine members, and a legislative assembly of 29 members, the franchise being based on a small property qualification. Governor and Commander-in-Chief in 1931, Sir Charles William Orr.

**BAHRAIN ISLANDS.** See ARABIA.

**BAILEY, SOLON IRVING.** An American astronomer, died in Hanover, Mass., June 5, 1931. He was born in Lisbon, N. H., Dec. 29, 1854, and was graduated from Boston University in 1881. In 1889 he established at Arequipa, Peru, a southern station of the Harvard Observatory, and in 1893, on the summit of El Misti at an elevation of 19,000 feet, the most loftily situated meteorological station in the world. On his return to the United States he was made assistant professor of astronomy at Harvard University, becoming associate professor in 1898 and Phillips professor in 1913 and retiring as professor emeritus in 1925. During 1908-09 he made astronomical observations in the northern part of Cape Colony and also investigated climatic conditions in various parts of South Africa with reference to the desirability of this region as a site for astronomical observation. He later served during 1919-22 as acting director of the Harvard Observatory. In addition

to writing extensively for the *Annals of the Harvard Observatory*, he published *A Discussion of Variable Stars in the Cluster  $\alpha$  Centauri* (1902); an extensive work, *Peruvian Meteorology* (1902); *Recent Total Eclipses of the Sun* (1902); and *History and Work of the Harvard Observatory* (posthumous, 1931). He was also a pioneer in the photographic discovery and measurement of extra-galactic nebulae.

**BAKER, GEORGE F (ISHER).** An American banker, died in New York City, May 2, 1931. He was born in Troy, N. Y., Mar. 27, 1840, and began his banking career as a clerk in the State Banking Department in Albany. Coming to New York City in 1863, he became associated with the newly-organized First National Bank, rising from teller to cashier in 1865 and to president in 1877. He held the latter office until 1909, when he became chairman of the board. During this period he, together with J. Pierpont Morgan and James A. Stillman, wielded a vast national and international financial influence. It was largely through his confidence and judgment that the banking and industrial institutions of the United States were enabled to weather the panics of 1893 and 1907 and other periods of depression. He was a director in numerous railroad, steel, and public utility corporations. He gave liberally to the Metropolitan Museum of Art and to Columbia University, Dartmouth College, Cornell University, and Harvard University, founding at the latter institution the Graduate School of Business Administration.

**BAKU.** See AZERBAIJAN.

**BALFOUR, SIR ANDREW.** A British surgeon and tropical health authority, died in London, Jan. 30, 1931. He was born in Edinburgh Mar. 21, 1873. His education was obtained in his native city—at George Watson's College and at the university, from which he received the M.D. degree in 1898. He also took advanced studies at the universities of Cambridge and Strassburg. In 1900-01 he served as civil surgeon in the South African War, and from 1902 to 1913 was director of the Wellcome Tropical Research Laboratories at Khartoum. He also was appointed sanitary adviser to the Sudan medical department, and medical officer of health for Khartoum. During the World War he was successively a member of the medical advisory committee for the Mediterranean war area, president of the medical advisory committee in Mesopotamia, and president of the Egyptian public health commission. He also served as health commissioner for Mauritius in 1921 and for Bermuda in 1923. After 1923 he was director-in-chief of the Wellcome Bureau of Scientific Research in London and director of the London School of Hygiene and Tropical Medicine. He was president of the Royal Society of Tropical Medicine in 1925-27, and was the recipient of many honors, including the Imperial Ottoman Order of the Osmanieh (4th class) which was bestowed on him in 1907. He was created a Companion of St. Michael and St. George in 1912, a Companion of the Bath in 1918, and a Knight Commander of St. Michael and St. George in 1930. Among his works are: *Public Health and Preventive Medicine* (with C. J. Lewis, 1902); *Reports of the Wellcome Research Laboratories* (1909-12); *Review of the More Recent Advances in Tropical Medicine* (with R. G. Archibald, 1909); *War against Tropical Disease* (1920); and *Health Problems of the Empire* (1924). He was also the author of several

novels: *By Stroke of Sword; To Arms!; Cashiered and Other War Tales; Vengeance Is Mine; and The Golden Kingdom.*

**BALI.** See NETHERLAND EAST INDIES.

**BALKAN CONFERENCE.** See TURKEY under *History*; *PEACE*.

**BALKAN FEDERATION.** See *PEACE*.

**BALKAN STATES.** The collective term applied to those states which make up the Balkan peninsula in southeastern Europe north and west of the Aegean Sea. See ALBANIA, BULGARIA, GREECE, RUMANIA, TURKEY, and YUGOSLAVIA.

**BALLOONS.** See AERONAUTICS.

**BANKERS' ASSOCIATION, AMERICAN.**

The dominant national organization of banks in the United States, having a membership of about 18,000 banks out of a total 22,000, with assets estimated in excess of 90 per cent of the nation's aggregate banking capital funds of \$9,400,000,000 and total resources of \$70,000,000,000. The association has four major divisions, each devoted to the special interests, technical advancement, and general welfare of the following classes of banks: National, savings, State, and trust company. Within the organization there are also two sections devoted to general banking interests: the American Institute of Banking section and the State secretaries section. The American Institute of Banking section, which is the educational arm of the organization, has an enrollment of 45,000 students from banks in all parts of the country and a general membership of 65,000; the State secretaries section forms a link between the national organization and the 48 State Bankers' Associations.

The association has a protective department which prosecutes continually a nation-wide campaign of prevention, protection, and investigation for all member banks in respect to criminal operations. It also conducts a legal department which keeps bankers informed on developments in the field of banking law and, in connection with the association's State and Federal legislative committees and councils, watches the interests of banking institutions and the public in both State and Federal banking legislation.

During 1931 the organization gave special attention to maintaining equitable bank taxation. Through its economic policy commission, it continued an extensive research into the group-banking movement, involving the operations of 275 bank groups comprising 2000 banks with \$15,000,000,000 in combined resources, together with much theretofore unknown information in this field. This commission also investigated bank failures and branch banking. The educational foundation of the association, with an endowment of \$500,000 to be employed in the furtherance of scholarships and research in banking and finance in educational institutions, allocated 200 loan scholarships valued at \$250 each to students in American colleges. In addition, its public education commission conducted lectures on banking in business schools and civic clubs throughout the United States.

The association holds its annual convention in the autumn of each year, while the executive council meets in the spring. The latter group is a representative body, proportioned to the membership in all States, and is qualified to take action upon certain association matters. The administrative committee, composed of 15 members, including the national officers, heads of the various divisions and sections, and certain others,

acts as the *ad interim* governing authority between meetings of the convention and of the executive council. The 1931 convention was held in Atlantic City, N. J., October 5-8, the chief topics of discussion being branch and group banking, methods for improving bank management, and the bank failure situation. It promptly went on record with approval of President Hoover's proposal for a \$500,000,000 cooperative credit pool to release the frozen assets of sound banks lacking instruments eligible for loans from the Federal Reserve banks, a plan that materially relieved the strained financial situation.

The general national officers elected for 1931-32 were: President, Harry J. Haas, vice president, First National Bank, Philadelphia; first vice president, Francis H. Sisson, vice president, Guaranty Trust Company, New York City; second vice president, F. M. Law, president, First National Bank, Houston, Texas; treasurer, P. D. Houston, chairman, American National Bank, Nashville, Tenn. The continuing activities of the association are carried on by a permanent staff in New York City under the direction of the executive manager, Fred N. Shepherd.

**BANK FOR INTERNATIONAL SETTLEMENTS.** See REPARATIONS AND WAR DEBTS.

**BANKS AND BANKING.** Although the situation of American banking at the close of the year 1930 was not by any means disastrous, facts and tendencies had emerged that were already giving cause for the most serious anticipations. An entirely new turn had been given to banking trends and processes by the breakdown of business and finance in 1929, and it had become apparent that there must be a general reorganization of banking institutions and of their relationships. This state of affairs, evident at the beginning of the year 1931, became even more pronounced as the season advanced and, although from time to time there could be observed some minor modification of dangerous tendencies, the general course of the year's events is epitomized in the fact that about 2300 bank failures—a record of astounding proportions—were registered during the season, while the whole structure of banking at times seemed about to collapse. The shifting of great quantities of credit out of securities, and the tying-up of still greater quantities both through private hoarding and through deliberate inactivity of bank balances, were conspicuous features in the situation, while, toward the close of the twelvemonth, the impending breakdown of State and municipal credit seemed likely to bring on still more hazardous conditions in banking and finance generally.

**NATIONAL BANKS.** From the standpoint of organization and practice, the year 1931 produced no change of much moment in the status of the national banks. The Senate Committee on Banking and Currency had, early in the year, initiated a complete and thorough investigation into the situation of the banking systems of the country; and this inquiry, being in progress, acted as a brake upon the adoption of new measures in Congress while it probably tended to retard the bringing forward of further proposals for banking change either at the hands of the Comptroller of the Currency or of members of Congress. At all events, there was no significant change in the legislative status of the national banking system.

The Comptroller, in his annual report for the year 1930, confined himself to some suggestions

with regard to branch banking, and the liquidation of assets of failed banks; while Congress paid but little heed to his recommendations, being too closely occupied with the general and immediate drift of affairs to consider generalizations. The system itself continued to show shrinkage in numbers partly owing to the immense development of failures during the year, partly as a result of consolidations and partly in consequence of natural tendencies to lessen the number of banks in existence, because of the declining need for small institutions consequent upon change in methods of transportation and of doing business. For the year covered by the the Comptroller's report (ending June 30, 1931) the national system reported a net decrease of 425 members, leaving the total number of charters in force 6886, the smallest for many years. Resources moreover, in contradistinction with former years, reflected losses amounting to \$1,713,000,000 as against \$1,753,000,000 in 1930. The total number of receivers appointed during the year was 237, or more than twice as many as in 1930, when 104 receivers were appointed in the United States.

HEARINGS ON BANKING. The investigation of the banking situation which was undertaken by the Senate committee on Banking and Currency was continued in the form of public hearings during the winter and early spring; and then was followed by a study conducted by the experts attached to the committee. It resulted in a general series of reports on Federal and National banking, made public during the late autumn. These reports developed a large amount of ma-

terial relative to banking tendencies and practices but possibly the most striking of these was furnished in the light thrown by them upon the whole topic of investment banking and the rapid absorption of national bank funds (as well as others) in operations carried on by what were

## WEEKLY STATEMENT OF REPORTING MEMBER BANKS

[Amounts given in millions of dollars]

	Dec. 23, 1931	Dec. 16, 1931	Dec. 24, 1930
Loans and investments, total	\$20,734	—\$229	—\$2,251
Loans, total	18,119	— 93	— 3,081
On securities	5,733	— 8	— 2,046
All others	7,886	— 85	— 1,035
Investments, total	7,615	— 136	+ 830
United States Govern- ment securities	4,208	— 128	+ 1,052
Other securities	3,407	— 8	+ 222
Reserve with Federal Re- serve Banks	1,520	— 141	— 246
Cash in vault	292	+ 33	+ 26
Net demand deposits	11,771	— 897	— 1,832
Time deposits	5,947	— 57	— 1,179
Government deposits	345	— 208*	+ 143
Due from banks	939	— 73	— 468
Due to banks	2,885	— 155	— 818
Borrowings from Federal Reserve Bank	567	+ 175	+ 317

+ Increase. — Decrease.

\* December 16 figures revised (Chicago district.)

known as investment affiliates—companies chartered and operated under State law but owned or controlled by national bank stockholders (as well as, in the case of State institutions, by State bank stockholders). The inquiry revealed enormous losses among these institutions, and

## CHANGES IN NATIONAL BANK POSITION

[In thousands of dollars]

	June 30, 1925	Per cent in- crease (+) or decrease (—) since June 30, 1924	June 30, 1926	Per cent in- crease (+) or decrease (—) since June 30, 1925
Demand deposits	\$10,430,254	+ 8.72	\$10,778,603	+ 3.34
Time deposits	5,924,658	+ 12.64	6,313,809	+ 6.57
Loans and discounts*	12,674,067	+ 5.80	13,417,674	+ 5.87
United States and other bonds, stocks, etc.	5,730,444	+ 11.44	5,842,253	+ 1.95
Lawful reserve with Federal Reserve banks	1,326,864	+ 10.69	1,381,171	+ 4.09
	June 30, 1927	Per cent in- crease (+) or decrease (—) since June 30, 1926	June 30, 1928	Per cent in- crease (+) or decrease (—) since June 30, 1927
Demand deposits	\$10,923,729	+ 1.35	\$11,003,795	+ 0.73
Time deposits	7,315,624	+ 15.87	8,296,638	+ 13.41
Loans and discounts*	13,955,696	+ 4.01	15,144,995	+ 8.52
United States and other bonds, stocks, etc.	6,393,218	+ 9.43	7,147,448	+ 11.80
Lawful reserve with Federal Reserve banks	1,406,052	+ 1.80	1,453,383	+ 3.37
	June 29, 1929	Per cent in- crease (+) or decrease (—) since June 30, 1928	June 30, 1930	Per cent in- crease (+) or decrease (—) since June 30, 1929
Demand deposits	\$10,504,268	— 4.54	\$10,926,201	+ 4.02
Time deposits	8,317,095	+ 0.25	8,752,571	+ 5.24
Loans and discounts*	14,801,180	— 2.27	14,887,752	+ 0.59
United States and other bonds, stocks, etc.	6,656,535	— 6.87	6,888,171	+ 3.48
Lawful reserve with Federal Reserve banks	1,344,951	— 7.46	1,421,676	+ 5.70
	June 30, 1931	Per cent in- crease (+) or decrease (—) since June 30, 1930		
Demand deposits	\$10,105,885	— 7.50		
Time deposits	8,579,500	— 2.09		
Loans and discounts*	13,177,489	— 11.05		
United States and other bonds, stocks, etc.	7,674,837	+ 11.42		
Lawful reserve with Federal Reserve banks	1,418,096	— 0.25		

\* Includes rediscounts and customers' liability under letters of credit.



generally bad banking conditions produced as a result of loans which had been made to them.

A general comparative view of conditions among national banks on June 30 at the close of the fiscal year is afforded in the table on page 91, which reflects the situation of their chief accounts for a series of years last past. Great reductions of capital (about 3 per cent) of loans and discounts (about 12 per cent) and of profits are to be noted. The drift toward consolidations seemed during this poor year to have been accentuated by the weakness of many banks and the effort to gain strength through combination—not, as in former years, largely through desire for mere size or for the stock market profits resulting therefrom.

The figures thus furnished show an unprecedented lessening of loans and investments, which, being analyzed, resolved itself into a shrinkage of \$2,046,000,000 in loans on securities, and a reduction of \$1,035,000,000 in other (commercial) loans, while investments increased \$830,000,000. The net reduction of the asset items taken together, reflected the almost desperate effort of the banks during the latter part of the year to keep "liquid," an effort which they prosecuted by making every possible attempt to cut down the total outstanding supply of accommodation granted by them, and to compel the community to settle all outstanding claims to which the banks were parties, wherever possible. It should be noted, at this point, that during the year brokers' loans, which had, at one time, risen (just before the panic) as high as \$8,000,000,000, had shrunk to less than \$600,000,000 by the close of 1931. The reduction in loans on securities was, in some measure, a further development of the attempt to get the public out of the securities market—or of the public's own disposition to leave that market—but forces of much greater power were also operating to bring about the curtailment of such loans.

Chief among these forces was the continuous lessening of the number of banks, and the selling of the assets of failed banks wherever marketable—a factor which threw upon the bond market in particular great masses of bonds and stocks, with subsequent lessening of their value. Hence by the close of the year, values had tremendously declined, thereby reducing the book valuations of investments wherever banks were in the habit

except to the extent that it was able to pay for and own them in fee simple. It was an extreme and previously never witnessed example, of forced liquidation—one in which the measures applied were of an extraordinary severity.

**STATE BANKS AND TRUST COMPANIES.** There was no reason why State banks and trust companies should prosper better than the rank and file of national banks during the period of the depression. The year 1931, accordingly, proved an unfavorable period for them, with reductions of operations fully comparable to, and moving in about the same proportion as did those of national banks. Decline and difficulty were, in no sense the product of any particular system or set of laws, under which the several banks were organized, but were on the contrary, the outcome of general conditions, and of the reaction in business of every sort. As in the case of the national banks, the State institutions showed considerable increase of investments though not so great an advance as in many former years, while they reported sharp reductions of loans and discounts, especially of those based upon securities. Capital fell off sharply, and undivided profits still more severely, in proportion, thus showing the profitlessness of the business. Deflation—meaning by that term the reduction of credit extended—had probably gone about as far at the end of the year, as it could reasonably be expected to go, granting the existence of the system upon any basis of continuity with existing conditions. Current demand deposits fell off heavily but time deposits were only moderately reduced; in about the same proportion as in the national banking system. The accompanying table reflects the general conditions in the State system at the middle of the year. Later developments during the latter part of the calendar year tended to reveal all the factors just referred to, in an aggravated light, with failures heavier, and reductions of items in the balance sheet even more noteworthy than at midyear.

The general conditions in commercial banking evidenced a general withdrawal of the banks from the support of the business community, and an effort to resort to all possible means for mere self-preservation, with trade and business connections ruthlessly sacrificed, both in domestic and foreign trade. The situation affecting State banking is statistically represented in the accompanying brief tabulation.

PRINCIPAL ITEMS OF RESOURCES AND LIABILITIES OF STATE (COMMERCIAL), SAVINGS, PRIVATE BANKS, AND LOAN AND TRUST COMPANIES  
[In thousands of dollars]

Items	1926	1927	1928	1929	1930	1931
Loans *	\$22,623,107	\$23,348,344	\$24,437,341	\$26,621,803	\$25,572,918	\$21,987,365
Investments	9,972,888	10,861,875	11,624,366	10,692,203	11,056,557	12,385,316
Cash	636,569	643,692	572,732	521,925	623,463	615,738
Capital	1,860,431	1,902,325	1,931,666	2,169,603	2,145,445	1,982,335
Surplus and undivided profits	2,858,653	3,130,367	3,394,758	3,742,528	4,046,591	3,865,511
Deposits (individual)	31,789,884	32,893,201	33,944,265	34,316,418	33,885,105	31,800,096
Resources	39,577,738	41,560,615	43,066,089	44,732,277	44,908,585	42,566,451

\* Including overdrafts.

of revaluing securities to coincide with market values, while again the attempt of banks to compel holders of securities behind loans to sell out because of no abstract considerations, but merely because they themselves needed funds, was an even more effective influence in the entire situation. The public, in short, was being asked not merely to get out of the stock market, but also to surrender its holdings of bonds and stocks

**FEDERAL RESERVE BANKS.** Federal Reserve Banks had been practically out of adjustment with member banks, and with the business community, up to the end of the year 1930, and during the earlier months of the year under review there was some effort on their part to get into closer alignment. There was also an attempt to assist banks, in the uncomfortable circumstances that presented themselves during the first six

months. These attempts were sporadic; and, uncertain as they were, had but little effect during the forepart of the year due to the uneasy feeling on the part both of banks and business houses, that something radically wrong existed in the general financial mechanism. These fears centred round the status of the immense volume of German so-called short-term obligations which had been absorbed by the banks of the United States, largely on the basis of assurances from many financial authorities that the paper was good, and could be relied upon as a constituent in bank portfolios. A rude awakening occurred at the end of June, when President Hoover became convinced that Germany would not be able to continue payment of reparations obligations and so requested other countries for a general moratorium for the period of one year. This suggestion was promptly acted upon, but involved serious consequences to banks in the United States and in Great Britain (less severe elsewhere) owing to the fact that they had absorbed such large quantities of German paper in the belief that it was liquid. A special international committee of bankers met at Basel during the late summer under the chairmanship of Albert H. Wiggin and issued a report practically admitting that Germany had for a good while "borrowed short" but lent or invested "long"; with the result that the so-called short-time loans were frozen. This was followed by a large central bank credit provided by the central banks of England and France, and shared in by the Federal Reserve System to the extent of \$25,000,000 each. This effort made to prevent international financial collapse was unsuccessful, and was shortly followed by the abandonment of the gold standard in Great Britain, due to the heavy demands for gold which the Bank of England had had to meet. Prior to this event, in the endeavor to save the position of England, the Bank of France and the Federal Reserve System had each provided an exchange fund of \$125,000,000, while in each country a private credit amounting to \$200,000,000 had been opened. These were speedily exhausted with the result indicated above. The next in the series of events was the endeavor of sundry foreign countries to compel the United States to liquidate as much of their foreign investments here as possible and in this experiment about \$714,000,000 was withdrawn in gold during October and early November. The effort to drive the United States off the gold standard did not succeed; and some of the gold was, almost at once, put back into American paper and other investments.

The circumstances thus detailed were so remarkable that it is worth while to quote here the brief description of the sequence given by the Secretary of the Treasury in his annual report as follows:

After the middle of September, 1931, there was a rapid outflow of gold from the country, chiefly to continental Europe, particularly France, and an increase in the volume of gold earmarked by Federal Reserve banks for foreign correspondents. During the ensuing month the country's stock of monetary gold decreased by nearly \$600,000,000, which was about \$100,000,000 more than the accessions since the middle of 1930. Foreign interests obtained the funds for the withdrawal of gold through sales of acceptances previously held here for foreign account, through the use of balances held with banks in this country, including Federal Reserve banks, and through the sale of foreign-owned securities in American markets. At the same time, there was continued increase in the domestic demand for currency. The resultant drain on member bank reserve funds oc-

casioned a rapid increase in the volume of reserve bank credit in use, which amounted to \$2,125,000,000 by the middle of October, compared with an average of about \$945,000,000 in June. Member bank discounts increased from an average of about \$190,000,000 in June to about \$630,000,000 at the middle of October. The acceptance holdings of the reserve banks showed an increase of more than \$600,000,000 and United States security holdings an increase of about \$120,000,000 for the same period.

In these circumstances the discount rate of the Federal Reserve Bank of New York was raised from the unusually low rate of 1½ per cent to 2½ per cent on October 9 and to 3½ per cent on October 16. Discount rates were also increased in October at all reserve banks except Atlanta, where a 3 per cent rate remained in effect, and Minneapolis, where the rate was 3½ per cent; at the end of the month the rate was 3½ per cent at all other reserve banks except Richmond and Dallas which had established rates of 4 per cent. At the Federal Reserve Bank of New York buying rates on bills were also increased in the latter part of September and in October. At the middle of October the rate was 3½ per cent on maturities up to 90 days as compared with 1 per cent at the beginning of September.

Open market rates increased somewhat but in mid-October were still at comparatively low levels. Rates on 90-day bankers' acceptances had increased to 2¼-3¼ per cent from seven-eighths per cent in September, and prime commercial paper had increased to 2¼-4¼ per cent from 2 per cent.

The position of the reserve system at the end of the year 1931 is shown in the table appearing on page 94.

**BANK CREDIT.** Brokers' loans had, by the beginning of the year 1931, been greatly reduced below the level attained at the time of the panic, but there was still much to be done before they could be said to be anywhere near normal. Accordingly, the curtailment of these loans went on practically from the beginning of the year. This reduction was at first orderly, and was made under the pressure of a moderate sort exerted by the banks which at last felt the urgent need of lessening the volume of speculation. By the end of spring, there had been a curtailment to about the level which had been pointed out by most observers as "normal." But this point had hardly been reached when the series of remarkable events just briefly sketched began to take place, and the pressure of failed bank assets upon the market became severe. The result of these conditions was to accentuate the speed of retirement from the market, owing to fears that values would be still further reduced, and accordingly there was a steady and even more rapid curtailment of brokers' loans during the summer and autumn below the points that had previously been indicated as likely to mark the limit of downward movement. Operators who had not been out of the market for many years began to retire completely, and to leave all question of trading as a matter for the future. Curtailment was accordingly continuous until a low point was reached, at the close of the year, with \$568,000,000. The detailed figures are furnished in the accompanying table.

BROKERS' LOANS, 1931

Jan. 28	\$1,734,000,000	July 29	\$1,390,000,000
Feb. 25	1,798,000,000	Aug. 26	1,349,000,000
Mar. 25	1,908,000,000	Sept. 30	1,172,000,000
April 29	1,730,000,000	Oct. 28	869,000,000
May 27	1,574,000,000	Nov. 25	751,000,000
June 24	1,406,000,000	Dec. 30	591,000,000

**BANK FAILURES.** Never in financial history had there been so heavy a series of failures among banks as had taken place during the decade from 1921 to 1930, but this was now to be followed by a record-breaking year of failures. Beginning the year 1931 with a fair pros-

## TWELVE FEDERAL RESERVE BANKS COMBINED

## RESOURCES

	Jan. 6, 1933	Dec. 30, 1931	Jan. 7, 1931
Gold with Federal Reserve agents .....	\$2,074,541,000	\$2,090,372,000	\$1,691,189,000
Gold redemption fund with U. S. Treasury .....	58,498,000	58,077,000	37,126,000
Gold held exclusively against Federal Reserve notes ....	2,133,039,000	2,148,449,000	1,728,315,000
Gold settlement fund with Federal Reserve Board .....	358,436,000	335,570,000	483,560,000
Gold and gold certificates held by banks .....	494,077,000	503,545,000	781,641,000
Total gold reserves .....	2,985,552,000	2,987,564,000	2,993,516,000
Reserves other than gold .....	173,635,000	167,459,000	153,832,000
Total reserves .....	3,159,187,000	3,155,023,000	3,147,348,000
Non-reserve cash .....	71,670,000	74,610,000	81,652,000
Bills discounted:			
Secured by U. S. Government obligations .....	451,987,000	594,833,000	115,501,000
Other bills discounted .....	366,229,000	429,300,000	176,884,000
Total bills discounted .....	818,216,000	1,024,133,000	292,385,000
Bills bought in open market .....	275,306,000	326,975,000	265,456,000
U. S. Government securities:			
Bonds .....	330,199,000	344,626,000	114,982,000
Treasury notes .....	30,549,000	30,843,000	201,369,000
Certificates and bills .....	405,197,000	427,759,000	342,550,000
Total U. S. Government securities .....	765,945,000	803,228,000	658,901,000
Other securities .....	28,844,000	30,880,000	6,558,000
Total bills and securities .....	1,888,311,000	2,185,216,000	1,223,300,000
Due from foreign banks .....	8,662,000	8,662,000	712,000
Federal Reserve notes of other banks .....	21,726,000	20,056,000	25,468,000
Uncollected items .....	475,253,000	443,521,000	521,013,000
Bank premises .....	57,770,000	59,581,000	57,845,000
All other resources .....	33,752,000	39,151,000	20,890,000
Total resources .....	\$5,716,331,000	\$5,985,820,000	\$5,078,228,000

## LIABILITIES

Federal Reserve notes in actual circulation .....	\$2,651,026,000	\$2,613,104,000	\$1,624,898,000
Deposits:			
Member bank reserve account .....	2,036,072,000	2,322,787,000	2,443,859,000
Government .....	29,893,000	50,705,000	24,689,000
Foreign bank .....	64,645,000	77,259,000	5,779,000
Other deposits .....	38,809,000	29,358,000	25,390,000
Total deposits .....	2,169,419,000	2,480,109,000	2,499,717,000
Deferred availability items .....	451,516,000	435,291,000	496,970,000
Capital paid in .....	160,605,000	160,553,000	169,668,000
Surplus .....	259,421,000	274,636,000	274,636,000
All other liabilities .....	24,844,000	22,127,000	12,339,000
Total liabilities .....	\$5,716,331,000	\$5,985,820,000	\$5,078,228,000
Ratio of total reserves to deposit and Federal Reserve note liabilities combined .....	65.5%	61.9%	76.3%
Contingent liability on bills purchased for foreign correspondents .....	\$269,544,000	\$248,529,000	\$440,326,000

pect for some reduction in bank collapse, the community was obliged to witness, before spring was over, a series of failures of considerable importance, followed, during the early summer, by almost complete collapse of the banking system in Chicago where some 30 failures occurred within the city limits—most of them small institutions but including also a number of banks of considerable size which were absorbed because unable to stand alone. From this, developed other failures of importance in the Midwest; and eventually an epidemic of closings in the South and Southwest and in New England; while important institutions in other parts of the country also collapsed and others called for assistance.

The result was the formation, during October and subsequent weeks, of the so-called National Credit Corporation with a capital nominally about \$500,000,000, made up of banks which bound themselves to contribute the money needed to give relief to other institutions which stood in need. Some little work was done through this medium, but the close of the year still found it only just about ready to call its first

installment of subscribed capital (\$50,000,000), and with bank failures increasing. The dangerous, not to say disastrous, character of the state of things, led to the request of President Hoover during December that Congress appropriate \$500,000,000 for the capitalization of the "Reconstruction Finance Corporation" with an authorized issue of bonds amounting to \$1,500,000,000 all guaranteed by the U. S. Treasury; and having as its primary work the making of loans to hard-pressed banks, insurance companies, railroads, and other "key" institutions. This unusual, not to say unprecedented step, found its only warrant in the fact that something of the kind has been attempted with the so-called War Finance Corporation during and after the World War, while the wholly anomalous character of the business conditions of the time and the circumstances that the banks were apparently less and less able to take care of themselves or to render mutual aid appeared to make necessary the intervention of the government in order to protect depositors from inability to make payments at all, over large tracts of territory in many different sections of the United States.

The accompanying table sketches the progress of the bank failure movement up to the end of the year 1931.

slavery prior to the Civil War, the Southern Baptists withdrew from the national organization in 1845, forming the Southern Baptist Con-

#### BANK SUSPENSIONS

[Banks closed to public on account of financial difficulties by order of supervisory authorities or directors of the bank. Figures of suspensions include banks subsequently reopened]

Month	Number of banks				Deposits (in thousands of dollars)			
	1928	1929	1930	1931	1928	1929	1930	1931
January .....	53	54	99	202	10,988	16,418	28,903	78,130
February .....	50	60	85	77	18,352	21,746	32,800	35,123
March .....	66	51	76	86	16,958	9,002	23,769	85,285
April .....	43	29	96	64	8,190	7,790	33,388	42,417
May .....	29	112	55	89	6,894	24,090	19,315	43,968
June .....	28	48	66	167	13,496	19,219	70,566	195,951
July .....	24	69	65	93	5,368	66,161	32,333	41,334
August .....	21	17	67	158	6,147	8,532	21,951	185,902
September .....	20	39	66	305*	7,888	10,050	23,666	237,061
October .....	41	43	72	512	9,011	18,153	24,599	566,686
November .....	72	68	254	169	24,784	22,646	186,306	83,409
December .....	44	52	344	353	11,076	15,780	867,119	319,289
Year .....	491	642	1,845	2,290	188,642	234,582	864,715	1,759,484

\* Revised.

INTERNATIONAL RELATIONS. As above indicated, the year was one of great disturbance in international financial and banking relationships. The complete suspension of the payment of war debt provided for under the moratorium asked by President Hoover at the end of June was ratified by European governments with little delay, even France requiring only about ten days to take action; and was eventually approved also by Congress on December 22, notwithstanding that in the resolution of ratification there was inserted a proviso that there should be no complete cancellation either now or in the future. The suspension of Germany's payments of reparations was included in the moratorium arrangements, while her inability to settle the short-term bank indebtedness was evident after one or two serious bank failures within the Reich and was recognized by the Wiggin committee at its meeting in Basel already described. Despite the two great international credits referred to above and intended to save the Reichsbank and the Bank of England from disaster, the disruption caused by England's abandonment of the gold standard effectually broke down what remained of the plan of international coöperation between central banks, and consequently left the Bank of International Settlements with little actual work to accomplish since it was now without even the formal duties assigned to it in connection with Reparations collection, while the various hopes entertained in some quarters of its functioning as a real central international bank had perforce to be indefinitely deprived of realization. The closing of the year was thus marked by a lower degree of international coöperation than at any time in the past, while the future was left wholly uncertain. See REPARATIONS AND WAR DEBTS; also FINANCIAL REVIEW; PUBLIC FINANCE.

**BANTU.** See CONGO, BELGIAN.

**BAPTISTS.** In 1931 there were in the United States 14 groups comprised in the denomination known as Baptist, which maintains that baptism should be administered to believers only and generally by immersion. The first Baptist Church in America probably was established by Roger Williams in Providence, R. I., in 1638, although this honor is claimed by the First Baptist Church of Newport, R. I., organized the same year or shortly after. As a result of political differences, and particularly on account of the question of

vention, which, since that time, has functioned not as a new denomination but as an organization for the purpose of directing missionary and general evangelistic work in the white Baptist churches of the Southern States. The National Baptist Convention, representing the Negro churches, was formed in 1880. Other divisions are known as Primitive, General, Regular, and United Baptists.

According to the *American Baptist Year Book*, 1931, there were in the United States in 1930 a total of 53,888 churches of the Northern, Southern, and National (Negro) Baptist conventions, with 49,907 ordained ministers and 2070 local associations. Baptisms during the year numbered 311,404, making the total membership 8,915,785. Sunday schools numbered 46,132, with an enrollment of 5,143,056 pupils. Church property was valued at \$569,091,200, and contributions amounted to \$92,302,175, of which \$76,468,934 was for current expenses and \$15,923,241 for beneficence. The churches are congregational in polity, each church being sovereign as to its own discipline and worship. Applicants for the ministry are licensed to preach by the churches in which the applicants are enrolled as active members.

**NORTHERN BAPTIST CONVENTION.** According to the *Annual of the Northern Baptist Convention*, 1931, this denomination was composed of 37 conventions in 35 States and reported 420 local associations, 8085 churches, 8309 ordained ministers, 57,108 baptisms during the year, 1,438,739 members, 7280 Sunday schools, and 1,140,901 Sunday-school pupils. Church property was valued at \$229,256,700, while contributions for current expenses amounted to \$26,576,270 and for beneficence to \$5,713,400.

The twenty-fourth annual meeting of the Northern Baptist Convention was held in Kansas City, Mo., June 3-8, 1931, the general theme being "Christians in a Changing World." The keynote address was delivered by Dr. A. W. Beaven, president of Colgate-Rochester Divinity School. The officers elected for 1931 were: President, Mattison B. Jones, Los Angeles, Calif.; first vice president, H. T. Sorg, Newark, N. J.; second vice president, G. I. Neal, Huntington, W. Va.; corresponding secretary, Maurice A. Levy, D.D., Pittsfield, Mass.; recording secretary, Clarence M. Gallup, D.D., Providence, R. I.; and treasurer, Orrin R. Judd, New York

City. The next annual meeting was to be held in San Francisco, Calif., from July 12 to 17, 1932.

In 1931 the Northern Baptist Convention maintained 58 educational institutions, including 11 theological seminaries, 6 training schools, 21 colleges, 6 junior colleges, and 14 academies. These institutions in 1930 had 37,300 students, 2553 instructors, 558 buildings, property aggregating \$82,807,500 in value, endowments valued at \$126,951,390, and an annual income for the year of \$17,852,158. The leading denominational papers in 1931 were: *The Baptist* (Chicago); *Watchman-Examiner* (New York City); *Baptist Observer* (Indianapolis); *Baptist Banner* (Parkersburg, W. Va.); and *Baptist Record* (Pella, Iowa). In addition most of the State conventions issued monthly bulletins.

The foreign-mission field of the Northern Baptist Convention included Assam, Burma, South India, Bengal-Orissa, South China, East China, West China, Japan, Belgian Congo, and the Philippine Islands, with 712 missionaries working at 126 stations. In 1929 churches numbered 2311 with 276,408 members; native workers, 10,296; schools, 2635, with an enrollment of 115,446 pupils; and hospitals and dispensaries, 94, with a total of 22,949 in-patients and 313,248 out-patients. The Judson fund of \$1,000,000 for work in Burma was completed by the women of the denomination. The field of the house mission societies included, in addition to the United States and its dependencies, Mexico, the West Indies, Central America, the Canal Zone, and South America. Their greatest activity was among the Negroes, Indians and new Americans. The American Baptist Home Missionary Society celebrated its one hundredth anniversary by sending a covered wagon from Massachusetts to the far West to commemorate the pioneer work of John M. Peck. The denomination also maintained six hospitals, the largest being the New England Baptist Hospital in Boston and the Northwestern Baptist Hospital in St. Paul; 20 homes for the aged; and 15 children's homes.

General headquarters of the denominational organizations are at 152 Madison Avenue, New York City, with the exception of the Home Mission Society, which is at 23 East Twenty-sixth Street, New York City, and the American Baptist Publication Society, which is at 1701 Chestnut Street, Philadelphia, Pa. The unified missionary interests of the denomination are administered by the Board of Missionary Cooperation; and the principal convention affairs are conducted by the executive and finance committees, together with some 25 other committees.

**SOUTHERN BAPTIST CONVENTION.** In the *Southern Baptist Handbook, 1931*, there were reported 18 State conventions, 23,731 churches, 22,932 ordained ministers, 198,579 baptisms during the year, 3,850,278 members, 20,679 Sunday schools, 2,839,183 Sunday school pupils, and 26,079 Baptist Young People's Unions with a membership of 533,976. Contributions totaled \$37,489,021, and church property was valued at \$217,979,116. The receipts of the boards of the convention in 1931 were as follows: Southern Baptist Foreign Mission Board (Richmond, Va.), \$1,030,329; Southern Baptist Home Mission Board (Atlanta, Ga.), \$611,872; Sunday School Board of the Southern Baptist Convention (Nashville, Tenn.), \$1,890,310; and Old Ministers Relief and Annuity Board (Dallas, Texas), \$272,228. The denomination maintained 96 schools and

colleges, including 5 theological schools, 30 senior colleges, 30 junior colleges, and 31 academies, with a total enrollment of 35,411 students, 1976 ministerial students, and 1539 instructors; endowment amounted to \$22,762,777, and property was valued at \$40,767,404. It also reported 28 hospitals (two fostered by the Southern Baptist Convention and 26 by the State conventions), valued at \$15,350,203 and accommodating 76,919 patients during the year; 18 children's homes with a property value of \$6,569,039 and accommodating 4523 children; and 3 homes for the aged.

The annual sessions of the Southern Baptist Convention were held in Birmingham, Ala., May 13-17, 1931. The various boards and agencies of the convention showed still further declines in receipts for the year, bringing about a critical situation. To meet this situation a new agency was launched by the convention, to be known as the Promotion Committee of Southern Baptists, comprising 52 members, and having temporary headquarters at Knoxville, Tenn. The committee sponsored an "Every-Member Canvass" during Nov. 29 to Dec. 6, 1931, with the objective of securing weekly subscriptions for \$40,000,000, of which amount \$9,000,000 was to go to the support of the various missionary, educational, and benevolent enterprises of the convention, while \$31,000,000 was to care for the local work of the churches.

The following officers for the Southern Baptist Convention were elected: William J. McGlothlin, Ph.D., D.D., LL.D., of Greenville, S. C., president; Wm. Cook Boone, Shawnee, Okla., George J. Burnett, Memphis, Tenn., Arch C. Cree, Salisbury, N. C., John J. Milford, Huntsville, Ala., vice presidents; Hight C. Moore, D.D., Litt.D., of Nashville, Tenn., recording secretary; Henry Burnett, of Macon, Ga., recording secretary; Austin Crouch, D.D., of Nashville, Tenn., executive secretary.

**NATIONAL BAPTIST CONVENTION OF AMERICA (NEGRO).** In 1931 the National Baptist Convention of America reported 1320 local associations and 52 State conventions affiliated with it either through direct messengers or representation by letter. There were 21,000 ordained ministers and a membership of 3,582,312. Of this number approximately 50,000 were added by baptism during the year. Organized Sunday schools had increased to 20,722, with an enrollment of 1,622,851 pupils. Contributions from all sources amounted to \$5,250,621.

The 1931 session of the convention was held in Cincinnati, O., September 9-14. The convention accepted a gift of 250 acres of land near Dexter, N. M., on which there were to be built three homes: one for aged ministers, one for orphans, and one for widows. Guadalupe College in Seguin, Tex., was endorsed by the convention as a coeducational institution, to receive support from the National Baptist Convention jointly with the Lynchburg Theological and Missionary Training Seminary. Headquarters of the National Baptist Publishing Board are at 523 Second Avenue, North, Nashville, Tenn.

**OTHER GROUPS.** In addition to several unorganized groups of foreign-speaking Baptists in the United States, there were the following organized bodies: German, Swedish, French-speaking Baptists of New England, Finnish Baptist Mission Union, American Magyar (Hungarian), Italian, Danish, Norwegian, Czechoslovak, Polish, Rumanian, Portuguese, and

Russian-Ukrainian conferences, Spanish-speaking (Mexican) Baptists were well organized in some sections, North and South; and there were unorganized bodies of Chinese and Japanese Baptists. Statistics for these bodies in 1931 were as follows: Churches, 952; ministers, 846; baptisms, 4863; membership, 98,208; Bible schools, 944; Bible-school enrollment, 98,708; property valuation, \$12,656,100; and contributions, \$1,668,436.

Smaller branches of the denomination, differing in various respects from the main branches of the church, included the following Baptists: General Six-principle, Seventh-day, Free Will, United American Free Will (Colored), Free Will (Bullockites), General, Separate, Regular, United, Duck River, Primitive, Colored Primitive, Two-Seed-in-the-Spirit Predestinarian, Independent Baptist Church of America, and American Baptist Association. The total number of members, according to the Federal Census of Religious Bodies of 1926, was 429,955. See also BAPTISTS, FREE.

The Baptist World Alliance, which was organized in 1905, meets every five years. A meeting was held in Toronto, Canada, in July, 1928. The relationship of the World Alliance to the Baptist churches is purely advisory, its purpose being the discussion of interests common to the denomination.

The *Baptist Hand Book for 1931* (British) gave the following statistics of the denomination in 1930:

	Churches	Ministers and Mis- sionaries	Members
America .....	56,331	51,395	8,925,731
Europe .....	8,253	4,860	1,649,471
Asia .....	3,376	1,621	876,784
Africa .....	1,488	412	87,783
Australasia .....	521	436	35,982
Total . . . . .	69,919	58,724	11,075,701

**BAPTISTS, FREE.** A branch of the Baptist denomination, which by 1931 had practically completed its policy of merging with the Northern Baptist Convention. The General Conference of the Free Baptists, the national incorporated organization, however, still preserved its legal existence and powers. This body is of Northern Free Baptists and is not to be confused with other branches, one centring in North Carolina and known as Free Will Baptists and another centring in Texas and Oklahoma and known as both Free Baptists and Free Will Baptists, although the latter body has been and still is in affiliation with the Free Baptists of the North. Estates in which life interests terminated or other entailments were removed were still coming to its treasury. The majority of Free Baptist ministers, churches, and members were included in the enumeration of the Northern Baptist Convention. Alfred Williams Anthony was serving as corresponding secretary and treasurer. See BAPTISTS.

**BAR ASSOCIATION, AMERICAN.** A national association, organized in 1878 to advance the science of jurisprudence, the administration of justice, harmony in legislation, and in the observance of legal precedents throughout the United States, as well as to uphold the legal profession and promote good understanding among its members. The fifty-fourth annual meeting was held in Atlantic

City, N. J., Sept. 17-19, 1931, and was attended by more than 1800 delegates. Preceding the meeting there were held on September 15-16 sessions of the following sections: Criminal law and criminology; judicial; legal education and admissions to the bar; mineral law; patent, trade-mark, and copyright law; public utility law; and also the forty-first annual conference of the commissioners on uniform State laws.

The address of the retiring president, Charles A. Boston of New York, on this occasion was a critical, historical review of the Federal Constitution, entitled "One Hundred and Forty-Two Years of Government under the Constitution of the United States." Notable among the other addresses were those of Sir Lynden Macassey, leader of the Parliamentary Bar of England and Benchers of the Middle Temple, on "The Part Played by Members of the Inns of Court of England in the Formation of the United States"; Maître Fernand Payen, president of the Order of Advocates at the Court of Appeal of Paris, on "True Basis of International Solidarity"; and the Hon. W. D. Herridge, Canadian Minister to the United States, on "The Rights and Ideals of Anglo-Saxon Democracy." James M. Beck, responding to the address of Sir Lynden Macassey, spoke on "A Rounded Half-Century of Good Will" and William D. Guthrie, responding to that of Maître Payen, on "French Impress on the English, American, and Canadian Spirit." John R. Hardin, president of the Mutual Benefit Life Insurance Company, also delivered a timely address on "Some Legal Problems of Life Insurance Companies." A resolution was adopted favoring the appointment of representatives of the Federal Bar to cooperate with the Conference of Senior Federal Circuit Judges, as had been previously suggested by Chief Justice Hughes. The comparative law bureau reported the publication, under its auspices, of the first complete English translation of *Las Siete Partidas*, the great medieval law book of Spain. The association's medal for distinguished service in the cause of American jurisprudence was awarded to Oliver Wendell Holmes, associate justice of the U. S. Supreme Court.

The total membership of the association in 1931 was 27,000. The officers elected for 1931-32 were: Guy A. Thompson of St. Louis, Mo., president; John H. Voorhees of Sioux Falls, S. D., reelected treasurer; and William P. MacCracken, Jr., of Chicago, reelected secretary. Headquarters of the association are at 1140 North Dearborn Street, Chicago, Ill.

**BARBADOS**, bär-bä'döz. A West Indian island colony of Great Britain, lying to the east of the Windward Islands, with an area of 166 square miles and a population at the census of 1921 of 156,312 (estimated Jan. 1, 1930, 170,391), or more than 1000 to the square mile. The capital is Bridgetown, with a population of 13,486. Births in 1929 numbered 5421 and deaths 4016. The 128 primary schools had 23,374 pupils registered in 1929.

The area under cultivation in 1929 was 67,682 acres, of which slightly more than half was devoted to sugar cane. Cotton is the other staple crop. The collapse of world prices of cotton and sugar resulted in severe distress in 1930 and 1931. Fishing and rum distilling are other industries. In the calendar year 1930, imports amounted to £1,731,786 and exports to £1,062,916; trade was chiefly with the United States, the United Kingdom, and Canada. Revenue for



the fiscal year 1930-31 totaled £404,555; expenditure, £429,143; public debt, £663,000. A total of 4,013,562 tons of shipping entered and cleared the port of Bridgetown during 1929. A governor administers the affairs of the island with the assistance of an executive council, an executive committee, a legislative council of nine members appointed by the King, and an assembly of 24 members elected annually by about 5200 registered electors. Governor in 1931, Sir W. C. F. Robertson.

**BARCELONA STRIKE.** See SPAIN under History.

**BARLEY.** The world production of barley in 1931 was one of the smallest recorded in recent years. The production for the year of 32 countries covering over 90 per cent of the world's yield as reported by the International Institute of Agriculture was estimated at 1,111,456,000 bushels, a decrease of 17.7 per cent below the yield of 1,350,303,000 bushels of the preceding year and of 9.2 per cent below the average yield for the five years 1925-29. The area devoted to barley in these countries was reported as 54,573,000 acres, which was 4 per cent below the acreage in 1930 but 5.6 per cent above the average annual acreage for the five-year period. These estimates did not include the Soviet Republics, China, several of the smaller European countries and the countries south of the equator.

The yields of the leading barley-producing countries other than the United States in 1931 were reported as follows: Germany 138,028,000 bushels, Spain 90,129,000 bushels, Japan 76,522,000 bushels, Rumania 70,274,000 bushels, Poland 69,355,000 bushels, Canada 67,972,000 bushels, and France 54,807,000 bushels. Although the European area in barley was greater than in 1930 the production was much below that of the previous year and the average. As in the preceding year Germany ranked first in yield per acre with 34.6 bushels, being closely followed by England and Wales with 34.5 bushels. The barley production of the southern hemisphere averages about 40,000,000 bushels annually. In the crop year 1930-31, Argentina, the leading barley-growing country south of the equator, produced 14,238,000 bushels on a sown area of 1,422,000 acres. For the crop of 1931-32 Argentina sowed 1,439,000 acres which was nearly 23 per cent above the five-year average. The Soviet Republics produced an annual average of 299,770,000 bushels on 17,724,000 acres for the five years 1925-29.

According to estimates published by the Department of Agriculture the barley crop of the United States was 198,965,000 bushels as compared with 304,601,000 bushels the year before. The area harvested in 1931 was reported at 11,471,000 acres as against 12,662,000 acres in 1930. The acreage was generally increased in the eastern and southern States under conditions of favorable spring weather and the need of feed grains, but in the important barley States of the Northwest dry weather at planting time reduced the acreage. The average yield per acre was 17.3 bushels while in 1930 it was 24.1 bushels. On the basis of the average farm price on Dec. 1, 1931, 35.2 cents per bushel, the lowest recorded for many years, the total value of the crop was only \$70,119,000. The leading barley-producing States and their yields were reported as follows: Minnesota 37,480,000 bushels, Wisconsin 19,006,000 bushels, North

Dakota 18,482,000 bushels, South Dakota 16,680,000 bushels, Nebraska 14,091,000 bushels, and California 13,770,000 bushels. In average yield per acre Wisconsin ranked first among these States with 26 bushels. Nearly half of the barley acreage of the country in 1931 was reported from Minnesota, North Dakota, and South Dakota, each State having harvested over 1,800,000 acres. Owing to lowered yields by heat and drouth a greater acreage than usual was cut for hay in the North Central and Western States. During the fiscal year ended June 30, 1931, the United States exported 10,302,000 bushels of barley as compared with 21,544,000 bushels the year before.

**BARNARD COLLEGE.** See COLUMBIA UNIVERSITY.

**BARR, ARCHIBALD.** A British mechanical engineer and inventor, died in Milngavie, Dumbarton-shire, Scotland, Aug. 6, 1931. Born in Glenfield, Renfrewshire, in 1855, he attended Glasgow University, and was professor of civil and mechanical engineering at the Yorkshire College, Victoria University (later the University of Leeds), during 1884-89 and Regius professor of civil engineering and mechanics at Glasgow University during 1889-1913. With Prof. William Stroud he invented naval range-finders which were adopted by the British Admiralty and other powers. Their other inventions included various types of range-finders, height-finders for anti-aircraft service, electrical and mechanical fire control instruments, torsion dynamometers and power meters, and a photogrammetric platter and other instruments for use in air surveying. At the time of his death he was chairman of the engineering firm of Barr & Stroud, Ltd., Glasgow. He was also past president of the Royal Philosophical Society of Glasgow, of the Institution of Engineers and Shipbuilders in Scotland, and of the mechanical science section of the British Association for the Advancement of Science.

**BARRINGTON, E.** See BECK, L (ILY) ADAMS.

**BARBUS, CLARA.** An American physician and author, died in Scarsdale, N. Y., Apr. 5, 1931. She was born in Port Byron, N. Y., Aug. 8, 1864, and was graduated with the M.D. degree from Boston University in 1888. After engaging in general practice in Utica, N. Y., from 1889 to 1893, she became assistant physician at the Middletown (N. Y.) Hospital for the Insane and later conducted a private sanatorium in Pelham, N. Y. On her retirement from active practice in 1914 she devoted most of her time to lecturing and writing. She was associated for many years with John Burroughs, the naturalist, and following his death in 1921 became his literary executor and biographer. Among her works are *The Retreat of a Poet Naturalist* (1905); *Our Friend John Burroughs* (1914); *John Burroughs, Boy and Man* (1920); *Life and Letters of John Burroughs* (1925); and *Whitman and Burroughs: Comrades* (1931). She also edited Burroughs's posthumous works, *Under the Maples* (1921) and *The Last Harvest* (1922), and *The Heart of Burroughs's Journals* (1928).

**BASEBALL.** One of the most spectacular and dramatic World's Series in the history of the sport was the highlight of baseball in 1931, which up to the autumn series had been one of the most drab and uninteresting campaigns in many years. The two pennant races in the American and National Leagues had been easily won by the Philadelphia Athletics in the former and

the St. Louis Cardinals in the latter. The New York Yankees and the Washington Senators threatened the rule of the world's champion Athletics for a while but both teams were unfit to cope with the magnificent power of the Philadelphia team. The New York Giants pressed the Cardinals for a few months but fell behind in face of a fine late season spurt. The Brooklyn Robins, considered almost certain winners at the start of the campaign in April, and the Chicago Cubs, managed by Rogers Hornsby, fell apart. The Robins never got started and fell under the burden of too much pre-season praise. The Cubs were riddled by internal trouble and by the failure of Hack Wilson, heavy hitter and home run king in 1930, to do anything worth while at bat.

At the start of the World's Series it was confidently expected that the Athletics would continue their mastery over the National League, which was asserted in 1929 and 1930. The odds were high that Connie Mack, manager of the Athletics, would be the first major league manager to capture three consecutive World's Series. When this team won the first game the odds went higher. Then followed remarkable feats with Pepper Martin, an unknown Cardinal outfielder, wreaking havoc with his bat. The Cardinals finally won out. In the last game Burleigh Grimes, the ancient St. Louis spitball pitcher, faltered after a splendid exhibition in earlier games and it was only the relief work of Bill Hallahan, who had twice beaten the Athletics, that saved the day and brought the triumph to St. Louis.

In February the two major leagues acted to curb heavy hitting by adopting a ball of less lively characteristics. This produced an appreciable reduction in home runs, with Babe Ruth and Lou Gehrig, Yankees, finishing on top with 40 home runs each. Al Simmons, Philadelphia Athletic outfielder, won the American League batting crown after a tussle with Ruth, and Chick Hafey, Cardinal player, beat out Bill Terry, New York first baseman and 1930 champion, for honors in the senior circuit. Robert Moses (Lefty) Grove, sturdy member of the Athletics pitching staff, was the hurling star of the campaign. He won 31 games and lost only four for an average of 886, the highest since 1900. Grove was the first left hander in the history of baseball to win 30 games in a season.

Rochester won the International League pennant and defeated St. Paul of the American Association in the Little World's Series. Harrisburg won the New York-Pennsylvania League championship. Hartford, a Brooklyn Robins farm, won both halves of the Eastern League race. San Francisco, winner of the second half of the Pacific Coast League split-season schedule, toppled Hollywood, winner of the first half, in the playoff.

In the colleges, Pennsylvania won the Eastern Intercollegiate League championship behind the masterful pitching of Walter Masters. Yale beat Princeton in two out of three games and beat Harvard by a similar margin. The University of Illinois won the Big Ten Conference race.

The deaths of four important men in baseball circles marred the season. Ernest S. Barnard, president of the American League, and Ban Johnson, former president, died within a few days of each other and the whole baseball world mourned the loss. Charles Comiskey, the "old Roman" whose name had been synonymous with

the Chicago White Sox for years, and Garry Herrmann, onetime owner of the Cincinnati Reds and president of the National Commission, were others who died during the year.

**BASEL ADVISORY COMMITTEE.** REPORT OF. See REPARATIONS AND WAR DEBTS; GERMANY under *History*.

**BASKETBALL.** Basketball reached higher planes in every respect in 1931. The attendance figures were shattered as excellent teams faced each other, especially when charity tournaments were played. The art of the game reached near to perfection with St. John's College of Brooklyn five, and the game received greater publicity than ever before when it was enshrouded in scandal at the end of the season when many of the players of Metropolitan college teams were banned because of professionalism. The largest basketball crowd—17,000 persons—in the history of the sport in the East watched Fordham, St. John's, Manhattan, C. C. N. Y., Columbia and New York University play in a tournament for the benefit of the unemployed at Madison Square Garden in New York in January. The triple-header brought many thousands of dollars to the fund, and added greatly to the general popularity of the game.

The St. John's team, a veteran five, well coached, won twenty-one games in a hard twenty-two game schedule against the best teams in the East. The Brooklyn team featured passing and a well designed attack that baffled all opponents by its feats of legerdemain. The regularly scheduled game between St. John's and C. C. N. Y. in Brooklyn early in the season drew 12,000 spectators. The Manhattan College team, Pittsburgh, and Syracuse and Buffalo were other strong quintets performing on Eastern courts. Columbia, a strong five, won the Eastern Intercollegiate League race for the second consecutive time, winning all ten of its league games, and only losing two games during the entire season.

Northwestern won the Big Ten Conference title for the first time in history, losing only one conference battle. The University of Washington five gained the college honors on the Pacific Coast. The "Huskies," winners of the Northern Division championship of the Pacific Coast Conference, defeated the University of California, winners of the Southern Division race, in a three game final. Utah University won the title in the Rocky Mountain Conference, and Kansas captured the laurels in the Big Six. Maryland, defeating Kentucky at Atlanta, won the Southern Conference championship.

The Henry Clothiers of Wichita, Kansas, won the National A.A.U. tournament held at Kansas City. This was the second straight triumph in this tournament, which drew thirty-nine competing teams, for the Clothiers. The professional ranks were hard hit by the depression and after a shortening of the league schedule and much splitting up of the teams, the Brooklyn Visitations won the title by downing Fort Wayne in the final series.

**BASQUE PROVINCES.** The four Spanish Provinces of Guipúzcoa, Navarra, Alava, and Vizcaya (Biscay), adjoining France at the angle of the Bay of Biscay. With an area of 6794 square miles, the Basque Provinces had an estimated population of 1,183,520 on Jan. 1, 1930. A separate people with a culture and language distinct from that of the rest of Spain, the Basques enjoyed virtual autonomy under the King of Castile until 1839. Their leading cities

are Bilbao, San Sebastian, Vittoria, and Pamplona. Sea fisheries, iron mining, and agriculture are the principal industries. For political developments in 1931, see *SPAIN* under *History*.

**BATES COLLEGE.** A nonsectarian college for men and women in Lewiston, Me., founded in 1864. The enrollment for the autumn term of 1931 was 712, of whom 436 were men and 276 women. In the 931 summer session there was a total of 320 students, of whom 148 were men and 172 women. The faculty and administrative officers numbered 57. The permanent funds amounted to \$1,862,000; total expenditures for the fiscal year were \$319,198; and the budget involved an appropriation of \$310,320. The library contained approximately 60,000 volumes. President, Clifton Daggett Gray, Ph.D., LL.D.

**BATTLE CRUISER.** See *NAVAL PROGRESS*.

**BATTLE OF YORKTOWN ANNIVERSARY.** See *CELEBRATIONS*.

**BATTLESHIP.** See *NAVAL PROGRESS*.

**BAVARIA.** A constituent state of the German Republic; formerly a kingdom within the German Empire. Area, 29,334 square miles; population, according to the census of 1919, 7,055,466; according to the census of 1925, 7,379,594. Chief cities: Munich, the capital, with a population of 680,704 in 1925; Nuremberg, 392,494; Augsburg, 165,522; Ludwigshafen, 101,869. Births in 1929 numbered 149,816, deaths 100,240, marriages 63,512. The religious division of the population of Dec. 1, 1925, was: Roman Catholic, 5,165,013; Protestants, 2,110,086; Jews, 49,163. Education is compulsory between the ages of 6 and 16. The public elementary schools in 1929 numbered 7726, with 798,083 pupils.

Agriculture and mining are the chief industries. About one-half the total area is under cultivation, the principal crops in 1929 being: Wheat, 482,063 metric tons; rye, 663,791 tons; oats, 707,848 tons; barley, 674,058 tons; potatoes, 5,792,890 tons. The wine yield was 10,876,447 gallons. In the same year the coal output was 2,211,859 metric tons; iron ore, 615,518 tons; pig iron, 291,403 tons; cast iron, 206,651 tons; and sulphuric acid, 420,899 tons. In the ordinary budget for 1930 revenues were estimated at 835,604,690 marks and expenditures at 857,404,690 marks; the extraordinary budget balanced at 94,732,958 marks. The public debt at the beginning of 1930 totaled 1,306,852,000 paper marks and 395,352,858 Reichsmarks (Reichsmark and mark both exchanged at about \$0.2385 in 1930).

The constitution dates from Aug. 14, 1919. Under it, the supreme power is vested in the people, who are represented by the Diet (Landtag) of one Chamber elected for four years. The membership of the Landtag, as constituted following the election of May 20, 1928, follows: Bavarian People's party, 46; Social Democrats, 34; National Socialists, 9; German Nationalists, 13; Bavarian Peasants' and Middle-Class Union, 17; German People's party, 4; Communists, 5. See *GERMANY*.

**HISTORY.** In response to an emergency appeal by the German Reich for cooperation in meeting the national financial crisis, the State Government on Aug. 27, 1931, issued a decree calculated to wipe out the budget deficit of about \$7,000,000. Taxes were increased, the salaries of government employees slashed, the building programme curtailed, the hours of school teachers increased, and other economy measures effected.

**BAYREUTH-WAGNER FESTIVAL.** See *MUSIC*.

**BEAUCHAMP, WILLIAM BENJAMIN.** A bishop of the Methodist Episcopal Church, South, died in Richmond, Va., June 28, 1931. He was born in Farnham, Va., Mar. 10, 1869, and was graduated from Randolph-Macon College in 1890. Ordained to the ministry of the Methodist Episcopal Church, South, he served successively, from 1891 to 1903, as pastor of the Broad Street and St. James's Churches in Richmond, Va. He then filled charges in Newport News, Va., Louisville, Ky., Danville, Va., and Portsmouth, Va., until his appointment in 1917 as general secretary of the Laymen's Missionary Movement of the Methodist Episcopal Church, South. He was elected bishop in 1922, and for four years was in charge of the 12th episcopal district comprising missions in Europe. At the time of his death his district included Georgia and Mexico. He had been a member of the theological faculty at Emory University since 1926, and represented the Methodist Episcopal Church, South, on the executive committee of the Federal Council of the Churches of Christ in America. He was also president of the board of missions of the Virginia conference from 1911 to 1919, foreign secretary for Europe of the Methodist Episcopal Church, South, in 1919, president of the World Brotherhood Federation in London in 1925, and president of the Board of Missions of the Methodist Episcopal Church, South, in 1926. As director-general of the missionary centenary drive of the Methodist Episcopal Church, South, in May, 1919, he raised \$50,000,000 in an eight-day campaign.

**BEAUHARNOIS SCANDAL.** See *CANADA* under *History* and *Shipping*.

**BEAUX-ARTS INSTITUTE OF DESIGN.** A school of fine arts in New York City, planned after the École des Beaux-Arts in Paris. It was organized in 1916 by the Society of Beaux-Arts Architects for the purpose of furnishing "instruction in the arts, under the Regents of the State of New York, at a minimum cost to students; to bring art students under the criticism of artists who are engaged in active practice; to carry students beyond the academic study of the arts into the province of their application and practice; and to bring about coöperation among the various art schools of the country." Working under the auspices of the institute during the year 1930-31 were 2656 architectural students, 190 students of sculpture, and 117 students of mural painting.

Prizes in architecture, sculpture, and mural painting are offered to students throughout the United States. During the year 1930-31, the committee on education in the department of architecture conducted 36 competitions for the study of architecture and six for the study of archaeology. The most important of the various prizes and scholarships offered to students through the institute is the Paris Prize amounting to \$3600, given by the Society of Beaux-Arts Architects, which affords two and one-half years' study in architecture at the École des Beaux-Arts in Paris. There is also the Paris Prize in Sculpture, representing a scholarship of \$1200 for one year's study in Paris.

The institute issues a monthly *Bulletin*. The officers elected at the annual meeting in November, 1931, were: Director, Whitney Warren; secretary, Henry R. Sedgwick; director of archi-

tectural department, Ely Jacques Kahn; director of department of sculpture, Edward McCartan; director of department of mural painting, J. Monroe Hewlett; chairman of the board of trustees, Benjamin W. Morris; vice chairman, William Adams Delano. Headquarters are at 304 East Forty-fourth Street, New York City.

**BECHUANALAND PROTECTORATE**, béch'oo-ä'nä-länd'. A British protectorate in South Africa. Area, about 275,000 square miles; population (census of 1921), 152,983, including 1743 Europeans. Cattle rearing and primitive agriculture are the chief occupations. Some gold and silver is mined. Revenue in 1929-30 amounted to £146,384; expenditure to £155,822. Budget estimates for 1930-31 were: Revenue, £154,420; expenditure, £154,566. The colony is administered through the native chiefs by a resident commissioner under the High Commissioner for South Africa. Resident Commissioner in 1931, Lieut.-Col. C. F. Rey.

**BECK, L(ILY) ADAMS** (pseudonym, E. BARRINGTON). British author, died in Kyoto, Japan, Jan. 3, 1931. During her long sojourn in various parts of Asia, including Little Tibet, Japan, and China, she studied Oriental philosophy, interpreting it to the Western mind in such books as *The Key of Dreams* (1922); *The Perfume of the Rainbow* (1923); *The Splendour of Asia* (1926); *The Story of Oriental Philosophy* (1928); *The Way of Power: Studies in the Occult* (1928); *Openers of the Gate: Stories of the Occult* (1930); *The Way of Stars* (1930); and *The Ninth Vibration* (1930). She was best known, however, for the novelized biographies, written under her pseudonym, in which she recaptured the glamour of a romantic past. These include: *The Ladies* (1922); *The Chaste Diana* (1924); *The Divine Lady* (1924); *Glorious Apollo* (1925); *The Exquisite Perida* (1926); *The Thunderer* (1927); *The Empress of Hearts* (1928); *The Laughing Queen* (1929); *The Duel of the Queens* (1930); and *The Irish Beauties* (posthumous, 1931).

**BEDE, VENERABLE**. See PHILOLOGY, CLASSICAL.

**BEDFORD, SIR CHARLES HENRY**. A British chemist, died in Woking, Surrey, July 8, 1931. He was born in Edinburgh June 19, 1866. Educated at the University of Edinburgh, he entered the Indian Medical Service in 1889, serving as chemical examiner to the Government of India and to the Bengal and Punjab Governments. He was professor of chemistry at the Calcutta and Lahore Medical Colleges, and was president for India of the 6th International Congress of Applied Chemistry held in Rome in 1906. During 1905-06 he was scientific and technical adviser to the Indian Excise Committee and conducted the government of India's investigation into the quality, manufacture, and excise-control of alcoholic liquors in India. He also originated the Central Excise Laboratory for India, of which he was director from 1906 to 1911. On his return to England in 1911 he was appointed deputy chief commissioner of medical services for the Ministry of National Service in London. He founded, in 1926, the King Alfonso XIII chair of Spanish studies at Oxford University, in commemoration of the Prince of Wales's South American visit, and in 1930 became honorary director of the Anglo-Spanish and Spanish-American Institute of London. He was knighted in 1911, and in 1929

was created a Knight of the Grand Cross of the Order of Civil Merit of Spain in recognition of his work.

**BEEF**. See LIVESTOCK.

**BETTER**. See ENTOMOLOGY, ECONOMIC.

**BEEF SUGAR**. See SUGAR.

**BELASCO, DAVID**. An American playwright and manager, died in New York City, May 14, 1931. He was born in San Francisco, Calif., July 25, 1854, and began his career as an actor at the Metropolitan Theatre in that city in 1874. Showing talent, however, in the writing and adaptation of plays, he soon found a wider field. One of his early successes was *Hearts of Oak* (1880), in which he toured with James A. Hearn. Moving to New York City in 1880, he was for a time stage manager of the Madison Square and Lyceum Theatres, becoming manager of his own theatre in 1902. He collaborated with Henry C. De Mille in writing *The Wife* (1887) and *The Charity Ball* (1889), and also wrote for E. H. Sothern *Lord Chumley* (1887). In 1893 he produced *The Girl I Left Behind Me*, which he wrote with Franklin Fyles, and in 1895, *The Heart of Maryland*, a melodrama of the Civil War in which Mrs. Leslie Carter appeared. Among his other plays are *La Belle Ruase* (1881); *May Blossom* (1884); *Valerie* (1886); *Men and Women* (1890); *Naughty Anthony* (1899), in which he first presented Blanche Bates; *Madame Butterfly*, a dramatization of John Luther Long's story (1900); *Du Barry* (1901); *The Darling of the Gods* (in collaboration with John Luther Long, 1902); *Sweet Kitty Bellairs* (1903), in which Henrietta Crosman appeared; *Adrea* (with John Luther Long, 1904); *The Music Master* (with Charles Klein, 1904); *The Girl of the Golden West* (1905); *The Rose of the Rancho* (with R. Walton Tully, 1906); *A Grand Army Man* (with Pauline Phelps and Marion Short, 1907); *The Return of Peter Grimm* (1911), in which David Warfield had the title rôle; and *Van der Decken* (1915).

From 1910 on, through his extraordinary skill in training his actors and his minute attention to the mechanical details of lighting and stage setting, Belasco became better known as a successful manager-producer of the works of other dramatists. His later successes included *Tiger! Tiger!* (with Frances Starr, 1918); *The Gold Diggers* (with Ina Claire, 1919); *Deburau* (with Lionel Atwill, 1920); and *Kiki* (with Leonore Ulric, 1921). He also presented David Warfield in *The Merchant of Venice* (1922); Fay Bainter in *The Other Rose* (1923); Robert Lorraine in *Tiger Cats* (1924); Holbrook Blinn and Judith Anderson in *The Dove* (1925); Leonore Ulric as "Lulu Belle" (1926) and in *Mima* (1928); and Helen Gahagan in *To-night or Never* (1930).

**BELDEN, CHARLES FRANCIS DORR**. An American librarian, died in Pittsfield, Mass., Oct. 24, 1931. He was born in Syracuse, N. Y., Oct. 5, 1870. On graduation from the Harvard Law School in 1898, he served as secretary to the law faculty until 1902, when he became assistant librarian of the Harvard Law Library. In 1908 he was appointed librarian of the Social Law Library in Boston, and the following year librarian of the Massachusetts State Library and chairman of the Free Public Library Commission of Massachusetts. After 1917 he was director of the Boston Public Library. He was president

of the American Library Association during 1925-26, and in 1930 was created a Knight of the Order of the Crown of Italy for his work in Italian arts and letters.

**BELGIAN CONGO.** See CONGO, BELGIAN.

**BELGIUM.** A kingdom of Western Europe, situated between France and the Netherlands. Capital, Brussels; monarch in 1931, Albert I.

**AREA, POPULATION, ETC.** The total area, including the districts of Eupen and Malmédy, which were ceded to Belgium by the Treaty of Versailles, is 11,755 square miles. The population, according to the official census of 1920, was 7,465,782; estimated Jan. 1, 1930, at 8,060,189, which represented a density of 686 per square mile. The chief cities with their populations as of Jan. 1, 1930, are Brussels (with suburbs), 833,345; Antwerp, 209,190; Liège, 168,280; Ghent, 170,095. In 1929, births totaled 146,206; deaths, 120,782; marriages, 71,811. The excess of births over deaths was 25,424 (41,060 in 1928). Emigration in 1929 totaled 29,162 (28,303 in 1928); immigration, 55,595 (41,977).

**EDUCATION.** In 1929, there were 8452 elementary schools, with 835,347 pupils; 3872 infant schools, with 248,399 pupils; 35 royal and special atheneums, with a total of 8346 pupils; 4 communal and provincial colleges, with 1853 pupils; 11 private colleges, with 1500 pupils; 137 higher state schools, with 26,380 pupils; 15 higher communal and provincial schools, with 4591 pupils; and 8 private higher schools, with 1146 pupils. Numerous other private and free schools were under ecclesiastical or other care. The four universities, with the attendance in 1928-29, are: Brussels, 2051; Ghent, 1650; Liège, 2458; and Louvain, 3755. Ghent and Liège are state institutions. In October, 1930, Ghent became a Flemish-speaking institution. Instruction is in French or Flemish, or both.

**PRODUCTION.** Agriculture, mining, and manufacturing are equally important factors in the national economy, enabling Belgium to support one of the densest populations of Europe. Considerable quantities of foodstuffs are imported. Of the total area, 3,222,000 acres, or 43 per cent, were under cultivation in 1929; in addition there were 1,301,000 acres of permanent meadows and pastures, and 167,000 acres of orchards. Woods and forests covered 18 per cent of the total area.

#### BELGIUM'S CROPS: AREA AND PRODUCTION

Crop	Area <sup>a</sup>		Production <sup>b</sup>	
	1929	1930	1929	1930
Wheat .....	356	410	13,225	13,236
Rye .....	567	573	22,162	18,030
Barley .....	63	84	2,834	3,825
Oats .....	744	672	51,488	38,223
Potatoes .....	423	400	143,592	108,847
Sugar beets ..	143	138	1,570*	1,865*
Beet sugar <sup>c</sup> ..	...	...	248*	276*
Fodder beets ..	208	200	4,565*	6,215*
Flax .....	68	54	41,216*	32,498*
Linseed .....	...	...	708	417
Tobacco .....	7	7	15,035*	15,386*
Clover and lucerne (sown)	279	305	401*	632*

<sup>a</sup> Thousands of acres.

<sup>b</sup> Thousands of units—bushels except as indicated.

<sup>c</sup> Unit, metric ton.

\* Seasons ended following year.

<sup>d</sup> Unit, pound.

Livestock at the beginning of 1930 included 1,738,348 cattle, 1,237,002 swine, and 249,014 horses. The area and production of the principal crops in 1929 and 1930 are shown in the accompanying table from the *Commerce Yearbook*.

The large metallurgical industries of Belgium and Luxemburg depend principally upon exports, which declined continuously through 1930 and 1931. Exports of all metals and metal products in 1930 totaled 4,612,000 metric tons, valued at 6,885,238,000 francs, as compared with 5,199,000 tons, valued at 7,701,619,000 francs in 1929 (1 franc equals \$0.02784). The Belgian production of metallurgical products declined in about the same ratio, the figures for 1930, with 1929 in parentheses, being as follows: Pig iron, 3,403,000 metric tons (4,096,000); crude steel, 3,370,000 metric tons (4,128,000); finished steel, 2,793,000 metric tons (3,566,000). In 1931, the metallurgical industries kept production at approximately the 1930 level, although exports declined somewhat and prices declined about 25 per cent. Production of the other leading mining and manufacturing industries in 1930, with comparative figures for 1929, was as follows: Coal, 27,406,000 metric tons (26,931,000 in 1929); coke, 5,361,000 metric tons (5,991,000); briquets, 1,902,000 metric tons (1,990,000); crude zinc, 178,000 metric tons (202,000); window glass, 41,389,000 square yards (73,750,000); plate glass, 2,921,000 square yards (4,542,000); paper and cardboard, 172,724 metric tons (190,210); cotton yarn, 143,299,000 pounds (162,038,000); conditioned wool, 66,458,000 pounds (87,357,000); rayon, 12,346,000 pounds (15,000,000).

Belgian industries, particularly coal and cotton textiles, reflected the adverse effects of the world depression during 1931. But due to conservative policies, the reduction of overhead, and the existence of substantial reserves, industry in general withstood the strain better than in most industrial countries. Wages were cut from 15 to 20 per cent during 1931, but without serious labor disturbances, the reductions for the most part following changes in the cost-of-living index, in accordance with agreements between employers and employees. In September, 1931, there were 70,893 insured workers completely out of work and 120,669 were on part time, as compared with 81,750 wholly unemployed and 121,906 on part time in February, 1931.

**COMMERCE.** Belgian exports in 1930 declined to \$729,700,000 from \$883,200,000 in 1929, while imports fell to \$859,600,000 from \$984,600,000 in the previous year. The principal export commodities, by value, in 1930, were: Iron and steel, \$139,631,000 (\$165,227,000 in 1929); textiles, \$92,921,000 (\$114,150,000); precious stones, \$35,364,000 (\$57,379,000); coal, coke, briquets, \$29,967,000 (\$28,377,000); glass and glassware, \$28,363,000 (\$42,026,000); wool, \$24,322,000 (\$37,524,000); crude copper, \$21,051,000 (\$12,747,000); and machinery (other than electric), \$20,339,000 (\$22,364,000).

France remained the leading source of Belgian imports in 1930, furnishing 17.8 per cent of the total, as compared with 19.5 per cent in 1929. Germany supplied 16.7 per cent of the imports (13.9 in 1929); the Netherlands, 13 (11.7); the United States, 10 (9.5); and the United Kingdom, 9.2 (11.1). The United Kingdom was again the chief export market, taking 19 per cent of all shipments (18.3 per cent in 1929). France took 15.7 per cent (12.6); the Netherlands, 13.2 (12.6); Germany, 11.3 (11.9); and the United States, 5.1 (6.8). In 1931, according to preliminary estimates, exports declined about 11 per cent in value and imports about 24 per cent, as compared with exports and imports in 1930.

**FINANCE.** In the 1930 ordinary and extraordinary budget estimates, revenues were calculated at 11,562,000,000 Belgian francs (\$321,424,000) and expenditures at 11,514,000,000 francs (\$320,089,000). Actual preliminary returns for the (calendar) year showed a deficit of 1,175,000,000 francs (about \$32,600,000), or 9 per cent of the total expenditures. Expenditures were above estimates, especially for pensions, public works, labor, and industry. Revenue, on the other hand, fell below the estimates, particularly from taxes on transfers and inheritance. The tax rates, too, had been lowered after the passage of the budget.

Budget estimates for 1931 (ordinary and extraordinary) placed revenues at 11,685,000,000 francs and expenditures at 12,305,000,000 francs. By the end of August, 1931, revenue from direct and indirect taxation was 1,232,779,826 francs under the budget estimates. To eliminate the threatened deficit for the year, Parliament in July imposed new taxes calculated to bring in an additional 1,300,000,000 francs annually. At the same time the government was authorized to borrow 1,000,000,000 francs to meet urgent needs.

The public debt on Jan. 1, 1930, was 52,033,556,000 Belgian francs, of which 24,305,543,000 francs represented the internal and 27,668,013,000 francs the external long-term debt.

**COMMUNICATIONS.** The state-owned but privately managed railway system in 1930 reported 2997 miles of main line; in addition there were 189 miles of private railways and 1048 miles of provincial lines. In the same year, highways extended 18,894 miles, of which 2237 miles were macadam; the highways for the most part were paved with stone. Navigable rivers and canals totaled 1043 miles. Construction of the Albert Canal, to link Antwerp directly to the River Meuse at Liège, was started in 1930. The task was expected to take eight years and to cost nearly \$40,000,000. The Belgian merchant marine at the beginning of 1930 consisted of 170 vessels of 360,985 tons, of which 149 ships of 320,683 tons were steamers. In 1929, a total of 19,057 vessels, of 29,753,385 tons, entered Belgian ports and 19,064, of 29,631,291 tons, cleared. A Belgian air service links Brussels, Ostend, and Antwerp.

**GOVERNMENT.** Belgium is a constitutional, representative, and hereditary monarchy. Executive power is in the King, acting through a responsible ministry; legislative power is in the King and two chambers, namely the Senate and House of Representatives. The former is elected partly by the direct and partly by the indirect vote of the people, the number being proportionate to the population of each Province. Those elected indirectly are chosen by the provincial councils. Following the election of May 26, 1929, the composition of the Senate was: Catholics, 71; Socialists, 56; Liberals, 23; Frontists, 4. The Chamber of Deputies was composed as follows: Catholics, 77; Socialists, 70; Liberals, 28; Frontists (Flemish autonomist party), 11; Communists, 1. The Ministry, as reorganized Dec. 4, 1929, included: Prime Minister, Henri Jaspar (Catholic); Foreign Affairs, Paul Hymans (Liberal); Justice, M. Janson (Liberal); Education, Maurice Vauthier (Liberal); Finance, Baron Houtart (Catholic); Agriculture, Home Affairs, and Hygiene, Henri Baelis (Catholic); Industry, Labor, and Social Insurance, M. Heyman (Christian Democrat); Railways, Marine,

and Aëronautics, M. Lippens (Liberal); National Defense, Comte de Broqueville (Catholic); Colonies, Henri Jaspar (Acting); Posts and Telegraphs, M. Forthomme; Public Works, M. Van Caenegem.

## HISTORY

**COLLAPSE OF THE CABINET.** After nearly five years in office, Premier Jaspar's Catholic-Liberal Coalition Government was forced to resign on May 21, 1931, due to the defection of the Liberals. Both the government's national defense policy and the French-Flemish language dispute—the two major political issues confronting the nation—were involved in the overthrow of the Cabinet. The Liberals, mainly French-speaking, strongly favored the fortification of the eastern frontier, in compliance with the Franco-Belgian military agreement of 1920, and vigorously defended the position of French-speaking minorities in predominately Flemish districts. They withdrew their support from Premier Jaspar when, without consulting them, he yielded to the demand of the Socialist and Flemish deputies for a reduction in military appropriations.

It was not until June 5 that a new Cabinet was formed by Jules Renkin, a leader of the Catholic party, who assumed the posts of Premier and Minister of Interior. The Renkin Ministry consisted of seven Catholics and five Liberals, Catholics with Flemish leanings being in the majority. M. Hymans continued as Foreign Minister. The other important members were: Baron Houtart, Minister of Finance; M. F. Cocq, Justice; Henri Weyman, Industries; M. P. Crokaert, Colonies; and M. J. Van Caenegem, Public Works. The Cabinet won a vote of confidence (95 to 77) on June 18, but it evoked little popular enthusiasm. The increasing recognition accorded Flemish language claims was indicated when Premier Renkin, in his Ministerial declaration, addressed the Chamber in both French and Flemish. With the exception of this conciliatory attitude toward the Flemish groups, there was little change in internal or external policies as a result of the Cabinet overturn. The Renkin Government reintroduced the fortifications bill calling for the original appropriation of \$6,000,000, and it was passed on June 24.

**OTHER DEVELOPMENTS.** The Socialist campaign for abrogation of the Franco-Belgian defensive pact, the demand of the Walloons that the fortification of the eastern frontier be extended to protect their section (the southern part) of the country, and the language problem in the secondary schools were the primary political issues before Parliament throughout the year. The serious trend which the rift between the Flemish- and French-speaking populations was taking was emphasized when delegates from all the French-speaking districts meeting at Liège October 18 approved a plan for a federal constitution, dividing Belgium into two autonomous regions on a linguistic basis. On October 15, the Liberal party voted to revise its platform in favor of the territoriality of languages. Under this system, the study of a second national language would be elective, rather than compulsory, in both the French and Flemish sections of the country. The decision, which was supported by the government, virtually blocked the introduction of compulsory Flemish in the French-speaking districts. Seemingly, it insured a grow-



ing cultural gulf between the two ethnic groups in the population and greater mutual hostility.

Belgium weathered the European financial crisis of 1931 with relatively little difficulty. The situation was considered sufficiently serious, however, for King Albert to return to Brussels from Switzerland August 7. He was reported to have temporarily assumed direction of Belgium's foreign affairs, as was his habit in times of crisis. The Chamber of Deputies on February 26, by a vote of 86 to 70, passed a law legalizing cremation, despite the opposition of the Cabinet. The cremation issue was raised by the action of Catholic officials, the Papal Nuncio, and the Catholic chaplains in refusing to attend the funeral of Lieutenant General Bernheim, one of Belgium's most distinguished military leaders in the World War, who died in Paris February 13 and was cremated. He was given a state funeral in Brussels on February 21, which was attended by the King and many high officials.

Before adjourning July 16 for the summer, Parliament ratified the Oslo agreement, a pact of economic coöperation signed by Sweden, Denmark, Norway, Belgium, and the Netherlands. The agreement was designed to carry out the tariff truce provision of the Geneva Convention. On December 10, the Chamber, by a slight majority, authorized the government to initiate immediately negotiations with France and Holland for the organization of a customs union.

To cut off the influx of foreign labor into Belgium, the regulations of the Department of Industry, Labor, and Social Welfare were drastically tightened by royal decree. Anti-Italian demonstrations by Belgian students were organized in Brussels following the arrest in Milan April 10 of Leopold Moulin, charged with complicity in anti-Fascist activities. Moulin was a Belgian secondary school teacher, who was registered as a graduate student in the University of Brussels. On July 19, the centenary of the entry into Belgium of Leopold I, first King of the Belgians, there were ceremonies at La Panne, Furnes, and Ostend.

Consult Henri Laurent, "The Language War in Belgium," *Current History*, September, 1931. See CONGO, BELGIAN; ITALY under *History*.

**BELIZE.** See BRITISH HONDURAS.

**BELLINGER**, BRIG. GEN. JOHN B., U. S. A., RET. An American soldier, died in Washington, D. C., Sept. 22, 1931. He was born in Charleston, S. C., Apr. 15, 1862, and was graduated from the U. S. Military Academy in 1884. Commissioned in the Cavalry, he served in Wyoming, Kansas, and Indian Territory (later Oklahoma) until 1888, when he was appointed instructor at the U. S. Military Academy, serving also as quartermaster and disbursing officer at that institution from 1894 to 1898 and again from 1900 to 1903. During the Spanish-American War he planned and executed the movement of the 5th and 7th Corps for embarkation to Cuba and also the return of the United States troops, due to fear of yellow fever, from Cuba and Porto Rico through the quarantine stations in Florida and Georgia. He served as depot quartermaster and general superintendent of the Pacific Army Transport Service in San Francisco from 1906 to 1909, and during the next two years was in charge of preparing plans, constructing buildings, organizing and equipping shops, and so forth, at Fort Mills on Corregidor Island in Manila Bay. He also originated and executed

the supplying of food and equipment to the American Expeditionary Forces at Vladivostok, Siberia, during the World War. In 1921 he received the Distinguished Service Medal for his services as department quartermaster of the Philippines, and in 1922 was made brigadier general and assistant to the quartermaster general, retiring in 1926.

**BENGUELA RAILWAY.** See ANGOLA and CONGO, BELGIAN.

**BENNETT**, (ENOCH) ARNOLD. A British novelist, critic, and dramatist, died in London Mar. 27, 1931. He was born in Hanley, North Staffordshire (the Hanbridge of the "Five Towns" made famous by his pen), May 27, 1867, and attended the Newcastle Middle School and the University of London. After acting successively as reporter on a provincial newspaper, as a law clerk, and as editor of *Woman*, a weekly periodical, he resigned in 1900 to devote himself entirely to literature. His claim to distinction rests upon the group of novels, *Anna of the Five Towns* (1902), *The Old Wives' Tale* (1908), *Clayhanger* (1910), *Hilda Lessways* (1911), and *These Twain* (1916), and the short stories, *Tales of the Five Towns* (1905), *The Grim Smile of the Five Towns* (1907), and *The Matador of the Five Towns* (1912). These are studies of commonplace people in the commonplace setting of a string of dingy manufacturing towns, but their psychological insight, their fine workmanship, their impassive, long-drawn, and minute realism place them among the most notable English novels of their time. *The Old Wives' Tale* and *Clayhanger*, in particular, have the stamp of genius in their sympathetic understanding of human character and experience and in the contribution which they have made to England's social history.

Bennett was one of the most prolific and versatile of modern writers, occasionally publishing during a year four or more books. Outstanding among these are *The Grand Babylon Hotel* (1902); *A Great Man* (1904); *Sacred and Profane Love* (1905); *Whom God Hath Joined* (1906); *Buried Alive* (1908); *The Card* (1911); *The Regent* (1913); *The Pretty Lady* (1918); *The Roll Call* (1919); *Mr. Prohack* (1922); *Riceman Steps* (1923); and *Lord Raingo* (1926). The best of his miscellaneous writing, though of somewhat ephemeral nature, is included in *The Truth about an Author* (1903), *How to Live on Twenty-four Hours a Day* (1908), *Literary Taste and How to Form It* (1909), and *The Author's Craft* (1914). Of his 14 plays, the most successful were: *What the Public Wants* (a satire on Fleet Street, 1909); *Milestones* (with Edward Knobloch, 1912); and *The Great Adventure* (a dramatization of his novel, *Buried Alive*, 1913). His greatest contribution to English literature was a realistic imagination that imbued the most commonplace object or incident with glamour and made the lives of the most ordinary individuals seem extraordinary and even beautiful.

**BEQUESTS FOR EDUCATION.** See UNIVERSITIES AND COLLEGES.

**BEREA COLLEGE.** A nonsectarian, co-educational institution in Berea, Ky., founded in 1855 and designed to serve the educational needs of the mountain people of the Southern Appalachian region. The enrollment for the autumn of 1931 was 1775, distributed as follows: College, 585; academy, 570; foundation

junior high school, 466; nurses, 33; and training school, 121. The enrollment in the summer session of 1931 was 436, of whom 220 were in the college, 98 in the normal school, and 118 in the academy. The faculty numbered 107. The endowment amounted to \$9,515,215, and the income for the year ending June 15, 1931, was \$581,397. The library contained 60,000 volumes. Presser Hall, including the Gray Auditorium, was erected in 1931 and was to be devoted to music instruction. The secondary normal school was discontinued at the end of the 1931 summer session on account of a change in the State requirements for certificates. President, William J. Hutchins, D.D., LL.D.

**BERLIN, GREATER.** See MUNICIPAL GOVERNMENT.

**BERMUDA.** A British colony in the North Atlantic Ocean about 580 miles east of Cape Hatteras, North Carolina, consisting of a group of 300 small islands. About 20 of the islands are inhabited. Because of its picturesqueness and proximity to New York (677 miles), it is a favorite winter resort for American tourists. Area, 19.3 square miles; population, according to the census of 1921, 20,127 (7006 white); estimated in 1929, 31,500 (15,550 white). The chief town, Hamilton (population 3000) is an important naval base. Radio-telephone service between the United States and Bermuda was opened Dec. 21, 1931.

Primary schools receiving government aid numbered 32 in 1929, with 3719 pupils. Potatoes, onions, lily bulbs, and other vegetables are cultivated for the United States market. Imports in 1930 were valued at £1,954,568 and exports at £191,727. Imports from the United States in 1930 were valued at \$4,700,000 and exports to that country at \$700,000. Revenue in 1930 amounted to £429,990; expenditure, £409,572, public debt, £70,000. The tonnage of vessels entered and cleared (1930) aggregated 5,739,748 tons. The Hamilton-Somerset Division of the new Bermuda Railway was officially opened May 23, 1931; the St. George section of the line was still under construction. The first fresh water system on the island was placed in operation at Hamilton Nov. 30, 1931. The government is administered by a governor, assisted by an executive council of seven members and a legislative council of nine members, both appointed by the Crown, and an assembly of 36 members chosen by 1523 electors. Governor, Maj.-Gen. T. A. Cubitt, appointed 1931.

**BERMUDA BIOLOGICAL STATION.** See BIOLOGY.

**BERRIES.** See HORTICULTURE.

**BERTHELOT, bër'tlô', GEN. HENRI-MATHIAS.** A French soldier, died in Paris Jan. 28, 1931. He was born in Feurs, Loire, Dec. 7, 1861, and attended the École supérieure de Guerre. Commissioned in the infantry in 1883, he served in Algeria, Tongking, and Annam. He became secretary to the General Staff in 1907, and on the outbreak of the World War was appointed major general and chief aide-de-camp to General Joffre. In January, 1915, he was made general of the 53d Division and was next promoted to the command of the 32d Army Corps, which during the battle of Artois in May and June, 1915, took the famous network of trenches between Souchez and Arras known as the Labyrinth. He also took part in the second Champagne offensive in September, 1915, and the defense of Verdun, and in

September, 1916, was sent to Rumania as head of the French Military Mission. After the Rumanian defeat in August, 1917, he returned to France and was given command of the 5th Army during the second battle of the Marne in July, 1918. He then returned to the Balkans as commander-in-chief of the Serbian army, which crossed the Danube on Nov. 10, 1918, entering Sarajevo. After the War he was Governor of Metz, and later of Strassburg, commander-in-chief of the Lorraine, and a member of the Conseil supérieur de la Guerre. He retired in 1928.

**BES'SARABIA, bës'-ä-rä'bî-ä.** A former province of the Russian Empire, joined on Apr. 11, 1918, to Rumania, whose title was confirmed by the Peace Treaties of 1919, but has never been conceded by the government of the Soviet Union. Area, 17,146 square miles; population, 2,344,800. See RUMANIA.

**BEYER, bi'ër, SAMUEL WALKER.** An American geologist and mining engineer, died in Ames, Iowa, June 2, 1931. He was born in Clearfield, Pa., May 15, 1865, and was graduated from the Iowa State College in 1889 and with the Ph.D. degree from Johns Hopkins University in 1895. At Iowa State College he served as instructor in geology and mining engineering from 1891 to 1895, assistant professor from 1895 to 1898, and professor after 1898. He also was made vice-dean of the engineering division in 1908 and dean in 1917. After 1919 he was dean of the industrial science division. He became a member of the Iowa Geological Survey in 1892 and of the United States Geological Survey in 1901. He was the author of *The Sioux Quartzite and Certain Associated Rocks* (1895); *Geology of Boone, Marshall, Story, and Hardin Counties, Iowa* (1895-99); *Clay and Clay Industries of Iowa* (1903); *Iowa Quarries and Quarry Products* (1906); *Iowa Peat Deposits* (1908); and *Road and Concrete Materials in Iowa* (1914).

**BIANCHITE.** See MINERALOGY.

**BIBLE SOCIETY, AMERICAN.** Organized in 1816, this society has steadily carried forward its specific purpose of "circulating the Holy Scriptures without note or comment." This service is rendered without discrimination as to class, color, or creed. Bibles, Testaments, and Portions are sold without purpose of profit, and below cost or donated free when circumstances justify. The work in the United States is carried on through 10 home agencies and some 100 auxiliary, State and local Bible societies. Twelve additional agencies cover all Latin America and countries in the Near East and the Far East, correspondents helping the work in other countries, especially in Europe and Africa. During 1930 the society issued 12,035,133 volumes in 285 languages. Engaged in this work were 363 colporteurs, 1946 correspondents, and 2943 volunteers. The number of volumes issued in the United States by 1793 persons was 5,573,278, and in foreign lands by 3458 persons was 6,461,855. During the 115 years of its existence the society has issued 228,234,048 volumes of Scriptures and participated in the translation, publication, and distribution of the Scriptures in more than 300 languages, dialects, and versions.

During 1930 translation work was carried forward and, in some cases, books of the Bible were published in Cheyenne (North America), Mam and Cakchiquel (Central America), and Aymara (South America). In the Near East

translation and revision of the Bible in Turkish, to be printed in roman characters, was continued, and a Gospel was brought out in Arabic in decorative chirography. In the Far East the outstanding achievement of the year was the completion of the revision of the Siamese New Testament, while a pioneering effort was made for mastering the Miao tongue in northern Siam for the production of the Scriptures therein. In the Philippines revision work, in some cases approaching a new translation, was continued so as to provide Scriptures in the main languages and in some of the minor languages in use on those islands. Requests for a translation were also received from a group representing 25,000 inhabitants of the Cuyo Islands. Responses were being made to the calls for more complete translations for the Cotobato and Lanao Mohammedans in Mindanao and for the Moros (Mohammedans) in Sulu. In Africa the Bulu New Testament was reprinted during the year, and translation work was being carried out among tribes for whom nothing had yet been published.

The budget of the society for 1930 was \$1,340.090. The officers were: J. Frederick Talcott, president; E. Francis Hyde, president emeritus; the Rev. Eric M. North, Ph.D., D.D., and the Rev. George William Brown, M.A., general secretaries; the Rev. Lewis B. Chamberlain, D.D., recording secretary; Gilbert Darlington, treasurer; and Charles W. Fowle, assistant secretary.

**BIBLIOGRAPHY.** See PHILOLOGY, MODERN; LIBRARY PROGRESS.

**BICYCLING.** See CYCLING.

**BILLIARDS.** The year started with a new billiard champion when Arthur Thurnblad won the three cushion professional title at Chicago in January. Thurnblad, a competitor for several years but never considered championship timber, won over Johnny Layton and Allen Hall, who tied for second place. Hall defeated Layton in the playoff for second prize money. Ralph Greenleaf won the pocket billiards crown in Philadelphia in December, regaining honors which he had held ten times before. In the large field of 12 players, Greenleaf finished without a defeat. Erwin Rudolph, former champion, tied for second place with George Kelly, a Philadelphian playing in his first tournament. Kelly won the playoff.

Two amateurs were called national three cushion champions, the National Billiard Association considering Frank I. Fleming the high rank man, and the National Association of Amateur Billiard Players naming Edward Lee. Fleming was beaten by Robert Harper later in the year. The amateur pocket billiard title was in many different hands during the course of the year. Robert Cole won it in tournament play and lost it in less than a month to Cy Yellin in a challenge match. Yellin lost it to Ed Fagan and the latter dropped it to Howard Shoemaker, former champion, in November.

While the National Billiard Association was unable to get Jake Schaefer, national professional 18.2 balkline champion to bring his title into play, it turned its attention to the amateurs and conducted the Class A tournament. In the championship held at the New York Athletic Club in New York City, Percy N. Collins, of Chicago replaced Edgar Appleby as champion. Later in the year Appleby regained the peak by defeating Collins in a challenge match. Fred

Unger won the Class B title, but illness caused him to default a challenge to Nelson B. Mayo. Mayo successfully defended his crown against the challenge of Joseph R. Johann. Class C honors fell to Anthony La Via, the ultimate winner in a field of more than twenty players in Brooklyn.

Charles J. Steinbugler was the winner of the Poggenberg Cup, the annual handicap tournament for all three classes of amateur players. Willie Hoppe defeated Welker Cochran in a match in Pittsburgh for the 18.1 professional balkline championship, which Cochran had won from Hoppe the previous year. Hoppe set a competitive high run record of 243 in this match.

Sydney Lee won the amateur honors in England. No professional championships were held because of disputes over the conditions. Miss J. Gardner won the British women's professional championship and Miss R. Harrison won amateur laurels.

**BILLOT, bē'yō', LUDOVICO (LOUIS).** A former cardinal of the Roman Catholic Church, died near Rome Dec. 18, 1931. Born in Sierch, Moselle, France, Jan. 22, 1846, he entered the Jesuit Order, serving for 25 years as professor of dogmatic theology at the Gregorian University in Rome, where he was one of the most prominent champions of orthodoxy during the modernist controversy. In 1911, after having acted for two years as adviser to the Holy Office, he was made a cardinal deacon. He first tendered his resignation some time before the conflict between *L'Action Française* and the Holy See became acute. This conflict had developed from a change in the programme of the Royalist party, which originally had aimed only at the restoration of the throne and the reestablishment of close relations between church and state. The French clergy withdrew their support of the party, when its programme was widened to include campaigns of hatred against Socialists, Jews, Masons, Communists, and organized labor. In 1924 the French Government, supported by the episcopate, protested against any support of *L'Action Française* by the Vatican, and two years later the organ was placed on the Index. It was regarded, however, that Cardinal Billot's resignation, which was accepted in September, 1927, was in accord with this action of the Vatican. He retired to a Jesuit novitiate at Rocca di Papa, near Rome, the first cardinal to resign from the Sacred College in nearly a century.

**BIOGRAPHY.** See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE; etc.

**BIOLOGICAL CHEMISTRY.** See CHEMISTRY; ZOÖLOGY.

**BIOLOGY.** See ZOÖLOGY.

**BIRDS.** See ZOÖLOGY.

**BIRMINGHAM-SOUTHERN COLLEGE.** A coeducational institution for higher learning in Birmingham, Ala., founded in 1856. The enrollment for the autumn of 1931 was 865, and for the summer session 770. There were 59 faculty members. The endowment amounted to \$780,000, and the income for the year was \$312,500. There were 25,000 volumes in the library. During the year a new woman's building costing approximately \$100,000 was completed. President, Guy Everett Snively, Ph.D., LL.D.

**BIRTH RATES.** See FRANCE, GERMANY, GREAT BRITAIN, SPAIN, ITALY, and JAPAN and the

other principal countries under *Area and Population*; also *CHILD WELFARE*; *VITAL STATISTICS*.

**BISMARCK ARCHIPELAGO.** A group of islands in the western Pacific, formerly a German possession, assigned to Australia under mandate of the League of Nations and included in the Territory of New Guinea (see *NEW GUINEA*). The chief islands of the archipelago are New Britain (14,600 square miles), New Ireland (2800 square miles), Lavongai (460 square miles), and the Admiralty group (663 square miles). The native population of patrolled areas in 1929 was 129,074.

**BLISTER RUST.** See *FORESTRY* under *Insects and Disease*.

**BOHEMIA.** The largest and most populous Province of Czechoslovakia; formerly a crownland of Austria; situated in the northwestern part of the former Austro-Hungarian Empire, with Saxony and Silesia on the north, Moravia on the east, and Lower and Upper Austria on the south. Area, including the small Austrian and German territories which were added by the peace treaty to Czechoslovakia, 20,102 square miles; population, Feb. 15, 1921, 6,670,582; estimated population, Jan. 1, 1930, 6,995,427. Bohemia is represented in the Czechoslovak Legislature by nine Deputies and five Senators. See *CZECHOSLOVAKIA*.

**BOILERS.** The record in output of a single steam boiler, of 1,250,000 pounds of steam per hour, established with a 400-pound-pressure boiler at the East River Station of the New York Edison Company in New York City, still held; but during 1931 two boilers were placed in service at the Rouge plant of the Ford Motor Company in Detroit that were the largest high-pressure boilers built. Each of these generated 700,000 pounds of steam per hour at 1400 pounds pressure and they occupied the same space as two 250,000-pound boilers that operated at 250 pounds pressure.

Higher steam temperatures and simplification in design marked the trend during the year. The latter feature was borne out by the relatively large number of single-pass boilers installed. A notable event in boiler practice was the acceptance under stipulated safeguards of welded construction by the Boiler Code of the American Society of Mechanical Engineers. As a result of this a considerable number of welded boiler drums were turned out.

The mercury boilers designed for the Schenectady and the Kearny units (see *POWER PLANTS*) marked an advance in the application of the binary cycle for power generation. These mercury boilers also employ mercury furnace walls.

In the realm of extremely high pressures two experimental boilers were installed, one at Purdue University which operated at 3700 pounds pressure, and one at the Bayonne Works of the Babcock & Wilcox Company which had run at 5000 pounds. Neither employs a steam drum but each consists of a continuous coil of seamless steel tubing supplied with feed water at one end and delivering high-pressure steam at the other. The Purdue boiler had two parallel circuits and the Bayonne boiler seven. These boilers were to be used to investigate operation at and above the critical pressure. A third high-pressure boiler was installed at the laboratory of the Yarnall-Waring Company to operate at 2500 pounds pressure in supplying steam to test high-pressure equipment for installation in boiler rooms.

In the marine field the Hamburg-American steamship *Ackermark* went into service with a Benson boiler operating at 3200 pounds. This unit had sufficient capacity to generate all the steam required to operate the vessel although installed in the same space as formerly occupied by one of the older low-pressure boilers.

Despite these outstanding units and the fact that one 1800-pound and several 1200-1400-pound plants of large capacity went into commercial operation both in the United States and in Europe during the year, the moderate pressure boilers predominated in numbers, even in large power stations. This may be accounted for by the fact that higher steam temperatures with moderate pressures have made it possible to eliminate reheating between the high- and low-pressure elements of the turbine and still achieve an efficiency comparable with that of high steam pressures.

The completion of a number of large natural gas pipe lines throughout the country resulted in wider use of that fuel under steam boilers. Also more extensive use was made, in favorable locations, of by-product fuels such as refinery wastes and many boilers were installed with furnaces designed to use several fuels either separately or in combination. See *STREAM TURBINES*.

**BOKHARA**, bô-kü'ra. The name applied to a former central Asian state, and also to its capital city. The Bokharan People's Socialist Republic established in August, 1920, was incorporated in the newly formed Uzbek Soviet Socialist Republic, Dec. 5, 1924. See *SOVIET CENTRAL ASIA*.

**BOLIVIA.** A republic occupying the central Andean region of South America, bounded by Brazil and Paraguay on the east, by Argentina on the south, by Chile and Peru on the west, and by Brazil on the north. Sucre is the seat of the supreme court and is historically regarded as the capital, but the actual seat of the government and the largest city is La Paz.

**AREA AND POPULATION.** The area is approximately 547,000 square miles; the population was estimated in 1930 at 2,972,583, including about 1,586,650 Indians, 426,200 whites, and 898,400 of mixed race. The 1900 census population was 1,810,000. The chief cities, with their estimated populations in 1929, were: La Paz, 146,930; Oruro, 40,700; Cochabamba, 36,196; Potosí, 34,083; Sucre, 34,577; and Santa Cruz, 30,323. Spanish is the language of the educated classes, that of the natives Aymara and Quechua. Roman Catholicism was the State religion under the Constitution of 1880.

**EDUCATION.** Elementary education is free and nominally compulsory, but the percentage of illiteracy remains high. In 1928, there were 83,548 pupils in public primary schools, 22,069 in private schools, and 6537 in secondary and higher schools. There are two universities at Sucre and La Paz with more than one faculty, and eight others offering university instruction, with a total of about 800 students. The first normal school for the training of teachers for the indigenous schools was opened at La Paz, Mar. 21, 1931.

**PRODUCTION.** While agriculture is the chief support of the population, tin mining is the dominant factor in foreign trade and in the nation's financial economy. The metal normally constitutes about 90 per cent of the value of all exports. Due to the continued price declines in tin and other export products, Bolivia in 1931 faced a fifth successive year of economic and

financial depression. Total mineral exports in 1930 amounted to 87,733,944 bolivianos, as against 123,407,720 bolivianos in 1929 (1 boliviano equals \$0.365 at par). Tin, comprising 85 per cent of the total mineral exports, declined 18 per cent in volume and 27 per cent in value. Effective Mar. 1, 1931, Bolivia's production of tin was to be cut to 34,260 tons a year, under an agreement reached among world tin producers to restrict the total world output to 145,000 tons (see TIN). Quotas were not assigned, however, up to the close of 1931. Exports in 1931 were about 20 per cent less than in 1929. Bolivia's tin output in 1929 was 47,081 metric tons. Other minerals produced are copper, silver, lead, zinc, bismuth, wolfram, gold, and borate of lime. Next to China, Bolivia is the world's chief source of antimony. Petroleum has been found in the Chaco Oriental.

About 4,940,000 acres were under cultivation in 1930, the principal crops being potatoes, cacao, coffee, barley, highland rice, and rubber. Livestock in 1929 included about 1,954,915 cattle, 5,552,500 sheep, and 1,882,000 llamas and alpacas. American investments of all kinds in Bolivia, largely in mining and public utilities, increased from \$10,000,000 in 1913 to about \$133,000,000 in 1929. American direct investments (1930) were estimated at \$61,619,000.

COMMERCE. According to the President's message to Congress of Feb. 27, 1931, Bolivia's foreign trade in 1930 aggregated 164,135,145 bolivianos (about \$59,900,000 at the par value of exchange, \$0.365), which was 67,900,000 bolivianos (about \$24,780,000) less than the total for 1929. Exports amounted to 107,305,247 bolivianos (\$39,164,000) and imports to 56,829,898 bolivianos (\$20,738,763), as compared with exports of 100,617,974 bolivianos (\$36,622,000) and imports of 71,417,270 bolivianos (\$26,065,000) in 1929. The decline in the value of foreign trade in 1930 was due partly to the general slump in prices. The volume of trade was 15.4 per cent lower than in 1929, while the value decreased 23.4 per cent.

The United States in 1930 took about 13 per cent of the total exports of Bolivia and supplied over 33 per cent of all imports. As compared with 1929, Bolivian imports from the United States declined 29.5 per cent, while direct exports to the United States fell off by 59.9 per cent. However, the export figure is not an accurate index, as Bolivian exports are transhipped through adjoining countries.

FINANCE. With a budget averaging about \$16,500,000 annually from 1926 to 1929 inclusive, financial operations for the period showed a cumulative deficit of \$8,772,000. The ordinary budget for 1930 estimated both revenues and expenditures at 47,580,109 bolivianos (1 boliviano equals \$0.365 at par). Actual results were not available, but the deficit was variously estimated at from 12,237,000 to 25,000,000 bolivianos. The 1931 budget promulgated by the Provisional government at the end of January, 1931, calculated revenues and expenditures at 28,544,166 and 31,644,309 bolivianos, respectively, the anticipated deficit being 3,100,143 bolivianos. In July, 1931, however, the prospective deficit was estimated at 9,590,000 bolivianos, and drastic new economies were introduced (see under *History*). The preliminary 1932 budget calculated revenues at 26,986,158 bolivianos and expenditures at 31,502,470 bolivianos. The estimated

deficit of 4,516,312 bolivianos was to be met by increased economies and by resort to loan funds.

Bolivia defaulted on various external debt payments during 1931, although part of the May 1 interest coupon of the 8 per cent loan, due 1947, was paid. The National Economic Council on Aug. 14, 1930, announced that the public debt as of June 30, 1930, totaled 208,026,393 bolivianos (provisional figure), of which 172,067,884 represented the external debt, 11,502,300 bolivianos the internal funded debt, and 24,456,209 bolivianos the internal floating debt. Legal reserves of the Central Bank declined to 23,500,000 bolivianos on Nov. 7, 1931, from 33,587,000 bolivianos on the same date of 1930. During the same period the total cash assets declined by about 14,282,000 bolivianos to a total of 27,900,000 bolivianos.

COMMUNICATIONS. In 1931, there were 1348 miles of railway lines, of which 484 miles were government owned. Highways in the same year extended 3584 miles, of which 2762 miles were improved. There is steamer service on Lake Titicaca and about 12,000 miles of rivers are navigable for light-draught vessels.

GOVERNMENT. The Constitution of 1880 vests executive power in a President, elected for four years by direct popular vote and ineligible for re-election. Two vice presidents are similarly elected. There is a Congress of two chambers, the Senate of 16 members elected for six years, and the Chamber of Deputies of 78 members, elected for four years. One-third of the Senate and one-half of the Chamber retire every two years. The President selected a cabinet of six members. After a successful revolution in which President Hernando Siles was deposed, a military junta headed by Gen. Carlos Blanco Galindo as Provisional President, assumed control of the government on June 28, 1930. For elections in 1931, see *History*.

## HISTORY

RESTORATION OF CIVIL POWER. Due to the patriotic rectitude of the military junta under General Blanco Galindo, which assumed administrative control after the successful anti-Siles revolt of June, 1930, the transition from military to civil government took place promptly and peacefully early in 1931. True to its promise, the Provisional government held Presidential elections on January 4. Dr. Daniel Salamanca, who had been nominated by both the Liberal and Republican parties, was elected President without opposition. The contest for the Vice Presidency between José Tejada Sorzano (Liberal) and former President Juan Bautista Saavedra (Republican) went to the former by an overwhelming vote. On January 30 the Provisional government convoked Congress for February 26. Newly elected municipal officials took office throughout Bolivia on February 3, relieving the appointees of the military junta. Shortly before surrendering its power, the Provisional government (February 25) put into effect eight constitutional amendments adopted at the January election. The amendments were calculated to decentralize the government and to make the establishment of dictatorships more difficult than in the past. Congress convened as scheduled February 26 and constitutional government was restored in full with the inauguration of President Salamanca on March 5.

THE SALAMANCA RÉGIME. Dr. Salamanca's administration was faced from the start by over-

whelming financial difficulties and the revival of the party and regional strife which for generations had characterized Bolivian politics. Despite these obstacles the President enhanced his reputation for integrity and ability. Combining tact with firmness, he quickly terminated serious strikes of telegraph and postal workers and teachers in April. Food riots in La Paz and other cities, alleged to have been instigated by Communist agitators, were easily quelled. Drastic economies, including the disbandment of four army regiments and the reduction of governmental and army salaries, were effected in an effort to balance the budget (see under *Finance*).

The Bolivian Financial Commission, sent to the United States in December, 1930, to seek a modification of the terms of the 1922, 1927, and 1928 loans, reached no agreement with the bankers and interest payments due on a number of loans were defaulted. Foreign debt charges amounted to about 16,000,000 bolivianos annually and if they had been met in 1931 they would have absorbed between 65 and 75 per cent of the total revenue. The 1931 budget accordingly allotted only 4,000,000 bolivianos and the 1932 budget 5,244,000 bolivianos for service of the national debt. Congress in the first half of 1931 authorized the flotation of a new 10,000,000-boliviano loan from the Central Bank and Mercantile Bank. The President, in his address at the opening of a second session of Congress August 6, stated that 4,000,000 bolivianos out of the total had been obtained and expended. On September 23, Congress authorized the Central Bank to suspend gold payments for a period of 30 days, or longer if the government considered a longer period essential. Gold payments were suspended from October 1 to December 26. A law establishing a moratorium on commercial obligations contracted abroad in foreign money became effective October 9, but was suspended November 17. A decree of November 19 provided for the raising of a 5,000,000-boliviano loan through a 7 per cent levy on customs duties. It was announced officially in La Paz October 8 that at the suggestion of the Central Bank of Bolivia, a conference of the central banks of Bolivia, Colombia, Ecuador, Chile, and Peru would be held in Lima, Peru, to discuss an inter-American discount system. Representatives of the Federal Reserve Bank of the United States participated. See *PERU* under *History*.

Charges that Vice President Tejada Sorzano had accepted a bribe from the Standard Oil Company in 1919 in connection with its oil concession while he was Finance Minister were heard by the House of Representatives in December. Señor Tejada Sorzano was acquitted by a vote of 54 to 3. A Congressional Committee, named to investigate alleged illegal acts of the Siles régime, filed formal charges of maladministration against the former President in April. A movement for the establishment of an independent national Catholic church was reported during the year.

**CHACO DISPUTE REVIVED.** The latter half of 1931 witnessed a series of fatal clashes between Paraguayan and Bolivian military patrols along the disputed boundary of the Gran Chaco. These encounters aroused new fears of a war between the two countries into which the neighboring South American states would be drawn. Direct negotiations for a settlement of the 50-year-old boundary question had been instituted following the resumption on May 21, 1930, of diplomatic

relations severed following the previous Chaco clashes of December, 1928. Failure of the effort at a direct settlement became evident in June, 1931, when reports of Paraguayan advances beyond the *status quo* boundary of 1928 were published in La Paz newspapers almost simultaneously with Paraguayan charges of increased Bolivian military activity.

Neutral Latin-American governments, led by Uruguay, sought to adjust the controversy but matters went from bad to worse with the publication of sharply conflicting statements by the Bolivian and Paraguayan legations in Washington June 18, a subsequent exchange of notes between La Paz and Asunción, and the severance of diplomatic relations by Bolivia on July 3. Meanwhile on June 24 the governments of the United States, Cuba, Colombia, Mexico, and Uruguay sent identic notes to both Bolivia and Paraguay offering their good offices in the settlement of the controversy. Bolivia on July 27 replied with a proposal for a Bolivian-Paraguayan non-aggression pact, guaranteed by five neutrals, and neutral policing of the Chaco territory pending a final settlement of the boundary dispute. The five neutral governments, on August 6, invited both countries to send special representatives to Washington to negotiate a non-aggression pact.

The invitation was accepted and separate efforts by the Argentine government for a restoration of diplomatic relations between Bolivia and Paraguay seemed on the point of fruition when a series of clashes in the Chaco introduced serious complications. About 14 soldiers were reported killed in struggles for the control of the military outpost of Agua Rica. Concerned by the slowness of both countries in naming delegates to the Washington meeting, representatives of 19 other Pan-American states dispatched a joint note to La Paz and Asunción on October 19 urging immediate action. Both governments announced their readiness to start negotiations on November 11 and on that date conversations were formally opened in Washington in the presence of representatives of the five neutral American states. At the first meeting Bolivia was represented by Dr. Eduardo Diez de Medina and Paraguay by Dr. Juan José Soler, Paraguayan Minister to Mexico. Dr. Enrique Finot and Dr. César Vasconcellos, additional delegates of Bolivia and Paraguay, respectively, arrived in Washington later. Conversations were still proceeding at the end of the year. See *Paraguay* under *History*. Consult Ernest Galarza, "Debts, Dictatorship and Revolution in Bolivia and Peru," *Foreign Policy Reports*, May 13, 1931, vol. vii, Nov. 5.

**BOLL WEEVIL**, BOLL WORM. See *COTTON*; *ENTOMOLOGY*, *ECONOMIC*.

**BONDS**. See *FINANCIAL REVIEW*; *PUBLIC FINANCE*.

**BONUS LEGISLATION AND PAYMENTS**. See *UNITED STATES* under *Congress*; *AMERICAN LEGION*; *PUBLIC FINANCE*.

**BOOTH**, RALPH HARMAN. An American publisher and diplomat, died in Salzburg, Austria, June 20, 1931. He was born in Toronto, Ont., Canada, Sept. 29, 1873, and after a brief banking experience began his newspaper career in 1892 as cashier of the *Detroit Tribune*. In 1895 he went to Chicago where he became secretary and manager, and a few years later editor and publisher, of the *Chicago Journal*. He returned



to Detroit in 1904 as editor and publisher of the *Detroit Tribune*, and the following year became president and publisher of the *Grand Rapids Herald*. These papers were the nuclei of the Booth Newspapers, Inc., which at the time of his death included the *Grand Rapids Press*, *Flint Daily Journal*, *Saginaw Daily News*, *Kalamazoo Gazette*, *Jackson Citizen Patriot*, *Bay City Daily Times*, *Muskegon Chronicle*, and *Ann Arbor Daily News*. During 1917-18 he was vice president of the Associated Press. He was also president of the Detroit Institute of Arts and the City Art Commission and a director of the Detroit Symphony Society. In January, 1930, he was made United States Minister to Denmark.

**BOOTLEGGING.** See PROHIBITION.

**BOOTS AND SHOES.** Unlike many industries, the boot and shoe industry in the United States in 1931 registered an increase in production, the U. S. Department of Commerce placing the output at 318,239,809 pairs as compared with 304,169,748 in 1930, and 361,402,183 in 1929. With the exception of 1930 and 1924, the 1931 production ranks the lowest in the decade. During the year there was an increase in production in the misses' and children's, boys' and youths', and miscellaneous types of footwear, while the output of men's boots and shoes amounted to 77,419,567 pairs. Along with the increased production there was a steady reduction of price throughout the year and at the end of December a reduction from 15 to 20 per cent was recorded.

New York State led in 1931 production, with 73,777,340 pairs, followed by Massachusetts with 72,793,702, Missouri 40,305,501, New Hampshire 22,420,303, Illinois 22,346,464, Maine 15,653,950, Pennsylvania 15,000,445, Wisconsin 14,408,347, Ohio 11,469,658, and all other States 28,064,039 pairs. American exports of boots and shoes declined sharply in 1931; they were distributed as follows (1930 figures in parentheses): Men's and boys', 568,465 pairs valued at \$1,493,172 (1,145,894 pairs—\$3,333,994); women's, 997,502, valued at \$2,199,034 (1,599,335—\$3,992,139); children's, 234,347, valued at \$241,801 (381,913—\$419,780); slippers, 500,574, valued at \$354,420 (528,302—\$488,884); athletic shoes, slippers, leggings, etc., 40,130 pairs, valued at \$63,399 (28,609—\$56,072).

Imports of footwear in 1931 increased to 5,925,040 pairs from 5,698,533 pairs in 1930. Imports of shoes for men and boys declined from 265,783 to 146,438 pairs; shoes for women and misses from 3,249,304 to 3,137,018; children's shoes from 157,737 to 108,286, and leather slippers from 538,856 to 299,636. Imports of footwear with fabric uppers increased from 1,486,523 to 2,233,662 pairs, valued at \$492,942; of these about 77 per cent were made in Japan. See LEATHER.

**BORNEO.** An island in the Malay Archipelago, with an area of about 290,000 square miles and a population estimated in 1927 at 3,000,000. Politically the island is divided into Dutch Borneo, British North Borneo, and the British protectorates, Sarawak and Brunei. See NETHERLAND EAST INDIES, BRITISH NORTH BORNEO, SARAWAK, and BRUNEI.

**BOSNIA AND THE HERZEGOVINA,** *her'tse-gó-vě-na*. Former Provinces in the Turkish Empire, which were incorporated in the Austro-Hungarian Empire in 1908. In 1918, after the collapse of Austria-Hungary, they became Provinces of the newly established state of Yugoslavia. They were obliterated as administrative units by the law of Oct. 3, 1929, which

redivided Yugoslavia into nine new Provinces. The area was 19,768 square miles and the population, at the census of Jan. 31, 1921, 1,889,929. See YUGOSLAVIA.

**BOSTON MUSEUM.** See ART MUSEUMS.

**BOSTON UNIVERSITY.** A nonsectarian institution of higher education in Boston, Mass., founded in 1869. The enrollment for the autumn session of 1921 was 10,416, distributed as follows: College of liberal arts, 631; college and extension courses, 367; college of business administration, 3614; college of practical arts and letters, 686; college of music, 194; school of theology, 270; school of law, 514; school of medicine, 237; school of education, 3300; school of religious education and social service, 131; graduate school, 572. The enrollment for the 1931 summer session was 1980. The faculty numbered 521. The endowment amounted to \$1,959,760. In the 10 libraries of the university there were 170,322 volumes.

During 1931 three new departments were established: Placement service which, without charge, takes care of university graduates who are seeking positions, as well as undergraduates; department of student counseling and religious activities under a director who correlates and coordinates this phase of student life in the university's ten departments; and department of student health and physical education which will coordinate all varsity and intra-mural athletics and physical education for men and women under a dean. An apartment-house dormitory, valued at \$150,000, was erected to accommodate 150 women students of the Sargent School of Physical Education, which became a part of Boston University in 1930. The date of March 13 was set aside as Founders' Day and was to be observed as such annually, honoring the memory of the three founders of the university, Isaac Rich, Lee Claflin, and Jacob Sleeper. President, Daniel L. Marsh, A.M., S.T.B., D.D., Litt.D., L.H.D., Ph.D.

**BOTANY.** The general trend of botanical study during the year was along physiological and phytopathological lines, although ecology and genetics are becoming more and more attractive subjects for investigation. Taxonomy, once the dominant branch of botanical research, now appeals to comparatively few students in this country, although it is still important at many European institutions. Studies in floral anatomy occupied the attention of some investigators, and the theory of carpel polymorphism proved a controversial point. Edith R. Saunders (*Ann. Bot.* 177: 91-110. 1931) considered that her studies in the Sterculiaceae definitely established the fact of carpel polymorphism, and therefore believes that the individual ovary in this group, which outwardly has the appearance of being monomerous, is in reality composed of five carpels. Arthur J. Eames, on the other hand, thinks that the theory was disproved by anatomical study, and that although carpel specialization, reduction and loss have freely occurred, there is no evidence of such modification (*Am. Journ. Bot.* 18: 147-188. 1931).

**PHYSIOLOGY.** Numerous studies were made of the effect of various chemicals on plant growth. A. R. C. Haas (*Bot. Gaz.* 92: 94-100. 1931) found further evidence of the necessity of boron in the healthy development of citrus fruits; while Helen S. Morris (*Bull. Torr. Bot. Club* 58: 1-30. 1931) described the toxic effect of

the same element on wheat. She found that the toxicity depends on the degree of concentration of the chemical in solution, 50 ppm causing a retardation of 40 per cent, and 100 ppm inhibiting growth almost completely. Ernest S. Reynolds (*Ann. Missouri Bot. Gard.* 18: 57-95, 1931) discussed the essential problems in the physiology of plant diseases. By cultural study two kinds of toxic substances were recognized in flax extracts, one a glucoside, linamarine, which yields hydrocyanic acid upon electrolysis, the other a new and unidentified thermostable toxic substance detected in flax extracts of higher concentration. G. W. Chapman (*New Phytologist*, 30: 119-127, 1931), investigating the cause of succulence in plants, concluded that it is probably due to a greater water-retaining power of the compounds of monovalent metals as compared with the retaining power of those of divalent metals. Edna L. Johnson (*Am. Journ. Bot.* 18: 603-614, 1931) studied the effect of light X-ray dosages which were reported to cause stimulation, using for experimentation numerous seedlings of tomato, sunberry, sunflower, and two species of vetch. She found that no appreciable increase in growth was evidenced as compared with the controls, either by measurements of height or by green and dry weight determinations. In connection with many researches on the effects of added illumination, W. W. Garner and H. A. Allard (*Journ. Agric. Research* 42: 629-651, 1931) discovered that breaking the continuity of the daily illumination period by darkening in the middle of the day, failed to affect reproductive activity nearly as much as when the light was excluded at the beginning or close of the day. In another paper Garner stated that it has been found by experiment that the beet may become an annual when subjected to a day of long illumination together with a cool temperature.

**GENETICS.** Genetic research has been extensively pursued along the lines indicated by Muller's discovery several years ago of the induction of mutations by the application of X-rays. It has apparently been demonstrated that the significance of this lies not in the direct effect of the X-rays on the genes, but in the ionization of the transmitting medium, setting free electrons which cause mutations by their direct impact upon the genes.

**Metaxenia**, or the direct action of pollen on tissues of the parent plant, known first in corn, was found to occur in the date palm, and this suggested a series of experiments on cotton, conducted at Sacaton, Arizona, by G. J. Harrison (*Journ. Agric. Research* 42: 521-544, 1931). The effects of metaxenia were clearly shown in the length of the lint hairs and the quality of fuzz. In connection with cotton, also, the color factor of the corolla was found by J. B. Hutchinson to have a considerable effect on the plant, since it modifies petal size and lint length in both New and Old World cottons. In a study of wheat and rye hybrids and back crosses, V. H. Florell (*Journ. Agric. Research* 42: 315-339, 1931) indicated the possibility of producing some constant strain that might prove of economic value. Dontecho Kostoff (*Am. Journ. Bot.* 18: 112-113, 1931) described a fertile triple hybrid tobacco, the species involved being *Nicotiana tabacum*, *N. sylvestris*, and *N. rusbyi*. He believed it to be the first case of such a hybrid truly composed

of complete contributions from each of three variable and different species of the tobacco family.

**ECOLOGY.** The experiments on seed viability initiated by the late Dr. W. J. Beal in 1879 were discussed by Darlington (*Am. Journ. Bot.* 18: 262-263, 1931). At that time a quantity of seeds of various plants were buried, and viability tests have since been conducted at intervals of five and ten years. The five species of which a certain percentage of seeds germinated after fifty years were *Rumex crispus*, *Oenothera biennis*, *Verbascum blattaria*, *Brassica nigra*, and *Polygonum hydropiper*.

Turesson (*Hereditas* 14: 99-152, 1931) conducted investigations for several years on the selective effect of climate upon plant species in a Swedish experimental garden. Northern and southern plants grown together tended to retain whatever differences in stature they might possess. Spring blooming plants of north and south behaved differently. The various tests showed also that in the case of many species, mild and severe climate forms are not mere ecological variants but biotypes of different hereditary nature. Firbas (*Jahrb. f. Wissenschaft. Bot. Bd.* 74: 459-696, 1931) made a detailed study of high moor vegetation in Europe, and concluded that except for *Drosera*, most of the species are strongly xerophytic, possessing a relatively large surface and well developed conducting system.

Experiments on trenched and untrenched plots on a pure stand of white pine (*Bull.* 30, School of Forestry, Yale Univ.) showed that diminishing root competition for moisture had the effect of increasing the number of species and individuals. Thus in the trenched plot after eight years there were 1882 individuals of 31 species, and in the untrenched plot after the same period 267 individuals of 25 species. E. Wyllie Fenton (*Journ. Ecol.* 19: 75-97, 1931), discussing the influence of sectional grazing on grassland flora, found that one result was a marked increase of perennial rye grass and white clover, which tended to form an association. F. E. Fritsch (*Journ. Ecol.* 19: 233-271, 1931), studying the ecology of freshwater algae, classified them as follows: A, attached communities (including epiphytic and silt-bottom forms); B, floating macro-communities (as distinguished from plankton); C, loose-lying communities; D, plankton. H. Heilig (*Zeit. f. Botanik B.* 25: 225-279, 1931) furnished data as to the osmotic pressure of a number of species of plants.

**PHYTOPATHOLOGY.** Herbert S. Jackson (*Mem. Torr. Bot. Club* 18: 1-108, 1931), discussing present evolutionary tendencies in the origin of life cycles in the Uredinales, concluded that the ancestral rusts were heteroecious, heterothallic. Reduction in the life cycle has in many cases been accompanied by the development of homothallism. Delia E. Johnson (*Phytopathology* 21: 843-864, 1931) described four types of bacteria antibiotic to certain smuts and other fungi, and R. H. Bamberg (*ibid.* 881-900) also found that some cultures of bacteria had a deleterious effect on the development of corn smut (*Ustilago zeæ*). In connection with the mosaic disease of tomato, Heuberger and Moyer (*Phytopathology* 21: 745-750, 1931) discovered that early infection caused the greatest amount of reduction in yield. A description of a fungus disease of date palms in California and Arizona, to which the name black scorch has been applied, was

presented at the fifteenth annual meeting of the Pacific division of the American Phytopathological Society by L. J. Klotz and H. S. Fawcett. A root disease of sugar cane seedlings proved serious in the Philippines. It was studied by Julian A. Agati (*Phil. Journ. Agric.* 2: 1-26, 1931) who concluded that soil disinfection was the only dependable measure for control in the seed bed. C. P. Sideris and G. E. Paxton (*Am. Journ. Bot.* 18: 465-468, 1931) found that the greater portion of pineapple root rot was caused by *Nematosporangium rhizophithoron* and *N. polyandron*, and a considerable amount by species of *Pythium*. It was stated that species of *Fusarium*, often suspected as causal agents of this disease, are likely to be of minor importance under field conditions. J. H. Craigie (*Phytopathology* 21: 1001-1040, 1931) made some important experimental investigations of sex in the rust fungi. Carl E. F. Guterman (*Yearbook N. Y. Hort. Soc.* 1930) presented a popular account of the diseases of lilies, summarizing all available information on the subject. At the fourth annual cotton root rot conference, held at College Station, Texas, in January, 1931, 46 papers were presented by 34 botanists, pathologists, chemists and agronomists, giving the results of experimental work on the life history, and methods of control. These papers were summarized in *Phytopathology* 21: 957-964, 1931.

**TAXONOMY.** Professor Frere Victorin continued his critical investigation of the flora of the St. Lawrence basin (*Contr. du Laboratoire de Bot. de l'Univ. de Montreal*, Nos. 16-18, 1931), of which the most interesting is a revision of the cruciferous genus *Rorippa* in the province of Quebec. He concludes that *R. palustris*, the common watercress, is a large polymorphic species, which has produced several geographic varieties and adaptive forms. J. W. Gregor (*New Phytol.* 30: 204-217, 1931) presented the results of further studies on the experimental delimitation of species in connection with timothy (*Phleum pratense*). In this species two intersterile groups were found to occur. But it was possible to cross these with *P. alpinum*, and therefore *P. pratense* and *P. alpinum* constitute, in Turesson's terminology, a cœno-species, which includes several groups, or eco-species, of less magnitude, and the latter still smaller units, or ecotypes. H. A. Gleason (*Bull. Torr. Bot. Club*, May, 1931) presented the botanical results of the Tyler-Duida expedition to Venezuela in 1928-1929, giving a list of plants collected on Mount Duida with descriptions of some new species. The mountain is at the west end of the Pacaraima range, and its botanical features have hitherto been practically unknown. The flora has proved to be fully as endemic as that of the neighboring Mount Roraima, explored much earlier.

Among the important books of the year were the following: A. M. Johnson, *Taxonomy of Flowering Plants* (New York); Honcamp, *Handbuch der Pflanzenernährung und Düngerlehre* (Berlin); Dr. H. M. Fitzpatrick, *The Lower Fungi—Phycomycetes*; Professor Percy Groom, *Technology of Woods and Fibers*. An international address book of botanists was announced as shortly to be published by the Bentham trustees with aid from the Carnegie Foundation. It will contain the names of botanists in the United States and other parts of the world.

**BOULDER CITY.** See CITY AND REGIONAL PLANNING; DAMS; NEVADA.

**BOULDER DAM.** See under DAMS.

**BOUNDARY DISPUTES.** See BOLIVIA, COLOMBIA, GUATEMALA, IRAQ, under History.

**BOWDOIN COLLEGE.** An institution of higher education for men in Brunswick, Me., founded in 1794. The enrollment of the autumn session of 1931 was 570. There were 54 faculty members. The productive funds of the college amounted to \$6,321,000, and the income for 1930-31 was \$534,000. There were more than 152,000 volumes in the library. President, Kenneth Charles Morton Sills, LL.D.

**BOWLING.** Walter Clack of Erie, Pa., was the surprise of the 1931 American Bowling Congress held at Buffalo in the spring. With a score of 712, Clack succeeded Larry Shotwell, defending champion, as singles title holder. Mike Mauser of Youngstown, Ohio, won the all-events with a score of 1966, and Charley Reilly and Eddie Rafferty of Philadelphia won the doubles. The five-man team laurels went to the S. and L. Motors of Chicago. The A. B. C. tournament was marked by the largeness of the entry, 3649 teams taking part in the competition. Joe Falcaro regained his world's singles championship by defeating Joe Scribner of Detroit 13,131 to 12,138 in sixty games. Falcaro was titleholder in 1929 but did not defend his title in 1930 and Scribner claimed the laurels.

The Boston Club won main honors in lawn bowling when it captured the national rink title in the tournament at Hartford. In the same tourney the Brooklyn Club of the Metropolitan District Association won the East-West competition. The Metropolitan District Association title was won by Van Cortlandt.

**BOXING.** The fifty-fifth heavyweight boxing champion of the world, dating from the time James Figg was the idol of all Great Britain,—Max Schmeling of Germany, who won his crown on a foul in a fight with Jack Sharkey in New York City in 1930—retained his title in the highlight of the 1931 season. In a bout in Cleveland, July 3, the German knocked out Willie Stribling, Georgia contender, and in so doing looked like a champion. Up to the fight with the Southerner, Schmeling had been disregarded when fighters were considered but his truly masterful work in disposing of the dangerous Stribling raised his reputation in the eyes of all. This bout was conducted under the auspices of the Madison Square Garden Corporation and the firm was reported to have lost money on the venture.

All in all boxing remained in the same deplorable state of affairs of the preceding two years. No dominant figure appeared—neither fighter nor promoter, and the game was in the doldrums. The sport had become riddled with graft and the public cognizant of the state of affairs was staying away from all bouts.

The heavyweight division produced several promising newcomers but they were not allowed to show against any worthy opponents. Ernie Schaaf, Boston fighter, Charley Retzlaff, a Northwest product, Steve Hamas, Brooklyn product and former Penn State College fighter boxer, and Stanley Poreda were the best of the newcomers. King Levinsky, hard hitting Chicagoan, was a surprise, giving Primo Carnera a fine battle and defeating Tommy Loughran, master boxer, in Madison Square Garden in December.

One title to change hands in 1931 was the

welterweight. Lou Brouillard, 20-year-old New England sensation, ended Jack Thompson's reign in a bout in Boston in the autumn. All this happened after the California Negro had regained his crown from Tommy Freeman earlier in the year. Tony Canzoneri, lightweight champion, defended his title three times, defeating Jackie Kid Berg twice, and beating Kid Chocolate in New York in November. The relinquishing of the middleweight crown by Mickey Walker in order to fight Jack Sharkey in Brooklyn in July left the middleweight division without a king and, as the year ended, an elimination tournament was being held in the mid-West to decide Walker's successor. Gorilla Jones and Odonne Piazza appeared the best of the lot. Maxie Rosenbloom fought frequently during the year in over-weight bouts, but defeated Jimmy Slattery in a light-heavyweight championship title bout at Ebbets Field, Brooklyn, in August.

Al Brown, bantamweight titleholder, defended his title successfully in the two bouts in which the crown was in danger. He defeated Eugene Huat and Pete Sanstol. The flyweight championship remained disputed. Midget Wolgast, recognized in New York, defended his title against Ruby Bradley at Coney Island, while Frankie Genaro, National Boxing Association champion, lost his title when he was defeated by Young Perez in Paris, in November. Christopher (Bat) Battalino, world's featherweight champion, removed all suspicion that he was not a real champion when he overcame Fidel LaBarba, Freddie Miller, and Earl Mastro, and advanced into the lightweight division to trounce Al Singer, former lightweight champion.

Jack Dempsey, former heavyweight champion, launched a "comeback" campaign in the West by touring the small towns and knocking out unknowns. He made no attempt to demonstrate that he had regained his form before a large crowd in any of the big cities.

Dick Corbett, bantamweight, and Jackie Brown, flyweight, were the most promising English fighters, while Kid Perez was the idol of France.

**BOYDEN, ROLAND WILLIAM.** An American lawyer, died Oct. 25, 1931, in Beverly, Mass., where he was born Oct. 18, 1863. On graduation from the Harvard Law School in 1888, he was admitted to the Massachusetts bar and practiced in Salem for several years, before he became established in Boston. During the World War he was with the legal staff of the U. S. Food Administration, later serving as an official of the American Relief Administration in Europe. He was with the United States mission at the Paris Peace Conference, and was an unofficial representative at the joint conference of Allied and German economic experts in Brussels in 1920. In 1921 he was appointed by President Harding unofficial representative of the United States on the Reparation Commission, resigning from this post in 1924 when he had become convinced that the reparation provisions of the Versailles Treaty were impossible of fulfillment. In 1930 he was selected by President Hoover as umpire of the Mixed Claims Commission, to effect a settlement of the reparation obligations of the German government to the United States. Later in the same year he was appointed a member of the Permanent Court of International Justice at The Hague, succeeding Charles Evans Hughes who had been made Chief Justice of the U. S. Supreme Court. In August, 1931, he was

chosen president of the arbitration tribunal established in accordance with the Young (New) Plan.

**BOY SCOUTS OF AMERICA.** An organization incorporated in 1910, and chartered by Congress in 1916, to develop the character of boys and train them for the duties of adult life by influence brought to bear in their work and play. Its national constitution declares the intention to "promote the ability of boys to do things for themselves and others, to train them in scout craft, and to teach them patriotism, courage, self-reliance, and kindred virtues." Each boy, on joining the organization, takes the scout oath, admonishing him to keep himself "physically strong, mentally awake, and morally straight." The scout law requires him to exert such qualities as trustworthiness, loyalty, helpfulness, friendliness, courtesy, kindness, obedience, cheerfulness, thrift, bravery, cleanliness, and reverence. The movement is nonsectarian and without military or political connection.

The membership in September, 1931, numbered 860,199, of whom 640,670 were boys and 219,529 scout leaders. There were 12 regional scout districts under the direct supervision of the national scout executives and subdivided into 584 local councils. There are three plans of organization; a scout troop, a farm or home patrol and a lone scout tribe. Boys who live too far away from a community to join a scout unit may become lone scouts and carry on the scout programme through correspondence. A scout troop consists normally of 32 members, each troop being made up of patrols of eight or less members under a boy leader. A scoutmaster and one or more assistant scoutmasters are provided for each troop. There is also a troop committee, consisting of three or more men who are responsible for providing the leadership of the troop, camping facilities, a meeting room and other duties. Troops are usually organized in connection with an existing institution such as a church or school. A farm or home patrol may be organized with as few as two boys. It is intended for boys in rural areas. There is a scoutmaster who is sponsored by the fathers of the members of the patrol, and the meeting place may be the homes of the scouts or any other convenient place.

A lone scout tribe has a tribe committee, scoutmaster and assistant scoutmasters. It is composed of boys living sufficiently close together, who are carrying on the scout programme in patrols or as lone scouts and who can get together perhaps once a month or less often for a tribe meeting. The lone scout carries on the programme under the leadership of an adult friend and counselor.

Among the foremost scout activities are camping and hiking, nature study, sea scouting, and many kinds of athletics, and crafts, such as swimming, first aid, signaling, knot-tying, and bridge making. Successive ranks in membership—tenderfoot, second, and first class—are achieved by passing tests, graded in difficulty. Merit badges, 96 in number, may be attained by the scout of first class rank by meeting requirements for each; they cover proficiency in pursuits both of the useful and the hobby type. In order to attain higher ranks in scouting the boy must meet requirements for length of service, develop his leadership ability, and maintain his scout obligations. These and his earning a certain number of merit badges entitle him to promotion to the three ranks of star, life, and eagle scout.

In 1930 the organization provided opportunity for 300,000 boys to spend a week or more in boy scout camps. There were 652 camps conducted by local councils and more than 2400 troop camps. In its community service the boy scout movement coöperates with the U. S. Forestry Department in fighting and preventing forest fires and in conserving wild life, and planting trees. It also renders services in local campaigns of various sorts, such as clean-up and safety-first campaigns, and coöperates with many national societies and movements.

The official magazine for boys is *Boys' Life*, and for scout leaders, *Scouting*. The organization also publishes merit badge pamphlets, handbooks, and other material pertaining to the movement. The national officers in 1931 were: President, Walter W. Head; treasurer, George D. Pratt; national scout commissioner, Daniel Carter Beard; chief scout executive, James E. West; deputy chief scout executive, George J. Fisher. Headquarters of the national council, the governing body, are at 2 Park Avenue, New York City.

**BRANDES**, brän'dēs, CARL EDVARD COHEN. A Danish playwright, novelist, and statesman, died Dec. 20, 1931, in Copenhagen where he was born in 1847. A younger brother of Georg Brandes, the literary critic, he was well known as a writer on dramatic and philosophic topics. He was one of the founders in 1884 of the radical newspaper, *Politiken*, of which he was managing director for many years and one of its most important contributors. From 1913 to 1920 he held the portfolio of finance in the cabinet of which Carl Theodor Zahle was premier and minister of justice. His plays include: *Heilmittel* (1880); *Lagedidler* (1881); *Ein Besuch* (1882); *Ein Bruch* (1885); *Liebe* (1887); *Unter dem Gesetz* (1890); *Unter Loven* (1890); *Hos Sighrit* (1902); and his novels: *Ein Politiker* (1889) and *Das junge Blut* (1889).

**BRAZIL**. A federal republic, the largest of the South American states, comprising roughly the east central third of the continent. Capital and largest city, Rio de Janeiro. A site for a new federal capital has been selected in the state of Goyaz.

**AREA AND POPULATION.** The area is approximately 3,275,510 square miles, or more than 250,000 square miles greater than that of continental United States, and the total estimated population on Jan. 1, 1930, was 40,272,650, as compared with 30,635,605 at the census of 1920. The population in 1930 was divided among 20 States, one Federal District, and one Territory as follows: Alagoas, 1,189,214; Amazonas, 433,777; Bahia, 4,135,894; Ceará, 1,626,025; Espirito Santo, 661,416; Federal District, 1,468,621; Goyaz, 712,210; Maranhão, 1,140,635; Matto Grosso, 349,857; Minas Geraes, 7,432,243; Pará, 1,432,401; Parahyba, 1,322,069; Paraná, 974,273; Pernambuco, 2,869,814; Piahy, 809,508; Rio de Janeiro, 1,996,899; Rio Grande do Norte, 738,889; Rio Grande do Sul, 2,959,627; Santa Catharina, 948,398; São Paulo, 6,399,190; Sergipe, 547,965; Acre Territory, 113,725.

The chief cities, with the estimated populations in 1929, are: Rio de Janeiro, 1,468,621; São Paulo, 879,788; São Salvador, 328,898; Recife, 340,543; Belém, 279,491; Porto Alegre, 273,876; Fortaleza, 123,706; Bello Horizonte, 108,849; Nitheroy, 108,233; Maceló, 103,930;

Curitybe, 100,135. Parahyba (74,104 in 1929), capital city of the state of Parahyba, was renamed Joao Pessoa in honor of the President of the state assassinated in 1930. Between 1820 and 1930, 4,518,558 immigrants entered Brazil. Of these, 78 per cent were of Latin origin and 2,561,981 settled in the state of São Paulo. Immigrants in 1930 numbered 67,066, of whom 18,719 were Portuguese, 14,076 Japanese, 4719 Poles, 4253 Italians, 4180 Germans, and 3218 Spaniards. The 1929 influx totaled 100,424; in 1931 immigration was restricted as a result of unemployment. In July, 1931, the Japanese Consul at São Paulo estimated the number of Japanese in the city and its environs at 110,000.

**EDUCATION.** According to the census of 1920, 75.5 per cent of the total population were unable to read or write. Education is free but not compulsory, except in seven states. At the beginning of 1929 there were in all Brazil 29,430 primary schools, with 2,052,181 pupils and 47,392 teachers; 212 certified secondary schools, and 367 professional schools, with a combined total of over 37,000 pupils; and 76 teachers' training institutions. The University of Rio de Janeiro is an official university; there are two private universities, at Bello Horizonte and Curityba. A School of Economic and Social Sciences was established at São Paulo under a decree issued April 15, 1931. Other decrees issued during the year completely reorganized the educational system.

**PRODUCTION.** Though potentially one of the greatest agricultural countries of the world, Brazil has only a small fraction of available farm land under cultivation. Wheat and flour are imported in large quantities. Of the cultivated area of 17,387,000 acres in 1928, 4,133,000 acres were devoted to coffee, 6,919,000 acres to maize or corn, and 1,315,000 acres to rice. The coffee crop normally constitutes about 78 per cent of the world supply; in 1930, 15,288,000 bags, valued at \$197,426,388, were exported (14,381,000 bags valued at \$323,198,079 in 1929). The annual corn crop was officially estimated at from 5,000,000 to 5,500,000 short tons. Official figures for the 1931 rice crop showed 845,900 short tons of unhulled rice, or about 423,000 tons hulled, of which two-thirds was consumed in Brazil. The cotton crop for 1930 totaled 472,326 bales (of 500 lbs. each), produced on 1,434,800 acres. Other leading crops are cacao, tobacco, rubber, balatá (gum), sugar, yerba maté (tea), rubber, potatoes, cereals, silk cocoons, fruits and nuts, mandioca (cassava). The acute depression of agriculture during 1930 and 1931 was illustrated by the 40 per cent decrease in the value of coffee exports in 1930, as compared with 1929. Livestock estimates for 1931 were: Cattle, 38,670,000; horses, 5,750,000; asses and mules, 2,040,000; swine, 18,220,000. About 1,000,000 head of cattle are slaughtered annually for the production of jerked beef. Coffee production in 1931 was in excess of 24,000,000 bags; prices averaged \$7 to \$7.50 a bag, as against \$9 to \$10 a bag in the preceding year.

Forests cover about 1,236,000,000 acres and yield pine, eucalyptus, rosewood, and other valuable woods. The iron-ore resources compare with those of the United States, constituting about one-fourth of the world supply. Low-grade coal deposits were estimated at 5,000,000,000 tons. Manganese is the chief mineral export, going



principally to the United States. In 1930, shipments to the United States were 79,849 tons, valued at \$1,484,039. Gold, diamonds, emeralds, and other precious stones are found.

Cotton weaving is the principal manufacturing industry. There has been fairly rapid industrial development of recent years due to tariff protection, but in 1930 and 1931 industry was badly depressed. In 1929, there were about 347 cotton mills, with 123,521 employees; 216 sugar mills, 15 packing plants, 35 woolen mills, and 16 jute mills. Cement, paper, tobacco, and silk products are other leading manufactured articles. Power was furnished chiefly from imported coal, local deposits being of inferior quality and far from industrial centres. In 1931, there were about 500 hydro-electric power plants, with a combined capacity of over 700,000 horse power. The Chamine hydro-electric project, near Curitiba, and the Jerry O'Connell project at Bananeiras (State of Bahia) were completed during 1931. See *History* for the economic situation in 1931.

COMMERCE. Brazil's foreign trade declined 34 per cent in value in 1930 as compared with 1929, the respective totals being 5,251,059,000 milreis paper (\$562,388,400, computed at the average exchange rate for 1930 of \$0.1071) and 7,388,220,000 milreis paper (\$872,549,000, computed at \$0.1181 for 1929). Exports amounted to 2,907,354,000 milreis (\$311,377,000), as against 3,800,482,000 milreis (\$455,923,000) in 1929, while imports totaled 2,343,705,000 milreis (\$251,010,800), as against 3,527,738,000 milreis (\$416,620,000) in the previous year. The favorable visible trade balance was 563,649,000 milreis (\$60,366,800) in 1930 and 332,744,000 milreis (\$39,297,000) in 1929. Since Brazil's annual foreign obligations total over \$170,000,000, outpayments during 1930 exceeded receipts from abroad by some \$110,000,000.

While imports decreased in both volume and value in 1930, exports were greater in volume than for any of the previous five years, due to the largest coffee shipments since 1915. The drastic fall of prices accounted for the decline in the value of exports. The United States retained its leading position in Brazil's trade, although imports from the United States fell off nearly 50 per cent in value. The value of trade with Brazil's other leading customers declined also, but to a lesser degree. Brazilian imports, in milreis, from the chief sources of supply in 1930, with comparative figures for 1929 in parentheses, were: United States, 568,184,000 milreis or \$53,727,817 (1,063,100,000 or \$108,503,322); United Kingdom, 452,841,000 (667,757,000); Argentina, 312,059,000 (385,675,000); Germany, 267,120,000 (447,534,000); France, 118,293,000 (187,363,000). Exports were distributed chiefly as follows: To the United States, 1,179,421,000 milreis or \$130,853,892 (1,629,807,000 milreis or \$207,686,130 in 1929); France, 266,808,000 (429,440,000); Germany 265,046,000 (338,122,000); United Kingdom, 237,126,000 (251,377,000); Argentina, 199,109,000 (245,179,000). The United States furnished 24 per cent of the total imports in 1930, compared with 30 per cent in 1929, while Great Britain increased its percentage to 19.4 from 19.2 in 1929. There was a favorable trade balance of nearly \$100,000,000 in 1931. Imports totaled about \$139,000,000; exports, \$231,000,000.

FINANCE. The Federal budget for 1930 calculated revenues at 199,271,700 gold milreis and

1,371,431,300 paper milreis and expenditures at 135,113,000 gold milreis and 1,639,114,000 paper milreis (the par value of the gold milreis was \$0.5463 U. S. currency; the par value of the paper milreis was \$0.1196 and the average exchange rate in 1930 was \$0.1071). According to the Niemeyer report (see under *History*), actual revenues for 1930 totaled 118,751,000 gold milreis and 966,696,000 paper milreis. Adding extraordinary receipts and assigned revenues, total receipts for the year amounted to 120,933,000 gold milreis and 1,074,746,000 paper milreis. Actual expenditures totaled 127,055,000 gold and 1,733,158,000 paper milreis; adding expenditures from assigned revenues, the aggregated disbursements were 127,123,000 gold and 1,820,635,000 paper milreis. The deficit of 6,190,000 gold and 745,889,000 paper milreis was converted in the Niemeyer report into 783,029,000 paper milreis, or about \$83,862,000 at the average exchange rate for the year.

The budget for 1931 calculated revenues at 137,305,000 gold and 1,480,379,000 paper milreis and expenditures at 115,437,000 gold and 1,486,898,000 paper milreis. In May, 1931, the budget was drastically revised to meet a decline in customs revenues. Expenditures were reduced to an annual level estimated at 114,222,000 milreis gold and 1,357,016,000 milreis paper (a total of about \$171,383,380 at the current exchange rate). This represented an estimated expenditure reduction of about \$34,057,000 from the 1930 budget appropriations. At the same time increased taxation, estimated to bring in an additional 376,570,000 paper milreis (about \$30,125,600), was imposed. Including extraordinary revenue of 28,127,000 milreis gold due from the *Caixa de Estabilização* (Stabilization Bureau), the Finance Minister estimated that 1931 would show a surplus of 113,205,000 paper milreis (about \$9,056,400), with total expenditures of 2,175,392,000 milreis paper (about \$174,031,000) and total receipts of 2,288,597,000 milreis paper (about \$183,087,760). At the end of the first nine months of 1931, the Treasury reported a surplus of \$6,824,000 gold.

The total Federal debt on Jan. 1, 1931, according to the Niemeyer report, consisted of 2,533,916,000 paper milreis of internal funded debt and the external debt divided as follows: Pounds sterling, 100,569,751; gold francs, 193,556,110; paper francs, 135,778,500; United States dollars, 143,336,998; total, about \$671,030,000. In addition the Federal Government had guaranteed various railway and public works loans. The financial position of the Brazilian states and municipalities was in general difficult during 1930 and 1931. The Federal Minister of Justice estimated in December, 1931, that interest, amortization, and commissions on the foreign Federal, state, and municipal debts during 1931 would total about \$131,566,600. On Oct. 17, 1931, the Federal Government announced the suspension for three years of gold payments on the bulk of the foreign debt (see under *History*). The gold milreis is a unit of account employed only in certain official transactions, revenues nominally collectible in gold milreis being actually paid in paper milreis at a rate varying daily with the rate of exchange.

COMMUNICATIONS. At the beginning of 1930, there were 19,840 miles of railway lines, of which 11,829 were owned by the Federal Gov-



ernment, 5024 miles by state governments, and 2982 miles were operated under Federal concessions. The total mileage was divided into 58 different systems. The Central Railway of Brazil (1804 miles of line), the principal railway system, is owned by the Federal Government. Highways in 1930 extended a total of 75,497 miles, of which 963 miles were macadam, 2222 miles were improved but not hard-surfaced, and 73,312 miles were unimproved. Air lines link Rio de Janeiro with the chief cities of South America and the United States. During 1931, air services were inaugurated from Rio de Janeiro to São Paulo, Curitiba, and Belo Horizonte as the first step in a plan to link the capital with the principal interior cities of Brazil.

GOVERNMENT. The Constitution of 1891, modified in 1926, was suspended following the successful revolution of October, 1930. The Provisional Government of Dr. Getúlio Vargas ruled by decree throughout 1931; administration of the Government was divided among nine departments. The national and state legislatures were dissolved, pending the revision of the framing of a new constitution and electoral law. For other developments in 1931, see under *History*.

### HISTORY

GROWTH OF POLITICAL UNREST. The inauguration of Dr. Getúlio Vargas as Provisional President of Brazil on Nov. 3, 1930, marked the successful conclusion of a revolt produced partly by nation-wide discontent with political and economic conditions and partly by rivalries among the political leaders of the various states. Before a year had elapsed these same forces were threatening to overwhelm the Provisional Government. The opposition to the Vargas Government centred in its failure to ameliorate the economic depression, the delay in establishment of the promised constitutional régime, and the alleged favoritism shown by President Vargas in the appointment of political followers from his own state of Rio Grande do Sul to important posts in the Federal Government.

Dissatisfaction first came to a head in the city and state of São Paulo. A revolt among the São Paulo police was repressed without difficulty on April 28. On May 20, troops of the Federal Government suppressed a military and civilian outbreak at Pernambuco (Recife) in Northern Brazil. An agitation in São Paulo for the appointment of a local citizen in place of the Provisional Governor named by the Central Government finally caused Dr. Vargas to yield. In the third week of July rioting broke out between students and the upper classes supporting the new Provisional Governor and laborers and other adherents of Miguel Costa, chief of the state militia. Dispatches filed from Buenos Aires to escape the censorship of the Brazilian Government reported that four were killed and many injured in the São Paulo rioting. Federal troops from Rio de Janeiro were called in to restore order. In August, the Federal Government was forced to give military support to State President Olegário Maciel of Minas Geraes as against the followers of former President Artur Bernardes of Brazil, who had emerged as the leader of the anti-Vargas forces.

A more serious revolt against the Vargas régime broke out in Pernambuco toward the end of October, the trouble originating among the troops of the garrison. The outbreak was put

down after two days of fighting, with the death of two officers; subsequently some 300 participants in the rising were exiled by the state Government of Pernambuco to the island of Fernando do Noronha. On November 20, President Vargas signed a decree providing for the trial before military courts of all persons accused of subversive activities against either the Federal or state Governments.

These military movements were accompanied by a growing demand, particularly from the southern states, for the early holding of elections and the calling of a constitutional convention. In May, Provisional President Vargas announced the appointment of "technical legislative committees" to study legislative and constitutional problems in preparation for a return to constitutional government. An electoral code drawn up by these committees was promulgated in two sections in September and November. It provided a new political organization for all states and municipalities and proposed to introduce far-reaching administrative changes. The opposition aroused by some sections of the code dimmed hopes for an early return to constitutional procedure.

Dissensions within the Provisional Government were reported responsible for the resignation on November 13 of José Maria Whitaker, Secretary of the Treasury. His post was filled by the Minister of Justice, Oswaldo Aranha. Other resignations occurred at the same time.

EXECUTIVE LEGISLATION. The electoral code was but one of a series of important decrees issued by the Provisional Government during the year. These decrees abolished the inter-state and inter-municipal tariffs long customary in Brazil, effective Jan. 1, 1932, removed many of the restrictions upon the press, established a minimum wage and other advanced labor legislation, and restricted immigration as a means of relieving unemployment. Other decrees imposed emergency income taxes upon the salaries of all Government employees, provided that at least two-thirds of the employees of all business concerns must be native-born Brazilians, modified the naturalization law, and reduced the number of legal annual holidays from 12 to 6. A federal purchasing board was established, and the Government was authorized to raise import duties up to a limit of 20 per cent whenever necessary to protect the commerce and agriculture of the nation. Plans were also made to safeguard the nation's water-power and other natural resources and to increase its control of communications.

The Government also took steps calculated to improve prices of Brazil's primary agricultural products. Toward the end of December, 1931, it agreed to buy the coffee surplus of some 24,000,000 bags and to hold it for sale over a period of 10 years. Later it called an international coffee conference, which convened at São Paulo May 17, 1931. With the coöperation of the Government, the National Coffee Defense Council purchased large quantities of coffee for destruction during 1931. Despite these moves, coffee futures quotations in Rio de Janeiro at the end of July, 1931, were the lowest since 1903, and those at Santos were the lowest ever listed. With the December announcement of further plans for the stabilization of prices, including the destruction of 12,000,000 bags in the succeeding 12 months, prices improved somewhat. On Aug. 21, 1931, the Federal Farm Board of the United

States agreed to exchange 25,000,000 bushels of wheat for 1,050,000 bags of coffee held by the Brazilian Government. By a Sugar Defense Act, promulgated Sept. 15, 1931, the Government required producers to deposit in specific warehouses 10 per cent of the sugar leaving their mills for the consuming market.

**FINANCIAL MEASURES.** In January, 1931, the Provisional Government invited Sir Otto Niemeyer, British banker and economist, to study the situation in Brazil and advise the Government on necessary financial reforms. Sir Otto's report, submitted late in July, made ten major recommendations, the chief of which were the establishment of a Central Reserve Bank, along the lines of the U. S. Federal Reserve Bank, and the balancing of the Federal and state budgets. He urged that the state-owned postal and telegraph services be made self-supporting (their estimated deficits for 1931 were 20,281,000 milreis and 24,059,000 milreis, respectively), and that the Federal Railways be administered by an autonomous body free from political control in order to eliminate a chronic deficit, estimated at 21,000,000 milreis for 1931. To establish the Central Reserve Bank, an external loan of about \$80,000,000 was considered necessary. After the Niemeyer report had been carefully studied by a Government commission, provision for putting the bulk of its recommendations into effect was made by a decree issued Sept. 10, 1931. For steps taken to balance the budget, see under *Finance*.

Meanwhile a steady decline in the exchange value of the paper milreis was under way, making it increasingly difficult for governmental agencies and private debtors to meet payments on their foreign obligations. In terms of U. S. currency, the exchange value of the milreis declined from an average of \$0.1071 for 1930 to \$0.0562 for October, 1931. Accordingly, the Government on August 31 announced the suspension of sinking fund payments abroad on all except the two funding loans of 1898 and 1918 and the coffee loan of 1922. Milreis were to be deposited locally for amortization and were to be transferred abroad when the exchange strengthened. On October 8, the Government followed this with a decree declaring a 60-day moratorium on all foreign commercial and private payments; funds to cover these payments were to be deposited in national currency in Brazilian banks, however. A third decree of October 17 canceled cash interest payments for three years on all of Brazil's foreign debts except the 1898 and 1918 funding loans and the coffee loan of 1922. Payments on all other loans were to be met with scrip bearing 5 per cent interest. At the end of three years the scrip was to be converted into two bond issues at 5 per cent, one to mature in 20 and the other in 40 years. The Government sought to avert these steps by the limitation of foreign exchange transactions but failed. With the declaration of the moratorium on foreign interest payments, the restrictions on exchange dealings were lifted.

The commission appointed to examine the accounts of the Federal Government for the last three years of the Washington Luis régime submitted a report early in 1931. It reported that instead of the aggregate surplus of 404,189,000 paper milreis announced in the annual Presidential messages from 1927 through 1929, there was an actual deficit of 491,169,000 paper mil-

reis. The commission charged that 610,783,000 paper milreis had been spent irregularly and without legal sanction. The deposed President, Washington Luis, and three of his colleagues, most of whom were in exile in Europe, were found guilty of malfeasance and confiscation of their properties was threatened.

**OTHER EVENTS.** In the reorganization of the affairs of the interior states of Para and Amazonas, Federal Governors canceled almost all of the land concessions granted by previous administrations. Two concessions in Para held by Henry Ford and a Japanese subject, each for 2,700,000 acres, were not interfered with. It was reported that Ford had invested \$8,000,000 in the development of his rubber plantations and that 1500 men were employed. In October, 1931, two mixed commissions resumed the marking of the Brazil-Uruguay frontier, interrupted for four years. Preparations for taking an industrial census of Brazil were made during 1931. The American Naval Mission to Brazil, comprising 35 men, was released on Jan. 31, 1931, as an economy measure.

Consult Agnes S. Waddell, "The Revolution in Brazil," *Foreign Policy Association Information Service*, Mar. 4, 1931, vol. VI, No. 26.

**BREED, DAVID BIDDLE.** An American clergyman and educator, died in Albuquerque, N. M., Dec. 10, 1931. He was born in Pittsburgh, Pa., June 10, 1848, and was graduated from Hamilton College in 1867 and from the Auburn Theological Seminary in 1870. Ordained to the Presbyterian ministry, he held pastorates in St. Paul and Chicago until 1894, when he was called to the First Presbyterian Church in Pittsburgh. In 1898 he became professor of practical theology at the Western Theological Seminary in Pittsburgh. He also identified himself prominently with the Presbyterian Board of Missions for Freedmen. Among his publications are many tracts, notably *More Light*, which had a wide circulation; works on hymnody, especially a frequently reprinted *History and Use of Hymns and Hymn Tunes*; *Abraham, the Typical Life of Faith* (1886); *Heresy and Heresy* (1891); *History of the Preparation of the World for Christ* (1891); and *Preparing to Preach* (1911).

**BREMEN, brä'mën.** A state of the German Republic. See GERMANY under *Area and Population*.

**BRENTANO, LUJO.** A German political economist, died in Munich, Sept. 9, 1931. He was born in Aschaffenburg Dec. 18, 1844, and attended the universities of Heidelberg, Munich, Würzburg, Göttingen, and Dublin. With Ernst Engel, the statistician, he made an investigation in 1868 of English trade unionism, which resulted in his principal work: *Die Arbeitergilden der Gegenwart* (2 vols., 1871). In 1872 he was appointed professor of political economy at the University of Breslau and later held the same chair at the universities of Strassburg (1882-88), Vienna (1888-89), Leipzig (1889-91), and Munich, (1891-1914). During his early career he combated the wages-fund theory which was generally accepted by British economists, and advocated free trade in an age when a protective tariff was popular. The Eagle shield of the President of the Reich was conferred on him in 1930. Among his works are: *Das Arbeitsverhältnis gemäss dem heutigen Recht* (1877); *Über das Verhältnis von Arbeitslohn und Arbeitszeit zur Arbeitsleistung* (1893); *Agrarpolitik* (1897);

*Die Schrecken der überwiegende Industriestaat* (1901); *Die Wirtschaftliche Lehren des Christlichen Altertums* (1902); *Die Entwicklung des Wertlehre* (1908); *Die deutsche Getreidesölle* (1911); *Die Anfänge des Modernen Kapitalismus* (1916); *Arbeitslohn und Arbeitszeit nach dem Kriege* (1918); *Der wirtschaftliche Mensch in der Geschichte* (1923); and *Konkrete Grundbedingungen der Volkswirtschaft* (1924).

**BREST-LITOVSK AFFAIR.** See POLAND under *History*.

**BRETHREN, CHURCH OF THE.** A church established in the United States in 1719 in Germantown, Pa. It originated in Schwarzenau, Germany, in 1708 and is the largest of the five branches of the denomination formerly known as the German Baptist Brethren or Dunkers. Other churches of this group are: The Church of God (New Dunkards); Brethren Church (Progressive Dunkers); German Seventh-day Baptists; and Old Order German Baptists Brethren. The policy of the Church of the Brethren corresponds more nearly to the Presbyterian than to any other specific ecclesiastical form. It comprises 49 district conferences and holds a general conference annually. In 1931 there were 1029 churches, with a membership of 138,173, and 1160 Sunday schools, with an enrollment of 125,831 pupils. Foreign missionary work was carried on in India, China, and Africa, the total membership in the mission field being 5469. Expenditures for the year ending Feb. 28, 1931, totaled \$274,659. The denomination maintained eight colleges, one academy, and one theological seminary and training school, with an enrollment of 4174 students. The *Gospel Messenger* is the official organ.

Officers of the general conference in 1931 were: Moderator, Dr. D. W. Kurtz, Long Beach, Calif.; reading clerk, the Rev. C. Ernest Davis, Mt. Morris, Ill.; and secretary, the Rev. J. E. Miller, Elgin, Ill. The Rev. J. W. Lear of Elgin, Ill., was executive secretary of the council of boards; the Rev. Otho Winger of North Manchester, Ind., president of the general mission board; the Rev. C. Ernest Davis of Mt. Morris, Ill., president of the board of religious education; the Rev. S. J. Miller of La Verne, Calif., president of the general ministerial board; and Dr. C. C. Ellis of Huntingdon, Pa., president of the general education board. With the exception of the general education board, which is located at 3635 Ordway Street, N. W., Washington, D. C., the headquarters of all the boards are in Elgin, Ill.

**BRIDGE.** A game of cards. See **CONTRACT BRIDGE**.

**BRIDGES.** Although the world wide depression undoubtedly resulted in a curtailed building programme for new bridges, the year 1931 will be long remembered as notable in the number of important bridges completed within its 12 months. It was a most notable year in highway construction, and, as most contemporary bridge works are highway structures, bridge building went forward with the road building programme.

Unquestionably, the outstanding bridge event of the year was the opening on October 24 of the greatest of all bridges, that over the Hudson at New York, now officially named the George Washington Bridge. This was followed by the opening ceremonies for the Bayonne Bridge, N. Y., referred to in the past as the Kill von Kull Arch, the longest arch span in the world, on November 14. The great arch at Sydney, Aus-

tralia, illustrated in the 1930 YEAR BOOK, was also practically completed as the year came to a close.

These are to be numbered as the greatest bridges of the ages, but a host of smaller bridges, works which would have been most notable in any normal year, were also opened. Among these should be noted:

The St. John's Suspension Bridge of 1207 ft. span, over the Willamette River at Portland, Ore. on June 18. The Maysville (Ky.)—Aberdeen (Ohio) Suspension, with a 1060 ft. main span, opened November 25.

The high-level Waldo-Hancock Suspension of 900 ft. span, over the Penobscot River, Me., opened September 1.

The longest span yet built by the government of British Columbia, the Hagwilget Suspension over the Bulkley River near Hazelton, B. C., with a main span of 460 feet was completed in July.

Among cantilever structures are noted the deck-type Lake Union bridge of 800 feet main span at Seattle, Wash., dedicated in September. An unusual cantilever type bridge at Montrose, Scotland, was also opened during the year. The bridge was of reinforced concrete with a centre span of 216 feet and replaces the older suspension bridge over the South Esk at this site.

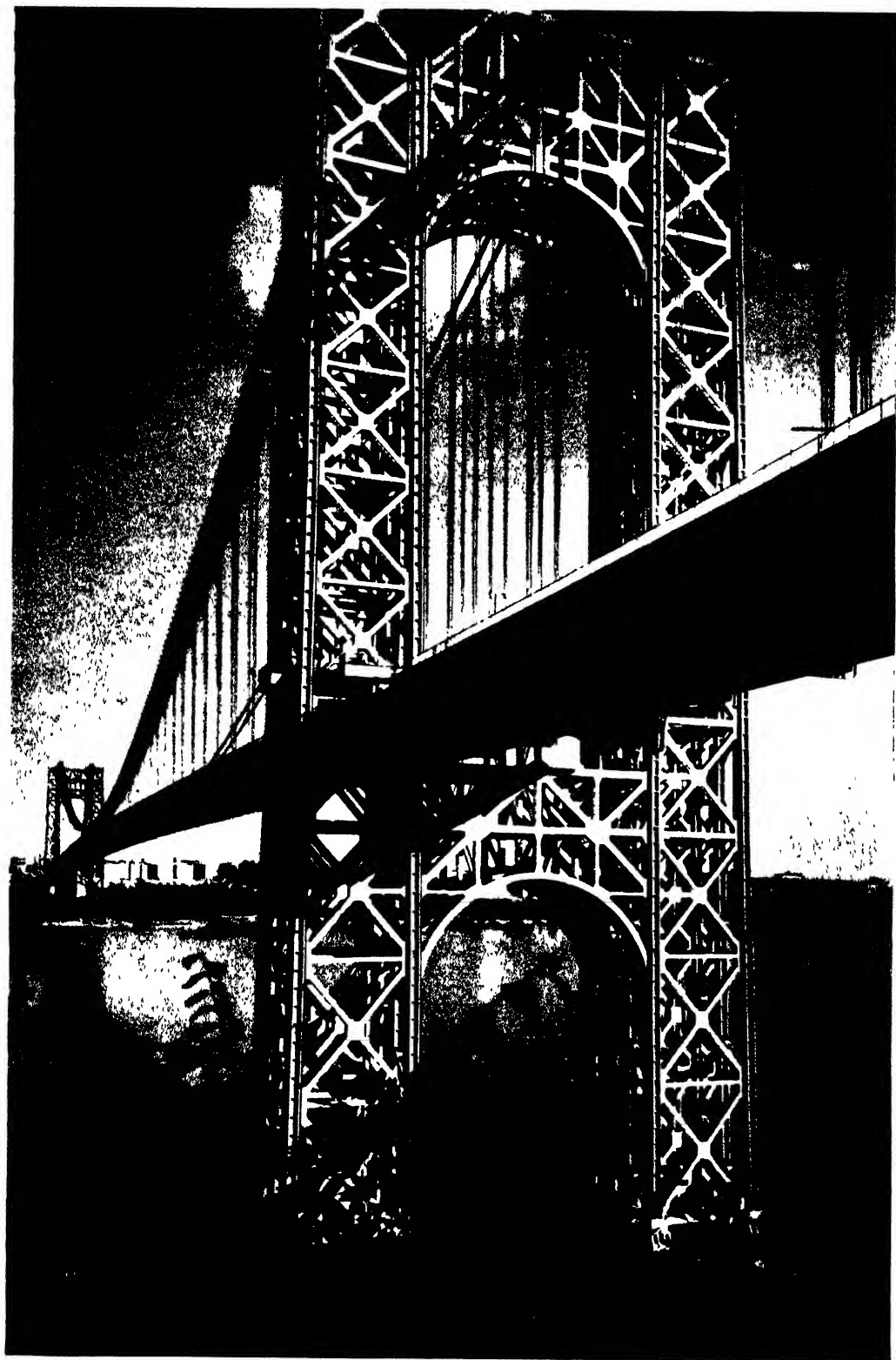
The new steel arch bridge which carries the Westchester Parkway over Croton Lake, was a notable work of the arch type, indeed it is believed to be the longest three-hinged arch yet built—750 feet centre to centre of end pins. It possessed special features of architectural, engineering, and constructional interest. An interesting and monumental steel arch bridge with concrete approaches was also recently completed at Kateweer, Holland. It has a main span of 448 feet.

The opening on July 23 of the new multiple arch concrete bridge over the Salt River at Tempe, Ariz., is also of interest. Its 10 spans of 140 feet each will carry the traffic of four main highways which converge at Phoenix, Ariz. The Arlington Memorial Arch Bridge at Washington, D. C., a combination of concrete, steel, and masonry which should perhaps be classed as a monument rather than a bridge, was also completed during the year.

A notable lift bridge completed is the Joe Page bridge at Hardin, Ill., across the main channel of the Illinois River. This now supplies, by means of a 309-foot lift span, a bridge crossing which replaces the older ferry.

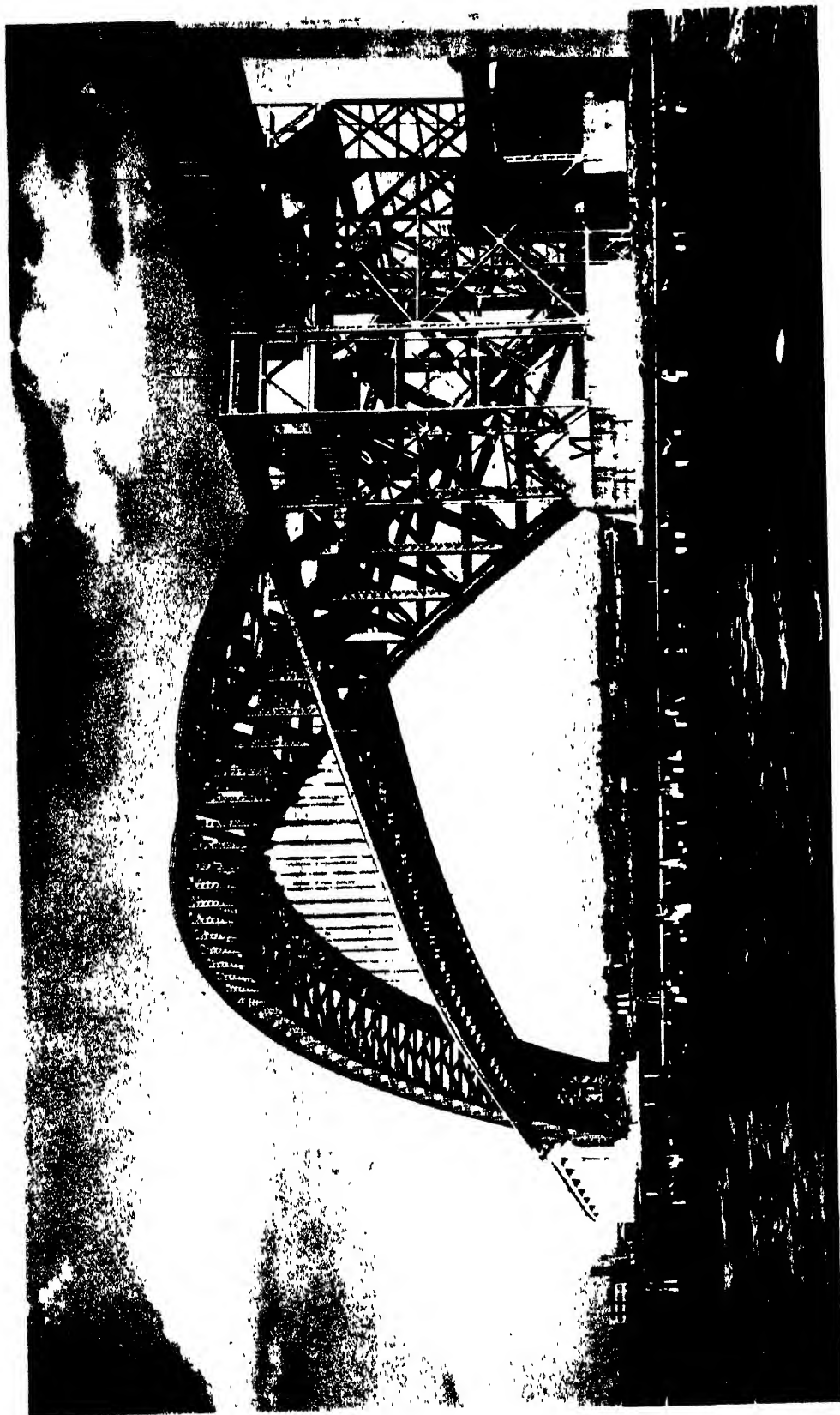
A plate girder span of extraordinary size also was completed, in the approach to the highway suspension bridge over the Maumee River at Toledo, Ohio. The girder is 154 feet long and 12 feet deep. The transportation of this huge structural unit was made possible by using two 36-foot flat cars, on which bearings were provided 117 feet apart and by introducing in between two 50-foot "spacer" cars.

The movement toward public ownership in highway toll bridge construction, noted in the 1929 and 1930 YEAR BOOKS, went forward during the year. Two States were added to the list of States now financing such construction through the medium of toll-revenue bonds. The new Ohio River toll bridge at Ashland, Ky., a cantilever structure, was the first structure to be completed in the \$10,000,000 bridge programme sponsored by Kentucky. The Maysville suspension bridge, noted above, is another bridge of this group. Others were opened in November and December and it is expected that the programme will be



*Wide World Photos*

THE GEORGE WASHINGTON BRIDGE  
Across the Hudson River at New York City  
View from the New Jersey Shore



THE BAYONNE BRIDGE ACROSS KILL VAN KULL  
Erected by The Port of New York Authority

completed early in 1932. The West Virginia Bridge Commission also opened a new cantilever bridge over the Great Kanawah River which marks the initial step in their programme of State toll bridge building. The main span was 600 feet.

**GEORGE WASHINGTON BRIDGE.** Although this bridge with its stupendous 3500-foot span, was officially opened, the final cut-stone masonry covering of the approaches and east anchorage has not yet been completed. The 1930 YEAR BOOK described the spinning of the cables for this work. Upon their completion the hangers and floor system were rapidly placed and work began on the concrete roadways and sidewalks. The early opening, ahead of schedule, was in large measure made possible by the extraordinary plant developed for this concrete work. By taking advantage of the steel floor system construction, the contractor developed an unusual form system consisting of sheet-metal pans placed between the bulb beams. Concrete was handled by an industrial railway using the bulb beams as track. A giant mechanical screed was designed to smooth out the stiff concrete over the full roadway width of 29 feet in one operation. In this way a pouring schedule of 2440 linear feet of 29-foot roadway and 13-foot sidewalk per day was maintained.

In connection with the floor system the stiffening trusses of this work are particularly notable. They are of silicon steel and only 29 feet deep or  $\frac{1}{20}$ th of the main span. This is about  $\frac{1}{2}$  to  $\frac{3}{4}$  the depth used in other recent suspension constructions. The stiffening truss in this bridge is thus a more or less flexible element. This is a new departure for such loads as the rapid transit cars which it is later proposed to place on this bridge, but it was justified, in the opinion of the engineers, due to the great weight of the main span and the short side spans. A saving of some \$10,000,000 was thus effected.

The complex scheme of approaches, designed to bring traffic to and from the bridge without any grade crossings, includes two ventilated tunnels several blocks long, and in themselves constitute major engineering and construction projects. Consult *Engineering News-Record*, Oct. 22, 1931, p. 657, for full description.

**GOLDEN GATE BRIDGE.** With the Washington Bridge officially opened, attention was turned to the even greater span (4200 ft.) planned to cross the Golden Gate at the entrance to San Francisco Bay. A bond issue of \$35,000,000 was voted in November, 1930, to cover the cost of this project and bids for construction under ten separate contracts were opened on June 17. They indicated a cost of \$25,000,000 for construction.

Only one bid was received, however, on the first block of \$6,000,000 of bridge bonds, offered on July 8. This bid was rejected because of its conditional character. Other bond houses refused to bid until the legal and engineering features of the work were cleared up. There seemed to be grave doubt as to whether traffic over this bridge would meet costs and bond interest. The question of whether the district had the right to tax the counties affected to meet bond interest in the event of insufficient bridge revenues, was taken to the Supreme Court of California. On their approval of the bonds and the tax privilege paragraph on November 26, the case was taken into the district court. Opponents of the project stated that they did not object to the construction provided that it could be financed without taxation.

In the meantime, optional contracts had been awarded for the main construction, so as to avoid rejection of the bids, on the understanding that there would be a six months' delay in starting work.

**SAN FRANCISCO-OAKLAND BRIDGE.** Revised plans for a bridge to cross San Francisco Bay to Oakland, Calif., were approved by a special board of engineers on January 10. The main span was to be of the suspension type and elaborate tests of models were under way. One design involved two 2300-foot suspension spans, whereas an alternate plan consists of a single 3800-foot span. While this project was still in the preliminary stages many of the steps necessary to construction had been taken. A loan of \$65,000 was made by the State for preliminary studies and a contract for borings to determine foundation conditions was let in October. Amendments to the State Toll Bridge Authority also were passed in order to clear the way for financing and to provide for the work as part of the State highway system. The cost was estimated at \$78,000,000.

**NEW YORK CITY BRIDGES.** In addition to the work of the Port of New York Authority, the City of New York had not only undertaken the construction of the Tri-Borough Bridge to connect Manhattan, the Bronx, and Queens, but had also adopted special measures to increase the capacities of the four existing East River bridges. These bridges provided 40 lanes for traffic, of which 22 were designed for railroad tracks and 18 for vehicles. In 1922 two railroad lanes were reconstructed for highway traffic and in 1931 five additional vehicular lanes were provided—two on the Manhattan Bridge and three on the Queensborough.

The new Tri-Borough Bridge was under construction at an estimated cost of \$32,000,000. With Ward's Island as a centre its three arms will reach the three boroughs with the following types of construction:

	Vertical clearance	Span
<b>TO QUEENS</b>		
Hell Gate Suspension		
Span .....	135 ft.	1,380 ft.
<b>TO BRONX</b>		
Little Hell Gate		
2 steel arch spans, each .....	50 ft.	375 ft.
Bronx Kill		
2 spans, each .....	50 ft.	125 ft.
<b>TO MANHATTAN</b>		
Harlem River		
Vertical lift span .....	55 ft. 135 ft.	320 ft.

The total length of the three arms will be 17,700 feet, or over three miles.

**PITTSBURGH.** Two steel arch bridges, at McKees Rock and West End, across the Ohio, were nearing completion. The former is a braced-arch of the Hell Gate type with a span of 750 feet while the latter, located  $2\frac{1}{2}$  miles above, has a span of 778 feet. These two bridges, together with the George Westinghouse concrete arch bridge and the South Tenth Street suspension, will provide much needed facilities for the congested area of which Pittsburgh is the centre.

**CONCRETE BRIDGES.** Several interesting concrete bridges were under construction. The Martinez St. Bridge at San Antonio, Texas, is notable as the longest (101 ft.) single span rigid frame



bridge yet constructed. It is of ribbed design with unusually shallow ribs and the slab between ribs at the soffit is made integral with the ribs to provide a T-beam type of resisting section. Concrete designed to give 3000 lbs. per sq. in. compressive strength is used at the unusually high design stress of 1200 lbs. This span is particularly notable in that studies by the Westchester Parkway Commission, which first introduced this type of bridge in the United States, indicated an economical span limit of about 80 feet.

**ROGUE RIVER.** This interesting multiple arch structure on the Roosevelt Pacific coast highway, described in the 1930 YEAR BOOK, was scheduled for completion early in 1932. The Freyssinet method of construction was being used for the ribs of the bridge for the first time in the United States.

**SEATTLE.** The West Garfield St. Viaduct at Seattle, Wash., put in service about the beginning of the year, constitutes a major development in the traffic system of that city. It also involves unique features of reinforced concrete design. A heavy flat slab type of construction, consisting of a continuous one way slab, thickened for negative moment at the supports, constitutes the sole supporting element for spans up to 47 feet between bents. Interesting steel-reinforced concrete trusses are used for spans of 60 feet.

**GEORGE WESTINGHOUSE BRIDGE.** This concrete structure, over Turtle Creek at Pittsburgh, Pa., on the Lincoln Highway, will have the distinction of containing the longest concrete arch span in America, as noted in the 1930 YEAR BOOK. Five arches are required and the longest will be 460 feet. The trend toward lighter concrete construction in the United States is illustrated by the fact that the 42-foot roadway of this bridge is to be carried by only two ribs and that these ribs have a ratio of crown depth to span of only 1 to 80. The usual ratio has been at least 1 to 50.

**PONT DE LA CONCORDE.** This famous bridge over the Seine at Paris, the last work of Perronet, the most famous of French stone-arch bridge builders, has been widened to meet modern traffic needs. A new section, identical with the old construction, has been built on each side of the old bridge which has thus been made the widest bridge over the Seine and at the same time the beautiful arches of the historic structure, completed in 1791, have been retained.

**BRIDGE AWARDS.** The American Institute of Steel Construction continued their efforts to encourage the construction of bridges in America which would be both beautiful and economical to build. The award for Class A was given to the Wabash Ave., Chicago, bascule lift bridge over the Chicago River. No award was made in Class B, but for Class C, costing under \$500,000, the steel highway arch at Delton, Sauk County, Wis., received the prize.

**BIBLIOGRAPHY.** An interesting book has recently been published describing the many (over 50) Roman, Medieval, and Modern bridges which have been built over the Rhine. *The Bridges of the Rhine* by Karl Möhringer, Baden, 1931.

**BRIGHAM YOUNG UNIVERSITY.** A co-educational institution in Provo, Utah, founded in 1875 and maintained under the auspices of the Church of Jesus Christ of Latter-day Saints. It comprises a graduate school; colleges of arts and sciences, education, commerce, applied science, fine arts; and a division of research and extension. In the 1931 summer session, 545 stu-

dents were enrolled; the autumn session enrollment was 1205. The faculty numbered 103 members. The library contained 65,000 volumes and 50,000 pamphlets. The budget for the year was \$305,000. President, Franklin S. Harris, Ph.D.

**BRISTOL, CHARLES LAWRENCE.** An American biologist, died in Westerly, R. I., Aug. 27, 1931. He was born in Ballston Spa, N. Y., Sept. 29, 1859. On graduation from New York University in 1883, he was instructor in science at River-view Academy, Poughkeepsie, N. Y., during 1884-87, and professor of zoölogy at the University of South Dakota during 1887-91. After further graduate study at Clark University and the University of Chicago, he became in 1894 professor of biology at New York University, where he remained until 1925. During 1926-27 he was professor of biology on the University World Cruise. He also directed several zoölogical expeditions to Bermuda and had charge of the transportation of live tropical marine specimens to the New York Aquarium. His publications include *The Metamerism of Nephelids* (1889) and "Treasures of the New York Aquarium" in the *Century Magazine* (1899).

**BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.** An association founded in 1831 in York, England, incorporated by Royal Charter in 1928, and composed of 13 sections representing all branches of pure and applied science. In 1931 the association celebrated its centennial at a meeting in London September 23-30, under the presidency of Gen. Jan Christian Smuts, the South African statesman and philosopher. This meeting also accompanied the celebration of the Faraday centenary. See CELEBRATIONS. A commemorative service was held.

The address of the president at the opening session on "The Scientific World-Picture of Today" and the addresses of the presidents of the sections presented a broad survey of the progress of science and what is to be expected of it in the future. The section presidential addresses were as follows: Section A (mathematical and physical sciences), Sir Joseph J. Thomson on "The Growth in Opportunities for Education and Research in Physics during the Past Fifty Years"; Section B (chemistry), Sir Harold Hartley on "Michael Faraday and the Theory of Electrolytic Conduction"; Section C (geology), Prof. John Walter Gregory on "Geological Problems Contemporary with the British Association"; Section D (zoölogy), Prof. Edward B. Poulton on "A Centenary of Evolution"; Section E (geography), Sir Halford Mackinder on "The Human Habitat"; Section F (economics and statistics), Prof. Edwin Cannan on "The Changed Outlook in regard to Population, 1831-1931"; Section G (engineering), Sir Alfred Ewing on "Power"; Section H (anthropology), Prof. Alfred R. Radcliffe-Brown on "The Present Position of Anthropological Studies"; Section I (physiology), Dr. Henry H. Dale on "The Biological Nature of Filtrable Viruses"; Section J (psychology), Dr. Charles S. Myers on "The Nature of Mind"; Section K (botany); Prof. Thomas G. Hill on "The Advancement of Botany"; Section L (educational science), Sir Charles Grant Robertson on "Educational Development, 1831-1931"; and Section M (agriculture), Sir John Russell on "The Changing Outlook in Agriculture."

Among the important discussions at the meeting was that on the structure, evolution, and

possible disintegration of the universe, Sir James Jeans and Sir Arthur S. Eddington adhering to the "annihilation" theory, while exception to their view was taken by General Smuts, Sir Oliver Lodge, the Rt. Rev. Ernest William Barnes, Bishop of Birmingham, and Prof. Robert A. Millikan of the California Institute of Technology. The theory of "creative evolution" also resulted in a stirring debate between Prof. Julian S. Huxley, honorary lecturer at King's College, London, and Prof. Henry Fairfield Osborn of Columbia University, who contended that natural selection was only a partial explanation of adaptation, and Prof. Edward B. Poulton of Oxford, who defended Darwinism.

The association's annual meeting in 1932 was to be held in York, under the presidency of Sir Alfred Ewing, late principal and vice chancellor of the University of Edinburgh. The other officers elected for 1931-32 were: General secretaries, Prof. John L. Myres, Prof. F. J. M. Stratton, and Prof. Percy G. H. Boswell; general treasurer, Sir Josiah Stamp; and secretary, O. J. R. Howarth. Headquarters are in Burlington House, London, W. 1, England.

**BRITISH COLUMBIA.** A Canadian Province on the Pacific Ocean, bounded by Alaska, Yukon, and the Northwest Territories on the north, Alberta on the east, and the State of Washington on the south. Capital, Victoria.

The area is 355,855 square miles and the population was 689,210 at the census of 1931 (524,582 at census of 1921). The chief cities, with their census populations in 1931 were: Victoria, 38,441 (38,727 in 1921); Vancouver, 245,307 (163,220); and New Westminster, 17,524 (14,495). In 1929, births totaled 10,266; deaths, 6386; marriages, 5151. In the same year there were 1012 elementary schools, with 95,913 pupils; 32 superior schools, with 669 pupils; 79 high schools, with 14,545 pupils; 10 junior high schools, with 4797 pupils; and the Provincial University, with 1900 students.

The leading occupations—lumbering, mining, agriculture, manufacturing, and fishing—all registered declines in the value of output in 1930. The value of timber production was estimated at \$69,737,000 (\$32,773,000 lumber and \$16,520,000 pulp and paper), compared with \$93,301,000 in 1929. The gross value of mineral production was \$55,391,993, as against \$68,245,443 in 1929; silver, lead, and zinc production established new records but that of coal and other minerals declined. Metal prices were generally lower. Values of the chief minerals mined in 1930 were: Lead, \$12,535,931; copper, \$11,738,525; coal, \$9,435,650; zinc, \$9,010,093; silver, \$4,307,270; gold, \$3,475,811. Field crops in 1930 brought only \$16,628,000 (\$20,398,000 in 1929). The acreage sown to the principal crops in the spring of 1931 totaled 371,774 acres, as compared with 307,154 in 1921. The net value of manufactured products of British Columbia and the Yukon (1929) was \$132,286,208 (\$133,665,857 in 1928). The Province produces about two-fifths of the fish products of the Dominion; the value of the catch in 1930 was \$23,103,302 (chiefly salmon), as compared with \$23,930,692 in the previous year. Of the available water power, estimated at 6,000,000 horse power, 660,792 horse power were developed at the beginning of 1931. In 1929, the average weekly wage paid industrial workers was \$29.30 and 60 per cent of the employees were paid \$25 or more per week.

The gross value of mineral production in 1931 was estimated at \$36,567,300, a decline of \$18,824,693 from the 1920 output. Output of the principal minerals in 1931 was estimated as follows: Coal, \$8,500,000; lead, \$7,309,456; copper, \$5,554,225; zinc, \$5,230,386; gold, \$3,372,137; silver, \$2,331,096. Preliminary figures for the 1931 production of other primary industries were: Lumbering (including pulp and paper), \$51,500,000; agriculture, \$55,957,754; and fisheries, \$15,000,000.

In the fiscal year ended Mar. 31, 1930, provincial receipts totaled \$25,498,309 and expenditures \$25,086,980 (preliminary figures). The 1930-31 budget estimated receipts at \$28,115,000 and expenditures at \$28,073,000. Appropriations for 1931-32 amounted to over \$29,000,000. A provincial income tax, effective Apr. 1, 1931, levied 1 per cent on all incomes over \$15 a week in the case of single wage earners and over \$25 a week in the case of married wage earners. The gross funded debt on Mar. 31, 1929, was \$97,642,736; sinking funds, \$18,568,711. Surveys of a road project to connect Hazelton, the northern terminus of the British Columbia highway system, with the Alaskan border through the Yukon territory, were carried forward in 1930.

Government is under a lieutenant-governor and legislative assembly of 48 members elected for five years. In the Dominion Parliament the Province is represented by 6 Senators and 14 members of the House of Commons. Lieutenant-Governor in 1931, John W. F. Johnson, who was appointed July 19, 1931, to succeed Robert R. Bruce. Premier and Minister of Railways, S. F. Tolmie. In the Dominion general election of July 28, 1930, the Province returned 7 Conservatives, 5 Liberals, 1 Laborite, and 1 Independent to the House of Commons. See CANADA.

**HISTORY.** An agitation for restriction of immigration from the Orient gained momentum in 1931. Federal action to meet the situation was demanded by the British Columbia representatives in the Dominion Parliament on April 10. There were 28,000 Japanese and 26,000 Chinese in the Province, they reported, and while the Chinese were decreasing in number the Japanese in the preceding five years had increased by 8270 (6000 by natural increase and 2270 by immigration). In 1929, there were 12,253 Asiatics employed in the Province, or slightly more than one-tenth of the total employed population. Salaries of provincial officials and employees were reduced by from 2 to 10 per cent under an economy measure announced by the government on Oct. 11, 1931.

**BRITISH EAST AFRICA.** A British possession covering a large area of Africa, and comprising KENYA Colony and Protectorate, UGANDA Protectorate, ZANZIBAR, and the mandated territory of TANGANYIKA (formerly German East Africa). See these articles. Hearings on the proposed administrative union of Kenya, Tanganyika, and Uganda (see 1930 YEAR BOOK) were continued before a special Joint Parliamentary Committee in London during 1931.

**BRITISH EMPIRE.** An empire consisting of: (1) GREAT BRITAIN and NORTHERN IRELAND, CHANNEL ISLANDS, and ISLES of MAN (2) the IRISH FREE STATE, INDIA, and the various British Dominions, Colonies, Protectorates, and Dependencies. Consult these articles. Including the mandated territories of PALESTINE, SOUTH-WEST AFRICA, CAMEROON, TOGO LAND, WESTERN SAMOA, and NAURU, the British Empire has a total area

of 13,355,426 square miles, or about 26 per cent of the area of the world (51,723,000 square miles excluding polar regions). The population according to the 1921 census was approximately 449,583,000, or about 26 per cent of the estimated world population of 1,811,000,000 in 1920.

**BRITISH GUIANA**, *gè-à-nà*. A British colony on the northeastern coast of South America, including the settlements of Berbice, Demerara, and Essequibo; bounded on the east by Dutch Guiana, on the south by Brazil, and on the west by Venezuela. Area, 89,480 square miles; population, according to the census of 1921, 297,691, excluding about 97,000 aborigines. Estimated population in 1931, 312,000, including about 130,000 East Indians. In 1929 births totaled 9824 and deaths 7281. Georgetown, the capital, had 57,560 inhabitants. Elementary schools receiving Government aid in 1929 numbered 212, with 44,816 pupils.

Sugar is the principal crop, accounting normally for one-half the total value of exports. The sugar output (1930-31) was 115,000 tons from 56,126 acres. Rice, coffee, cacao, and limes are other leading crops. Cattle raising, mining, and lumbering are subsidiary occupations. Cattle in 1929 numbered 153,639. The gold production (1929) was valued at £27,124; diamonds, £471,746. British and Dutch Guiana together supply more than one-fifth of the world's production of bauxite, from which aluminum is extracted. Manganese and mica are also found. The forested area of 78,000 square miles produces hardwoods and balata (gum). Imports in 1930 were valued at £1,597,361 and exports at £2,021,543, compared with £2,215,715 and £2,556,571, respectively, in 1929. Canada and the United Kingdom were the leading markets.

In 1929, revenues amounted to £1,252,322 and expenditure to £1,126,218. Preliminary returns for 1930 and 1931, however, indicated budget deficits, due to the sugar crisis. The funded public debt on Jan. 1, 1930, was £4,770,191. Accounts are kept in dollars and cents and both British and United States coins are in circulation. Vessels entered and cleared at the ports in 1929 numbered 2860, of 1,324,312 tons (2569 of 1,060,534 tons in 1928). There are 88 miles of railway, 427 miles of motor highways, 39 miles of canals, and 450 miles of navigable rivers. The colony is administered by a governor, assisted (since July 18, 1928) by a legislative council. Governor in 1931, Sir Edward Brandis Denham, who assumed office in June, 1930.

**HISTORY.** The desperate financial condition of the colony resulting from the collapse of sugar prices in 1929, 1930, and 1931, caused the British Secretary of State for Colonies to appoint a commission early in 1931 to study conditions in the colony and submit recommendations for balancing the budget. The Legislature passed a resolution reducing the salary of the Governor from £3000 to £2000. The centenary of the proclamation of the colony of British Guiana was observed in July, 1931.

**BRITISH HONDURAS**, *hòn-dôo-raa*. A British Crown colony on the Caribbean coast of Central America, east of Guatemala, and 700 miles west of Jamaica; sometimes referred to as Belize. Area, 8598 square miles; population, according to the census of 1921, 45,317; estimated, Jan. 1, 1930, at 51,228. Chief town and capital, Belize (population, 1921, 12,661). In 1929, there was a total school enrollment of 8520 and an average

attendance of 6732. The chief pursuits are agriculture and forestry, although only a small part of the land is cultivated. In the higher lands, good pasturage is to be found.

The principal exports are bananas, mahogany, logwood and other forest products, plantains, coconuts, and chicle. The bulk of the colony's trade is with the United States. In 1929, the foreign trade totaled \$9,933,548, the largest on record and 16 per cent greater than in 1928. Exports were valued at \$4,876,875 (including re-exports of \$2,951,666) and imports at \$5,056,673. Revenue for the fiscal year 1929-30 amounted to £213,183 and expenditure £210,618. The public debt was £384,652. Ships entering the ports in 1929 aggregated 312,518 tons (291,451 tons in 1928). There are 25 miles of railway. Wireless communication is maintained with New Orleans and Jamaica. Planes used in the daily air-mail and passenger service between Miami, Fla., and Cristobal, Canal Zone, stop overnight at Belize. The United States gold coins are the standard of currency. The administration is under a governor assisted by an executive council of six members and a legislative council of six official and seven unofficial members. Governor and Commander-in-Chief in 1931, Sir J. A. Burdon.

**HISTORY.** The city of Belize was virtually destroyed by a hurricane and tidal wave on Sept. 10, 1931, with a loss of between 800 and 1000 lives, including 12 American citizens. Fires in the suburbs of the ruined city increased the damage. Food riots occurred following the hurricane and on September 13 United States Marines and sailors took over the enforcement of martial law to relieve the exhausted local police. In October, the British Colonial Office reported that 2370 families were still dependent upon the Government for support.

**BRITISH INDIA.** See INDIA.

**BRITISH MALAYA.** British Malaya includes the Straits Settlements, the Federated Malay States, and the Non-Federated Malay States. The total area is 56,603 square miles; the total population was estimated at 3,864,413 in 1928 (3,358,054 at census of 1921). Three other British protectorates in Malaysia—British North Borneo, Brunei, and Sarawak—are seldom included in the term British Malaya and are never covered by British Malayan statistics. Singapore, with a population of 350,355 in 1921, and Penang, with 123,069 in 1921, are the chief cities. For the component native states of the several protectorates and their respective statistics, see STRAITS SETTLEMENTS, FEDERATED MALAY STATES, NON-FEDERATED MALAY STATES, BRITISH NORTH BORNEO, BRUNEI, and SARAWAK.

**BRITISH MUSEUMS.** See ART MUSEUMS.

**BRITISH NEW GUINEA.** See PAPUA.

**BRITISH NORTH BORNEO.** A British protectorate, comprising the northern part of the island of Borneo (q.v.). Area, about 31,106 square miles; population, at the census of 1921, 257,804, most of whom were Mohammedan settlers in the coast regions and aborigines in the interior. Europeans numbered only 533. The chief towns are Sandakan, with a population of 11,936, on the east coast, and Jesselton, on the west coast. Finance and trade statistics for 1929, with 1928 figures in parentheses, were: Revenue, £449,463 (£453,629), expenditure, £262,446 (£261,370); imports, £1,137,825 (£1,186,262); exports, £1,536,223 (£1,523,057). A railway runs from Jesselton to Melalap 127 miles in the in-

terior. The territory is under the jurisdiction of the British North Borneo Company and is administered by a governor in Borneo and a board of directors in London. Governor in 1931, A. F. Richards (appointed February, 1930).

**BRITISH SOMALILAND.** See **SOMALILAND PROTECTORATE.**

**BRITISH SOUTH AFRICA.** See **SOUTH AFRICA, UNION OF.**

**BRITISH WEST AFRICA.** The general name given to the following British colonies in West Africa; Nigeria (colony and protectorate); Gambia (colony and protectorate); Gold Coast (comprising the Gold Coast colony, Ashanti, and the Northern Territories); Sierra Leone (colony and protectorate). The British mandated territories in Togoland and the Cameroons are also included. Consult the separate articles.

**BRITISH WEST INDIES.** A number of scattered island possessions of the British Empire in the West Indies, including (1) the Bahamas, (2) Jamaica and small adjacent islands, and (3) the islands along the east of the Caribbean Sea and near the coast of South America, including the Leeward group, the Windward group, Trinidad, Tobago, and Barbados. The islands have an aggregate area of 12,239 square miles and a population of slightly more than 1,900,000.

The collapse of sugar prices in 1930 and 1931 brought the sugar industry, which is the main dependence of the islands, to the verge of ruin. The British Secretary of State for Colonies during 1931 studied proposals for a closer political union of Trinidad, the Leeward, and Windward Islands with a view to reducing the costs of administration. Also a loan of £124,000 was advanced to aid the colonies in unemployment relief works. Delegates of Barbados, British Guiana, Trinidad, and the Leeward and Windward Islands met at Port of Spain, Trinidad, June 10, 1931, to consider trade relations with Canada and joint action in negotiating reciprocity with Australia. See separate article on each island on group.

**BROADCASTING.** See **RADIO.**

**BROKERS' LOANS.** See **BANKS AND BANKING; FINANCIAL REVIEW.**

**BROOKINGS INSTITUTION.** An organization devoted to public service through research and training in the social sciences, established in Washington, D. C., in 1927. Its purposes are: To aid constructively in the development of sound national policies, and to offer training of a super-graduate character to students of the social sciences. It maintains, as operating units, the Institute of Economics, the Institute for Government Research, and a division of training in which only those who have already received the Ph.D. degree, or an equivalent training, are accepted as research fellows. It also provides headquarters for visiting scholars who come to the national capital to make use of the material available there on economic, political, historic, social, administrative, and legal problems, as found in library collections and in the records of the various government departments.

By charter provision the investigations of the institution are conducted "without regard to the special interests of any group in the body politic, whether political, social, or economic." During 1931 the following studies were completed: *War Debts and World Prosperity*; *The Balance of Births and Deaths* (vol. ii, *Eastern and Southern Europe*); *The Cuban Situation and Our Treaty*

*Relations; Japan—An Economic and Financial Appraisal*; *The New Industrial Situation and American Labor*; *The Radio Industry*; *Financial Condition and Operations of the National Government, 1921–30*; and *Publication Work of the National Government.*

The institution is supported from endowment funds and annual grants. The board of trustees, a self-perpetuating body, has general responsibility for determining the institution's policies and its programme of work, but does not assume responsibility for each particular investigation. The officers of the board of trustees for 1930–31 were: Chairman, Robert S. Brookings, founder of the institution; vice chairman, Leo S. Rowe; treasurer, Frederic A. Delano; and president, Harold G. Moulton. Headquarters are at 722 Jackson Place, Washington, D. C.

**BROOKLYN INSTITUTE OF ARTS AND SCIENCES.** An institution in Brooklyn, N. Y., composed of four divisions—education, museum of arts and sciences, children's museum, and a botanic garden. It was founded in 1824 and incorporated in its present form in 1890. Membership is open to all who are interested in any branch of science or art. The education division is divided into the following departments, composed of members interested in a particular field: Agriculture, astronomy, botany, dramatic art, electricity, fine arts, geography, geology, home economics, music pedagogy, philology, philosophy, photography, physics, political science, psychology, and sociology. These departments conduct courses and sponsor addresses, lectures, and concerts. A forum conducted by the departments of political science and sociology provides for the discussion of current problems. The enrollment in the school of pedagogy in 1931 was 2240, with an attendance at lectures of 304,292. The institute's museums contain collections in the fields of art, ethnology, and natural science; its botanic garden comprises more than 50 acres. Attendance at the museums during the year was 1,155,051 and at the botanic garden, 1,006,027. The library contained more than 27,000 volumes. In 1931 the permanent funds of the institute amounted to \$3,062,372; the funds to meet current expenses totaled \$556,188. The president of the board of trustees was Edward C. Blum; director of the division of education, Charles D. Atkins; of the museum of arts and sciences, William Henry Fox; of the children's museum, Anna B. Gallup; and of the botanic garden, C. Stuart Gager. Headquarters are at the Brooklyn Academy of Music, 30 Lafayette Avenue, Brooklyn N. Y.

**BROOKLYN MUSEUM.** See **ART EXHIBITIONS; ART MUSEUMS.**

**BROWN UNIVERSITY.** An institution of higher education in Providence, R. I., founded in 1764. It includes an undergraduate college for men, Pembroke College in Brown University (for undergraduate women), the graduate school, and the division of university extension. The enrollment in the autumn of 1931 was 1280 undergraduate men, 490 undergraduate women, 338 graduate students, and 78 special students in education. The faculty consisted of 251 members, including 113 professors, 59 instructors, 13 lecturers, 65 assistants, and 1 associate. Among the new appointees were: Albert J. Farmer, visiting professor of French language and literature; Arthur E. Murphy, professor of philosophy; James B. Hedges, George L. Littlefield professor of American history; Clinton H. Currier, as-

sistant dean of undergraduates; and Bruce M. Bigelow, acting director of admissions. The total of the productive funds of the university on June 30, 1931, was \$10,287,930. The total income from these funds was \$515,604. The libraries contained approximately 400,000 volumes. The Saunders Collection of Walt Whitman was acquired for addition to the Harris Collection of American Poetry, which already included approximately 80,000 items, as a gift from Webster Knight. Faunce House, the gift of John D. Rockefeller Jr., in memory of former President William H. P. Faunce, was completed to house undergraduate social and religious activities and undergraduate organizations. President, Clarence Augustus Barbour, D.D., S.T.D., LL.D.

**BRUCE, MAJ. GEN. SIR DAVID.** A British army surgeon and authority on tropical diseases, died in London, Nov. 27, 1931. He was born in Melbourne, Australia, May 29, 1855, and attended Edinburgh University. He became a surgeon in the Royal Army Medical Corps in 1883 and served in Malta and Egypt until 1889. He was then appointed assistant professor of pathology at the Army Medical School in Netley, Hampshire. From 1894 to 1901 he served in South Africa, having been asked by the Government of Natal to investigate the diseases known as *nagana*, prevalent among live stock, and tsetse fly disease or sleeping sickness, found in human beings. He discovered that those were one and the same and that both were dependent upon the presence in the blood of a protozoan organism known as *trypanosome*, the tsetse fly acting as carrier from a diseased animal to a healthy one. While in South Africa he was present at the siege of Ladysmith and was promoted to surgeon major in 1895 and lieutenant colonel in 1900. He was a member of the Army Medical Advisory Board from 1902 to 1911 and editor of the *Royal Army Medical Journal* from 1904 to 1908. In 1903, and again in 1908, he went to Uganda as director of the Royal Society's commission for the investigation of sleeping sickness, his researches proving that two varieties of the tsetse fly, the *glossina palpalis* and *glossina morsitans* were the carriers in this disease which was caused by a blood parasite, the *trypanosoma gambiense*. He visited Malta during 1904-06 as director of the Royal Society's commission for the investigation of Mediterranean fever and discovered the organism *micrococcus melitensis*; he had previously discovered (1887) that the medium of infection was contaminated food or drink, usually goats' milk. During 1911-14, as director of another commission in Nyasaland, Africa, he did valuable research upon the connection between diseases of wild animals and human and live stock diseases. In 1912 he was specially promoted to major general.

From 1914 until his retirement in 1919 Sir David was commandant of the Royal Army Medical College, and in 1924-25 was colonel commandant of the Royal Army Medical Corps. During the World War he was chairman of the War Office's pathological committee and committees for the study of tetanus and trench fever. He was a member of numerous learned societies, both British and European, and received many honorary degrees and scientific awards. He was also chairman of the governing body of the Lister Institute (1916) and president of the Royal Society of Tropical Medicine and Hygiene (1917-19) and of the British Association for

the Advancement of Science (1924). In 1905 he was made a Companion of the Bath; in 1908, a Knight; and in 1918, a Knight Commander of the Bath.

**BRUNEI, brōo-nī.** A British protectorate on the northwestern coast of the island of Borneo (q.v.). Area, about 2500 square miles; population at census of 1921, 25,454 (35 Europeans). Brunei, the chief town, has about 12,000 inhabitants. Mangrove extract, rubber, sago, and jelutong are the chief products. Revenue in 1930 totaled \$333,069; expenditure, \$379,604; public debt, \$401,000. Exports in 1930 were \$807,449; imports, \$2,530,422. Figures are in Straits dollars, which exchanged at about \$0.56 U. S. in 1930. Sultan in 1931, Ahmed Tajudin Akhazul Khairi Waddin, a minor, who receives an annual allowance of £1400 from state funds. Government is administered by the British resident. Resident in 1931, P. A. B. McKerron.

**BRUNSWICK, brūnz'wīk.** A state of the German Republic. See GERMANY under *Area and Population and History*.

**BRYCE, GEORGE.** A Canadian clergyman, educator, historian; died in Ottawa, Ont., Aug. 5, 1931. He was born at Mount Pleasant, Brantford, Ont., Apr. 22, 1844, and attended the University of Toronto and Knox College, Toronto. Having been selected by the Presbyterian Church of Canada for the task, he organized Manitoba College in 1871, and served until 1909 as professor of English literature. He also organized Knox and St. Andrew's churches in Winnipeg in 1871-72, and was first moderator of the Synod of Manitoba in 1885 and moderator of the General Assembly of the Presbyterian Church in Canada in 1902-03. He was a founder of the University of Manitoba in 1877 and a counselor and examiner until 1907. From 1891 to 1904 he also was head of the faculty of science and a lecturer in biology and geology. He served on the Commission on Conservation of Canadian Resources and on the Royal Commission on Technical Education. In 1909 he was president of the Royal Society of Canada. Among his works are: *Manitoba: Infancy, Progress, and Present Condition* (1882); *The Apostle of Red River* (1898); *The Remarkable History of the Hudson's Bay Company* (1900); *Everyman's Geology of Western Canada* (1907); *The Romantic Settlement of Lord Selkirk's Colonists* (1909); *The Life of Lord Selkirk* (1912); and *A Short History of the Canadian People* (1913).

**BRYN MAWR COLLEGE.** An institution for the higher education of women in Bryn Mawr, Pa., founded in 1885. The enrollment for the autumn of 1931 totaled 491. The teaching staff numbered 82. The productive funds of the college amounted to \$6,742,134 in the autumn of 1931, and the receipts for the year 1930-31 were \$939,816. The number of volumes in the library was 135,000. President, Marion Edwards Park, Ph.D., LL.D.

**BUCKNELL UNIVERSITY.** A coeducational Baptist institution of higher learning in Lewisburg, Pa., founded in 1840 under the name of University of Lewisburg but renamed in 1886 in honor of its benefactor, William Bucknell. In the autumn of 1931 the enrollment was 1111, of whom 724 were men and 387 woman. Of the 447 students enrolled in the summer session of 1931, 260 were men and 187 were women. The faculty numbered 71. The productive funds amounted to \$1,700,000 and the income for the year was



\$700,000. The library contained 55,000 bound volumes. President, Homer Price Rainey, Ph.D.

**BUCKWHEAT.** According to estimates by the Department of Agriculture the buckwheat crop of the United States in 1931 amounted to 8,875,000 bushels as compared with 6,962,000 bushels in 1930, a gain of about 27 per cent. In the buckwheat States within the 1930 drouth area a marked increase over the small crops of the preceding year was recorded. In 1931 the crop was reduced in some of the North Central States due to dry weather. The acreage in 1931 was only 502,000 acres while in 1930 it was 573,000 acres and in 1929, 627,000 acres. The average yield per acre in 1931 was 17.7 bushels, or 5.5 bushels above that of the preceding year. At the unusually low average farm price of 42.4 cents per bushel on December 1 the total farm value of the 1931 crop was only \$3,765,000 as compared with \$5,814,000 the year before when the price per bushel was 83.5 cents.

Production of the crop was reported by 23 States and among the more important producing States Pennsylvania yielded 3,483,000 bushels, New York 2,844,000 bushels, Ohio 480,000 bushels, West Virginia 410,000 bushels and Minnesota 264,000 bushels. These States yielded over 80 per cent of the crop. During the fiscal year ended June 30, 1931 the United States exported 85,000 bushels of buckwheat valued at \$64,000.

A number of experiments were conducted during the year to improve the crop and its products. Artificial drying trials conducted by the Department of Agriculture in cooperation with the North Dakota Experiment Station showed that the moisture content of the grain could be reduced from 18 per cent to 14 per cent in from 40 to 60 minutes at a cost of about 1.5 cents for fuel per bushel. Experiments elsewhere indicated the value of the liberal use of phosphate fertilizer in growing the crop.

**BUFFALO, THE UNIVERSITY OF.** A coeducational institution of higher learning in Buffalo, N. Y., founded in 1846 under a charter received from the State Legislature. The enrollment for the autumn of 1931 was distributed as follows: College of arts and sciences, 782; school of law, 215; school of dentistry, 164; school of medicine, 273; school of pharmacy, 168; school of business administration, 216; evening session, 1809. The enrollment for the 1931 summer session was 959. The faculty numbered 428, including 40 new appointees. The income for the year 1930-31, exclusive of gifts, amounted to \$950,125, while the endowment fund balance as of June 30, 1931, was \$4,842,847. The library contained 81,000 volumes and 73,032 pamphlets. Chancellor, Samuel P. Capen, Ph.D., L.H.D., Sc.D., LL.D.

**BUGS.** See ENTOMOLOGY, ECONOMIC.

**BUILDING.** According to *Bradstreet's* annual summary, the value of the building for which permits were granted in 215 cities in the United States was greatly curtailed during 1931. In this year building was at its lowest ebb since March, 1919, and followed the trend of general business throughout the United States, being further influenced by the prospect of increased taxes which, with the general economic situation, contributed to slowness in real estate operations, foreclosures, and the tightening up of mortgage finances. In the month of December the lowest point of value of permits, namely, \$47,582,316 was reached as compared with \$109,884,-

513 in December, 1930, and \$57,604,868 in November, 1931. The shrinkage was consistent during the year.

This decline in building ordinarily would have been difficult to understand in view of the fact that the United States was in need of a million and a quarter homes and there was a general sentiment in favor of home building. A study of census figures had shown in many localities, particularly in and around New York City, an increase in the population which was far in excess of actual home construction of all kinds. In New York City the permits for the entire 12 months of 1931 amounted to \$355,737,349, as against \$408,741,972 in 1930, and \$943,957,239 in 1929. In the 215 cities of the United States the permits in 1931 aggregated \$1,158,963,273 in 1931 as against \$1,672,182,351 in 1930 or a decline of 30.7 per cent. Outside of New York City the total permits aggregated \$803,225,924 in 1931, as against \$1,263,440,379 in 1930 or a decline of 36.4 per cent. In 14 cities of Canada building permits in 1931 totaled \$88,885,602 as against \$128,428,110 in 1930 or a decline of 30.8 per cent.

According to *Bradstreet's* the prospect of additional taxation was hindering really improvements in New York, Philadelphia, and Chicago, and unquestionably had its influence in the diminished number of permits applied for in any of these cities, Chicago showing a decline from \$79,604,950 in 1930 to \$46,444,030 in 1931 or 41.6 per cent. Philadelphia showed a decline

BUILDING PERMITS IN THE UNITED STATES,  
1930-1931  
[From *Bradstreet's*]

	1931	1930	Per cent change
New York .....	\$355,737,349	\$408,741,972	-13.0
Chicago .....	46,444,030	79,604,950	-41.6
Philadelphia ....	35,126,060	55,267,390	-36.4
Detroit .....	21,332,083	45,417,152	-53.0
Cleveland .....	11,961,575	32,440,000	-63.1
St. Louis .....	16,637,809	17,347,865	-4.0
Boston .....	24,679,886	24,912,551	-0.9
Baltimore .....	29,570,120	33,217,692	-10.9
Pittsburgh .....	13,061,730	20,759,002	-37.0
Los Angeles .....	45,530,925	74,068,707	-38.5
Buffalo .....	9,240,970	14,825,990	-37.6
San Francisco .....	21,392,550	22,726,194	-5.8
Milwaukee .....	16,625,991	33,764,378	-50.7
Washington .....	28,823,649	28,790,577	+ 0.1
Newark .....	6,781,739	13,925,414	-51.3
Minneapolis .....	12,371,660	18,449,340	-8.0
Louisville .....	5,456,916	6,853,975	-20.3
Kansas City .....	5,208,515	15,942,375	-67.3
Jersey City .....	1,895,458	12,248,988	-84.5
Indianapolis .....	9,480,599	8,203,659	+15.5
Houston .....	16,531,008	24,149,570	-31.5
Cincinnati .....	25,112,475	40,068,782	-37.3

BUILDING PERMITS IN THE UNITED STATES  
FOR 215 CITIES, 1930-1931  
[From *Bradstreet's*]

	1931	1930	Change, per cent
New England ..	\$ 98,580,964	\$126,979,384	-26.3
Middle Atlantic ..	500,798,593	631,400,164	-20.7
Central Western ..	162,118,345	297,544,527	-45.5
Northwestern ..	64,028,938	92,914,284	-31.1
Southwestern ..	90,803,231	148,224,363	-38.7
Southern .....	109,835,194	150,057,682	-26.8
Pacific and Mountain .....	137,798,008	225,061,967	-38.8
Total U. S. ..	1,158,963,273	1,672,182,351	-30.7
New York City ..	355,737,349	408,741,972	-13.0
Outside New York City .....	803,225,924	1,263,440,379	-36.4
Canada (14 cities)	88,885,602	128,428,110	-30.8



from \$55,267,390 in 1930 to \$35,126,060 in 1931 or a reduction of approximately 36.4 per cent.

The table on page 125 gives the building permit values at the leading cities of the United States in the calendar year 1931 as compared with 1930.

In the following table will be found comparisons for 120 identical American cities for 1931 and previous years back to 1911:

Year		Year	
1931	\$1,005,626,000	1920	\$1,255,808,000
1930	1,407,833,000	1919	1,181,251,000
1929	2,489,553,000	1918	374,081,000
1928	2,795,229,000	1917	641,100,000
1927	2,870,512,000	1916	926,647,000
1926	3,230,414,000	1915	770,010,000
1925	3,886,043,000	1914	730,519,000
1924	2,907,529,000	1913	808,069,000
1923	2,832,439,000	1912	877,924,000
1922	2,811,915,000	1911	821,717,000
1921	1,493,464,000		

The 1931 construction value in the United States, according to the F. W. Dodge Corporation's Review of Building and Engineering Activity, again showed a decline in value of contracts awarded in the 37 States east of the Rocky Mountains, the total for the year being \$3,092,849,500 as against \$4,523,114,600 in 1930, and \$5,754,291,000 in 1929. These figures, in the

struction projects of the 37 States east of the Rocky Mountains in 1931 as distributed in the various types of construction are indicated in the accompanying table.

#### CONSTRUCTION VALUE IN THE 37 STATES EAST OF THE ROCKY MOUNTAINS, 1931

[From F. W. Dodge Corporation]

Types of construction	1931
Commercial buildings	\$ 819,877,200
Factories	116,157,000
Educational buildings	228,777,000
Hospitals and institutions	121,193,300
Public buildings	181,266,600
Religious and memorial	59,099,600
Social and recreational	98,746,500
<b>Total nonresidential</b>	<b>\$1,118,617,200</b>
One- and two-family houses	574,426,300
Apartments and hotels	236,962,400
<b>Total residential</b>	<b>\$ 811,888,700</b>
Public works and utilities *	1,162,843,600
<b>Total construction</b>	<b>\$3,092,849,500</b>

\* Public works and utilities, inclusive of highways, bridges, power plants, water and sewage systems, etc.

An interesting table compiled by the same corporation showing the distribution of construction by territories for the year 1931 is given herewith.

#### CONTRACTS AWARDED BY TERRITORIES—YEAR 1931

[F. W. Dodge Corporation]

Territory	Residential building	Non-residential building	Public works and utilities	Total construction
New England	\$ 87,548,200	\$ 120,417,200	\$ 87,053,900	\$ 295,019,300
Metropolitan New York and vicinity	297,458,600	270,979,900	156,622,900	725,061,400
Upstate New York	26,014,000	68,646,700	75,057,300	169,718,000
Middle Atlantic	98,524,300	131,271,800	127,010,900	356,807,000
Pittsburgh	70,549,700	119,034,800	119,955,100	309,539,600
Southeastern	35,336,300	51,619,600	61,975,700	148,931,600
Chicago	67,640,000	142,809,600	135,133,400	345,583,000
Central Northwest	15,934,500	28,718,300	49,162,500	93,815,300
Southern Michigan	24,707,600	33,477,600	32,425,700	90,610,900
St. Louis	30,277,500	30,746,200	59,725,900	120,749,600
Kansas City	23,026,700	58,338,200	72,131,400	153,496,300
New Orleans	8,308,100	23,291,800	94,886,500	126,484,400
Texas	26,065,200	39,265,500	91,702,400	157,033,100
<b>37 Eastern States</b>	<b>\$811,888,700</b>	<b>\$1,118,617,200</b>	<b>\$1,162,843,600</b>	<b>\$3,092,849,500</b>
<b>11 Western States *</b>	<b>\$ 89,252,800</b>	<b>\$ 123,047,900</b>	<b>\$ 186,055,000</b>	<b>\$ 398,355,700</b>
<b>Low-cost projects <sup>b</sup></b>	<b>\$ .....</b>	<b>\$ .....</b>	<b>\$ .....</b>	<b>\$ 589,000,000</b>
<b>Total United States</b>	<b>\$900,641,500</b>	<b>\$1,241,665,100</b>	<b>\$1,348,898,600</b>	<b>\$4,080,205,200</b>

\* Estimated additions to the figures for the 37 Eastern States to cover the 11 Western States were based upon the relationship between these two major areas as adduced both from building permit valuations and the contract figures on heavy construction as reported by the *Engineering News-Record*. Thus for building, both residential, and non-residential, 11 per cent was added to the figures for the 37 States to cover the work in the 11 Western States; while for public works and utilities 16 per cent was added to cover the Western States. Low cost new and alteration projects were estimated to have shown a loss of 29 per cent in valuation from the year 1930.

<sup>b</sup> Principally small houses; includes new buildings, modernization projects, remodeling, alterations, additions, etc., valued at under \$5,000 per project. This class of construction was estimated at \$829,000,000 for the year 1930.

range of contract records, covered 110,203 projects involving a total of 365,840,200 sq. ft. If, in addition to the 37 States east of the Rocky Mountains, for which this corporation maintains carefully recorded statistics, figures to cover the 11 Western States on a basis of estimated additions were added, this amount would be increased to \$3,491,205,200, and if to this total were added miscellaneous low cost projects, including new buildings, modernization projects, remodeling, alterations, etc., under \$5000 per project, or a total of \$589,000,000, a grand total of \$4,080,205,200 would be obtained. The con-

The summaries of construction compiled by the *Engineering News-Record*, New York, indicated for the year 1931 total engineering construction of \$2,454,176,000 as compared with \$3,173,259,000 in 1930, or a drop of 23 per cent in money value. This, however, must be considered in view of materially lower construction costs permitting a larger amount of construction per dollar than in 1930 and indeed in any other year since 1922. The *Engineering News-Record Cost Index* at the end of 1930 was 194.48 as compared with 162.48 at the end of 1931, or a decrease of 16½ per cent during the year and

an average of 8 per cent for the year. During 1931 there was an increase in public works construction over the previous year, waterworks, bridges, and especially Federal Government work showing a considerable increase. Road-making fell 8 per cent below and public buildings 16 per cent below, but a gain for all public works was indicated by 2 per cent. The decline in building of the previous three years continued, with a value of new industrial buildings only half that of 1930 which in turn was 40 per cent below the record year 1929. Commercial building was 46 per cent below that of 1930 which was 33 per cent below 1929. Residence building also declined and all other private construction, including public utility works, decreased 25 per cent. The drop in private construction was 42 per cent. The accompanying table gives construction by classes and geographical divisions as compiled by *Engineering News-Record* in millions of dollars.

See ARCHITECTURE.

#### CONSTRUCTION BY CLASSES AND GEOGRAPHIC SECTIONS

(*Engineering News-Record*)

	(In millions of dollars)	
	1931	1930
Waterworks .....	56	49
Sewers .....	73	82
Bridges, public .....	126	109
Excavations .....	21	34
Streets and roads .....	529	577
Federal government .....	281	116
Unclassified, public .....	84	124
Buildings, public .....	249	298
Total public .....	1,418	1,389
Buildings, industrial .....	166	331
Buildings, commercial .....	561	1,034
Bridges, private .....	11	20
Unclassified, private .....	298	399
Total private .....	1,036	1,784
Total engineering construction .....	2,454	3,173
New England .....	186	265
Middle Atlantic .....	969	1,288
South .....	234	270
Middle West .....	380	534
West of Mississippi .....	396	490
Far West .....	289	326

**BULGARIA.** A constitutional monarchy in the Balkans lying to the south of Rumania and bounded on the west by Yugoslavia and on the south by Greece and European Turkey. Capital, Sofia; reigning King in 1931, Boris III, who succeeded to the throne upon the abdication of his father, Oct. 3, 1918.

**AREA AND POPULATION.** As a result of the World War, the area of Bulgaria was reduced from 53,305 to 39,814 square miles. The population according to the census of 1926 was 5,483,125, as compared with the 1920 census population of 4,846,971. The estimated population on Jan. 1, 1930, was 5,824,900. In 1929, preliminary figures showed 173,272 living births, 102,470 deaths, and 55,731 marriages. The chief cities, with their populations at the 1926 census, are: Sofia, 213,002; Philippopolis (Plovdiv), 84,656; Varna, 60,563; Ruschuk (Ruse), 45,788; and Slivno (Sliven), 29,263.

**EDUCATION.** Primary education is free and compulsory for children between the ages of 7 and 14. In 1928-29, there were 7201 schools of all descriptions, with 26,404 teachers and 742,082 pupils. Of these, 4383 national elementary schools had 483,982 pupils and 1035 private elementary schools, 60,510. The State University at Sofia had 325 instructors and 4508 students. En-

rollment of the American College at Sofia in 1931 was placed at a total of 444 students.

**PRODUCTION.** Nearly 80 per cent of the population is directly or indirectly dependent upon agriculture. The cultivated land, totaling about 9,182,400 acres, is widely distributed among small proprietors in plots of from one to six acres. Machinery is gradually replacing primitive methods of cultivation. About 7,203,160 acres are forested. With the exception of tobacco, the chief export crop, practically all crops returned larger yields in 1930 than in 1929. The sharp decline in agricultural prices more than offset this advantage, however, and the condition of the peasantry became increasingly grave during 1930 and 1931. The tobacco yield was 52,910,000 pounds in 1930, compared with 55,054,000 pounds in 1929, but exports were approximately the same. About 6,646,195 acres were devoted to cereals (6,461,955 acres in 1929) and the 1930 harvest showed a 40 per cent increase. The estimated production, in metric tons, in 1930, with figures for 1929 in parentheses, was: Wheat, 1,586,000 (903,000); corn, 865,000 (940,000); barley, 412,000 (204,000); rye, 344,000 (186,000); oats, 145,000 (140,000); maslin (mixed grain), 123,000 (88,000); spelt, 14,000 (6200); rice, 13,000 (13,000); and millet, 11,000 (37,000). Other crops, in metric tons, were: Sugar beets, 312,000 (262,000); sunflower seed, 70,500 (60,000); rapeseed, 14,600 (150); sesame, 3000 (2130). Silk cocoon production was estimated at 2330 metric tons (2389 in 1929); attar of roses, 73,500 ounces (70,500).

Industry is relatively unimportant, the principal lines being leather, wood and furniture, ceramics, and woolen textiles. The National Bank estimated that industry was from 30 to 40 per cent less active in 1930 than in 1929. Coal production was estimated at 1,573,200 tons (1,651,820 tons in 1929). Copper, lead, zinc, aluminum, and salt are other mineral products. There are several state monopolies, of which the manufacture of tobacco is the most important.

**COMMERCE.** Foreign trade in 1930 resulted in an export surplus for the first time in three years, due chiefly to a 45 per cent decline in the value of imports, whereas exports declined only 3.2 per cent. Imports were valued at 4,590,000,000 leva (about \$33,000,000), compared with 8,325,000,000 leva (\$59,900,000) in 1929. Exports totaled 6,191,000,000 leva (about \$44,800,000), as against 6,397,000,000 leva (about \$46,100,000) in the previous year. The favorable balance of trade was 1,601,000,000 leva, as compared with an adverse balance of 1,928,000,000 leva in 1929. The lev (plural leva) was stabilized Nov. 22, 1928, at \$0.0072. Price declines were reflected in the fact that while the volume of 1930 exports increased 73.3 per cent over 1929, the value was slightly less. The volume of imports declined 37.6 per cent.

Imports came principally from Germany, which supplied 23.2 per cent (22.2 in 1929); Italy, 13.6 (10.7); Czechoslovakia, 9.4 (9.0); France, 9.3 (8.2); Great Britain, 8.2 (8.9); and Rumania, 8.0 (7.1). Germany took 26.2 per cent of the 1930 exports (29.9 in 1929); Poland, 10.2 (8.2); Italy, 8.3 (10.5); Austria, 7.7 (12.5); Czechoslovakia, 6.4 (4.8); and France, 5.2 (5.1). Imports from the United States were valued at \$623,000, or 1.9 per cent of the total, and exports to that country were \$458,000, or 1.7 per cent. Preliminary returns for 1931 placed

imports at 4,641,770,000 leva and exports at 5,959,070,000 leva, leaving a favorable trade balance of 1,317,300,000 leva.

**FINANCE.** Preliminary results of the budget for the fiscal year ended Mar. 31, 1931, showed a deficit of 1,074,500,000 leva (about \$7,636,400), according to a report of the Minister of Finance. The budget had been calculated to balance at 7,000,000,000 leva, but receipts for the year amounted to only 5,676,273,000 leva, compared with 6,286,084,000 for the preceding fiscal year, a decline of 9.7 per cent. Railway receipts were 1,160,248,000 leva, as against 1,258,002,000 in 1929-30, a 7.8 per cent decline.

The budget estimates for 1931-32 balanced at 6,400,000,000 leva, representing a reduction of 8.6 per cent from the estimates for 1930-31. By virtue of the Hague reparation agreement signed Jan. 20, 1930, the Bulgarian reparation debt was fixed, as of Apr. 1, 1930, at 171,637,910 gold francs (1 gold franc equals \$0.0392), payable in 30 years at 5½ per cent interest. The occupation debt was suppressed under the same convention. The total national debt on Jan. 1, 1931, was 1,017,467,755 gold francs, or 27,362,957,260 leva. On the same date, the Treasury owed the National Bank 3,161,845,800 leva (3,470,302,000 leva at the beginning of 1930).

**COMMUNICATIONS.** Bulgarian railways, all state owned, and operated, reported about 1813 miles of line, of which 298 miles were narrow gauge. Freight traffic in 1930 declined to 348,750 carloads from 362,200 in 1929 and 330,000 in 1928. There were about 9623 miles of highway, of which 4643 miles were state and 4980 miles communal roads. A total of 12,825 vessels and barges of 2,505,435 net registered tons called at Bulgaria's Danube ports during 1930 (12,707 of 2,568,720 tons in 1929). The principal seaports are Bourgas and Varna on the Black Sea. In 1930, 480 steamers of 793,340 tons entered and cleared at Bourgas (435 of 742,410 tons in 1929), while 367 of 641,250 tons entered and cleared at Varna (365 of 632,310 tons in 1929).

**GOVERNMENT.** The King is the head of the government, assisted by a council of ministers nominated by him, and a single legislative chamber, known as the *Sobranie*, composed of 273 members. The parties in the *Sobranie*, elected in May, 1927, contained the following party groups: Government Coalition, 168; Agrarians, 48; Macedonian Independents, 11; National Liberals, 14; Democrats, 12; Radicals, 2; Social Democrats, 10; others, 8. The Ministry formed May 16, 1930, was composed as follows: Premier and Minister of Interior, André Liaptcheff; Foreign Affairs, Athanase Buroff; Education, Alex. Tsankoff; Justice, Kantocho Milanoff; Commerce, Dimitri Michalkoff; Finance, Vladimir Molloff; Public Works, Gheorgi J. Danailoff; Posts and Railways, Petko Stainoff; Agriculture, Grigor Vasileff; War, General Kissioff (Jan. 31, 1931).

### HISTORY

**LIAPTCHEFF CABINET FALLS.** After dominating Bulgaria for eight years, the government bloc of conservative middle-class elements and intellectuals known as the Democratic Entente met overwhelming defeat in national elections held June 21, 1931. The Democratic Entente, led at first by Premier Tsankoff and afterward by Premier Liaptcheff, obtained control when the agrarian Premier Stambulisky was overthrown by the *coup d'état* of June, 1923. Stambulisky

and many of his followers were murdered. The grinding poverty of the Bulgarian peasantry resulting from the collapse of farm prices during the world economic depression added to the unpopularity of the Liaptcheff government and the Opposition parties made decided gains in the local elections of Nov. 9, 1930.

Impressed by the evidences of widespread discontent during a tour of rural districts in March, 1931, King Boris, upon the dissolution of the *Sobranie* April 18, secured Premier Liaptcheff's resignation. Apparently the King hoped to check the growing class division between the peasantry and the government bloc by introducing new elements into the Cabinet. He called upon Alexander Malinoff, leader of the oppositional Democratic party, to form a new Cabinet. Malinoff, however, was unable to secure the necessary coöperation of the Democratic Entente and accordingly the King was obliged to reinstate Liaptcheff. In the subsequent election, the government coalition's representation was reduced to 79, while the Opposition bloc, headed by M. Malinoff, won 150 seats. The Communists showed considerable strength, winning 32 mandates; the Macedonian group won eight seats, and the Socialists five. For the previous standing of the parties, see *Government*.

A new Ministry, formed June 29, was headed by Alexander Malinoff as Premier and Foreign Minister. Other members were: Interior, N. Mushanoff (Democrat); Education, K. Mouravieff (Agrarian); Finance, Dr. A. Gherghinoff (Democrat); Justice, D. Varbenoff (Liberal); Public Works and Communications, G. Iordanoff (Agrarian); Rails, Posts and Telegraphs, St. Kostowekoff (Radical); Agriculture and State Domains, D. Guitcheff (Agrarian); War, Gen. A. Kissioff; Trade, Gherghi Petroff (Liberal). The Malinoff Cabinet was more progressive than its predecessor, but not sufficiently radical to satisfy its Agrarian supporters. Communist demonstrations marked the opening of the new *Sobranie* August 20 and the Bolshevik propaganda which raged throughout the country following the elections caused the police on September 7 to ban all public meetings. In several villages, the police fired upon crowds resisting the order and many arrests were made.

The Malinoff Cabinet's foreign policy was conciliatory in general, but a violent quarrel ensued with Greece as a consequence of the Hoover reparation and war-debt moratorium (see *REPARATIONS AND WAR DEBTS*). When Bulgaria suspended her reparation payments to Greece the latter country suspended payments on the Greek government's debt of \$500,000 to Bulgaria. The debt agreement had been made in compensation for the confiscation of the property of Macedonian fugitives who fled to Bulgaria from territory acquired by Greece after the World War. The Bulgarian government contended that the debt was not a war debt and was therefore not included in the moratorium agreement. In September, the quarrel was heard by the Council of the League of Nations. See *GREECE* under *History*.

Premier Malinoff resigned with his entire Cabinet on October 12, pleading ill health, and a new Ministry was constituted with N. Mushanoff, the former Minister of the Interior, as Premier and Foreign Minister. The Interior portfolio went to Dr. Gherghinoff, the former Finance Minister, while the latter post was filled by M. Stafenoff, a prominent banker and industrialist.

The other Cabinet posts were filled as before and there was no change in party representation. In December Premier Mushanoff visited Ankara to discuss political and economic conditions with the Turkish leaders. An official statement of December 8 announced that a Bulgarian-Turkish commission had been established to regulate the economic problems of the two countries. Bulgarian representatives attended the second Balkan Conference held in Istanbul early in November (see *TURKEY under History*). Demonstrations before the French and Yugoslav legations in Sofia and fist-fighting between the government and Communist members in Parliament marked the anniversary of the Treaty of Neuilly (November 27). The feud between the rival Macedonian revolutionary groups continued its savage course. On August 15, Christoff Todoroff, head of the Protogeroffist faction, and several associates, were mutilated by the explosion of a bomb received by mail, presumably from members of the Mihailoffist faction. The European financial crisis had the same repercussions in Bulgaria as in the other states of southeastern Europe and on October 9 the government restricted foreign exchange operations to the National Bank or to institutions designated by it. An agrarian conference held at Sofia, commencing Dec. 10, 1931, was attended by representatives of the Bulgarian, Yugoslav, Rumanian, Hungarian, Polish, and Czechoslovak governments. It represented a continuation of the negotiations inaugurated among the states of Central and Southeastern Europe in 1930 in an effort to find a way out of the agricultural depression.

Consult Leo Pasvolksky, *Bulgaria's Economic Position* (Brookings Institution, Washington, 1930).

**BURGESS, JOHN WILLIAM.** An American educator died in Brookline, Mass., Jan. 13, 1931. He was born in Giles Co., Tenn., Aug. 26, 1844. While he was a student at Cumberland University, the Civil War broke out, and he served with the Union Army during 1862-64. He then matriculated at Amherst College, from which he was graduated in 1867, and two years later was admitted to the Massachusetts bar. He did not practice, however, because in the same year he was called to Knox College as professor of English literature and political economy. He subsequently devoted two years to study in Göttingen, Leipzig, and Berlin, and upon his return (1873) became professor of history and political science at Amherst. In 1876 he accepted a similar position in Columbia College. Later his title was changed to professor of political science and constitutional law, and in 1890 he became dean of the school of political science, retiring as dean emeritus in 1912.

In 1906-07 he lectured at the Friedrich Wilhelm University, Berlin, as the first occupant of the Roosevelt chair of American history and institutions, established by James Speyer. In 1914-15 he was visiting American professor in Austrian universities. The Order of the Prussian Crown was conferred on him by the German Emperor and the Order of the Albrechts by the King of Saxony in 1907. He was the author of *Political Science and Comparative Constitutional Law* (2 vols., 1890); *The Middle Period of United States History* (1897); *The Civil War and the Constitution* (2 vols., 1901); *Reconstruction and the Constitution* (1902); *Causes of the European Conflict* (1914); *The Euro-*

*pean War of 1914* (1915; popular edition, 1916); *America's Relations to the Great War* (1916); *Militarism and the Emperor* (1916); *The Russian Revolution and the Soviet Constitution* (1919); *The Transformation of the Constitutional Law of the United States between 1898 and 1920* (1921); *Recent Changes in American Constitutional Theory* (1923); and *The Sanctity of Law—Wherein Does It Consist?* (1927).

**BURIAT-MONGOL REPUBLIC.** See *SIBERIA under Eastern Siberian Area*.

**BURMA.** The largest and most easterly Province of British India, Burma has an area of 262,732 square miles, or approximately the size of Texas. The Province is divided into Burma proper, 184,102 square miles; the Shan States, 62,305 square miles; and 16,325 square miles of unadministered territory. Capital, Rangoon.

The population at the census of 1921 totaled 13,212,192. Burmans are of the Mongoloid race group and are overwhelmingly Buddhist; they have little in common with the people of India proper in language, race, or religion. Rangoon, with 345,505 inhabitants, and Mandalay, with 148,917, are the leading cities. Burma boasts a much higher percentage of literacy than the other Indian Provinces. In 1928-29 there were 503,564 pupils in 7282 recognized schools and colleges, and 201,614 pupils in unrecognized institutions. There is a university at Rangoon and an intermediate college at Mandalay.

**PRODUCTION.** Agriculture is the principal occupation, supporting 9,159,000 out of the total population. Four-fifths of the total cultivated area of some 17,000,000 acres is under rice, which is the chief money crop of the people, forming 83 per cent of the exports by value in 1930. The decline in the price of unmilled rice from 160 rupees (1 rupee equals about \$0.365) per 100 baskets in 1930 to 65 rupees per 100 baskets in July, 1931, greatly reduced the purchasing power of the people and trade and industry was drastically restricted. There are about 20,000,000 acres of forest land, which yield approximately 1,000,000 tons of timber annually, half of it teak. In 1929 the teak output was 478,518 tons; other woods, 570,173 tons. Petroleum production in 1929 totaled 253,000,000 Imperial gallons (202,187,263 gallons in 1928). Tin, tungsten, silver, lead, zinc, and wolfram are mined. Factories in 1930 numbered 948, principally rice mills and sawmills, and employed nearly 100,000 persons.

**COMMERCE.** For the fiscal year ended Mar. 31, 1931, imports of foreign merchandise (excluding the coastal trade with India proper) declined to the equivalent of \$50,185,097 from \$76,160,268 in the previous fiscal year. Exports declined in value to \$117,434,064 from \$143,819,793 in 1929-30. The United States in 1930-31 supplied \$5,470,620 of imports (\$6,748,850 in 1929-30) and purchased \$1,634,470 of exports (\$1,953,115). In the fiscal year 1931-32, trade showed even more drastic declines. Rice is the leading export and cotton piece goods the chief import.

**FINANCE.** For the fiscal year 1929-30, revised estimates for revenue were 1045 lakhs of rupees (about \$38,142,500) and for expenditures 1122 lakhs (about \$40,953,000). Burma made no contribution to the Central Government of India in 1929-30.

**COMMUNICATIONS.** Due to the rugged northern and eastern frontiers, communication with India

and the outside world is entirely by water. About 98 per cent of Burma's imports and 85 per cent of its exports pass through Rangoon, situated 20 miles from the sea on the Rangoon River. In 1930-31, a total of 1811 steamers of 4,419,000 net tons entered the port, unloading 1,551,329 tons of goods and loading 3,077,542 tons of Burmese products. The Irrawaddy River is navigable for 900 miles and forms the main highway of commerce, although there are 2046 miles of state-owned railway lines. Surfaced highways extended 1576 miles; unsurfaced, 7860 miles.

**GOVERNMENT.** In 1923, Burma was constituted a Governor's Province under the Government of India Act of 1919. There is an appointive executive council and a legislative assembly of 103 members, of whom 80 are elected and 23 nominated and *ex-officio*. The Shan States are administered by the local chiefs under supervision of the Commissioner of the Federated Shan States. Governor in 1931, Sir Charles Alexander Innes, appointed in 1927.

**HISTORY.** The revolt in Burma, which broke out in Lower Burma late in 1930, assumed formidable proportions during 1931. Despite active measures by the British authorities, the uprising spread from district to district and from Lower into Upper Burma. The seriousness of the situation and the difficulties encountered in attempting to stamp out the revolt were described by the Secretary of State for India before the House of Commons on May 17, 1931. American missionaries from Burma, arriving at Simla, India, on May 21, reported that no foreigners were safe in the interior. They placed the casualties to natives in clashes with British troops at 500 killed and thousands wounded or captured.

Early in June, the Burmese government opened a large-scale offensive against the rebels, with 8000 British and British-Indian troops and an augmented native police force. Serious reverses were inflicted upon the rebel forces and a number of their leaders were captured, including Saya San, also known as "King Golden Crow." Saya San and 18 of his lieutenants were sentenced to death by a special tribunal at Rangoon on August 28. Eighteen other ringleaders received life terms. By the beginning of September, Sir Charles Innes was able to report to the Legislative Council that the situation was steadily improving. The surrender of other rebel leaders was reported in December.

The revolt appeared to be both nationalistic and economic in origin. It aimed at the expulsion not only of the British but also of the Indian coolies, who were imported in large numbers to work at lower wages than the Burmans, and of the Chinese, who monopolized much of the trade of the country. Of the 642,478 passengers who arrived and departed from Rangoon during 1930, the large majority were Indian coolie laborers arriving to take up employment or returning to India after completing a contract. The collapse of rice prices in 1930 and 1931 added to the suffering imposed through the lowering of the standard of living by Indian coolie competition. Burman resentment flamed out in bloody riots and attacks upon Indians, large numbers of whom were reported to be fleeing the country.

In the country districts the nucleus of the revolt was furnished by armed dacoit (robber) bands, who had maintained a guerrilla warfare

ever since the annexation of the country by Britain. From their jungle fastnesses, rebel bands launched night attacks upon native villages, murdering and looting those who failed to join actively in the revolt. In the towns, the Burmese organized boycotts of British goods and campaigns of civil disobedience on the Indian model. The use of alcohol, and tobacco, and the wearing of European dress were forbidden. Knifing of those refusing to obey boycott rules was common.

**THE ROUND-TABLE CONFERENCE.** Irritation of the Burmans at their relationship with the Government of India was declared by observers to be an indirect cause of much unrest. The Simon Report of 1930 had urged an "immediate and public declaration" of the separation of India and Burma, and the British Parliament early in 1931 "conceded the principle" of separation. Meanwhile in India there had developed a campaign of opposition to the separation plan, which further aroused Burmese anger. The three Burmese political parties differed in their programmes, however. The Nationalist People's party favored immediate separation followed by eventual dominion status within the British Empire. The Home Rule party demanded immediate dominion status, failing which it preferred to enter an Indian federation with the aim of cutting adrift later. The third and least important party, the General Council of Burmese Associations, stood for immediate independence.

In an effort to eliminate this source of unrest, the British government on August 20 summoned a round-table conference of Burmese and British representatives to discuss a constitution for a separate Burma and the future relations of Burma with India. The conference assembled in London November 27, previous to the termination of the Indian round-table conference, and was still in session at the end of the year.

**BUSINESS REVIEW.** Although the outlook at the beginning of the period was by many deemed hopeful; and optimistic interviews were made public by not a few supposed authorities, the year 1931 at no time seemed able to warrant the forecasts thus presented. It is true that during the first few months of the year, there was a temporary upswing in certain classes of manufacturing which gave a false appearance of activity. The cotton, and to some extent the woolen, textile, and shoe manufacturing plants as well as industries generally which were producers of consumable commodities were fairly occupied, though not under very remunerative conditions. Employment increased up to mid-year, and there was a good deal of belief that the better situation might be transferred to the staple industries. At one time, it seemed likely that steel and iron manufacturing would move steadily ahead, but this expectation soon disappeared.

When the moratorium with Germany and with the Allied nations was announced at the beginning of July, 1931, it gave a shock to all banking and finance and tended to curtail the extension of credit by the larger banks. From that time onward, contraction set in and was vigorously pressed forward. The outcome was witnessed in a general shrinkage of bank credit, especially toward the end of the year, and a repression of industrial activity as a consequence. Along with these conditions, there was a distinct tendency to deterioration in most shipping and

selling lines, while export trade in particular tended to show sharp recession, with resultant reduction of demand for labor and material in all branches of business in which export demand was a large factor. This again reacted unfavorably upon home trade; and freights, as measured by car loadings, showed marked recession. The close of the year left business, statistically measured, at practically low point as may be seen from the accompanying table.

#### INDEX OF INDUSTRIAL PRODUCTION

[Index numbers, adjusted for seasonal variations  
1923-1925 average=100]

Mos.	1923	1924	1925	1926	1927	1928	1929	1930	1931
Jan.	100	100	105	108	107	108	117	102	82
Feb.	100	102	105	107	109	109	117	110	86
Mar.	103	100	104	107	111	109	119	109	87
Apr.	107	95	103	107	109	109	122	110	89
May	107	89	103	106	111	109	123	106	89
June	105	85	102	107	108	108	126	99	84
July	103	83	103	107	106	109	124	89	83
Aug.	102	89	108	111	107	112	123	88	79
Sept.	100	94	102	112	105	114	121	91	76
Oct.	99	94	105	111	103	114	117	87	73
Nov.	97	97	106	108	99	112	106	84	72
Dec.	96	101	108	105	99	113	99	82	71
Annual									
Index	101	95	104	108	106	111	119	96	81

DISTRIBUTION. Notwithstanding the low condition of activity in manufacturing and industry, it was true in 1931, as in preceding years, that the distribution of goods continued fairly satisfactory throughout the year, thus indicating the existence of a large volume of purchasing power in the hands of consumers un-

#### DEPARTMENT STORES—SALES, STOCKS

[1923-1925 average = 100]

Month	Index of sales*			
	Adjusted for seasonal variation		Without seasonal ad- justment	
	1930	1931	1930	1931
January	107	97	88	79
February	108	98	89	80
March	107	97	93	92
April	107	106	110	101
May	105	97	105	97
June	103	95	98	80
July	100	91	71	65
August	102	88	77	67
September	99	84	103	87
October	102	86	112	93
November	98	83	113	95
December	94	81	165	142
Year	...	...	102	91

Month	Index of stocks (end of month)			
	Adjusted for seasonal variation		Without seasonal ad- justment	
	1930	1931	1930	1931
January	99	88	88	78
February	98	86	93	81
March	97	84	100	87
April	97	83	101	87
May	96	83	98	85
June	96	82	99	80
July	94	81	87	75
August	91	79	87	76
September	91	81	95	84
October	92	80	101	88
November	92	79	104	89
December	91	78	85	73
Year	...	...	94	82

\* Based throughout on figures of daily average sales— with allowance or changes from month to month in number of Saturdays and for six national holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas. Adjustment for seasonal variation makes allowance in March and April for the effects upon sales of changes in the date of Easter.

touched by the depression. The situation was fairly well indicated by the movement of transactions at department stores throughout the country, which, as reported to the Federal Reserve Board, was as noted in table on preceding column.

Chain store earnings and volume likewise held up very well, especially during the forepart of the year, and served as a valuable "backlog," even during the depressed later months of the period. Employment, which had been unsatisfactory in 1930, fell off after spring work was over, and the later months of 1931 showed substantial recessions. Some had estimated toward the close of the period that at least 6,000,000 persons were unemployed. It should be noted, however, that no statistical basis of reliable character exists for the making of such estimates. See UNEMPLOYMENT.

COMMODITY PRICES. There had been severe shrinkage of commodity prices during the latter part of 1930, but the real reduction of the price level was still to come. Early in 1931 there were sharp shrinkages of basic materials, those particularly evident being in cereals, copper and non-ferrous metals, rubber, and many other raw commodities. These items were the same that had shown greatest susceptibility to reduction during the preceding year. There was now added, however, a distinct tendency toward reduction of retail prices and an effort in various lines to bring about some readjustment of values that would force wholesale and retail prices closer together. These revisions at no time during the year effected a reduction of living costs that was at all comparable with that already brought about in wholesale values, and accordingly the decrease of employment and the suspension of dividends resulted in more than normal suffering, because not accompanied by corresponding lowering of outlays. Not a few observers, who rightly attributed general inconvenience and even suffering to the fall in prices, failed to recognize that the real trouble lay in the unevenness of the fall and were accordingly led to urge the use of inflation of credit as a means of raising goods on the lower levels instead of attempting to readjust living costs downward. The accompanying table shows the movement of wholesale prices.

#### MOVEMENT OF WHOLESALE PRICES

Month	1926	1927	1928	1929	1930	1931
January	...	97.0	96.8	97.2	93.0	77.0
February	102	96.0	96.4	96.7	92.0	75.5
March	...	100	95.0	96.0	92.5	91.0
April	...	100	94.0	97.4	96.8	91.0
May	...	101	94.0	98.6	95.8	89.0
June	...	101	94.0	97.6	96.4	87.0
July	...	100	94.0	98.3	98.0	84.0
August	...	99	95.0	99.8	97.7	84.0
September	...	100	97.0	100.1	97.5	84.0
October	...	99	97.0	97.8	96.3	83.0
November	...	98	96.7	96.7	94.4	80.4
December	...	98	96.8	96.7	94.2	78.4

MANUFACTURING. The effort to keep up working staffs and to maintain wages and outlay on capital restoration so strongly urged by President Hoover at the beginning of 1930 had been generally abandoned by the close of the year, and the opening of 1931 witnessed a general breaking away from the philosophy which had been responsible for these plans. Manufacturers began to institute rigid economies, and by the middle of the year reductions of 10 to 20 per cent had been instituted in many plants including not



only employees but the higher officers of the concerns. During the early autumn United States Steel and other large enterprises adopted a like policy, and their decision was copied by many others. The result was a general reduction of the wage level. Railroads almost alone stood out against the reduction, and even they sought to put it into effect in part at least by reducing staffs and increasing assignments to the retained workers where possible. By the end of the year a well-defined attempt on the part of the roads, to get a 10 per cent reduction of wages either through voluntary agreement on the part of the men, or through an appeal to labor boards (State and national) was in full swing. Meanwhile output had been reduced, and attempt made in most lines to get rid of all accumulated stock and to produce only upon actual orders. This, in many instances, made goods stocks unusually short. Generally speaking, the relative volume of wage payments in manufacturing industries was shown to be about 12 to 15 per cent below that of 1930.

The following table shows the unfilled tonnage of the Steel Corporation at the end of each month since the close of 1927, usually taken as a good indicator of conditions and prospects in "basic" and "staple" business.

U. S. STEEL CORPORATION  
[Unfilled tonnage]

Month	1931	1930	1929	1928
January ...	4,132,351	4,468,710	4,109,487	4,275,947
February ...	3,965,194	4,479,748	4,144,341	4,398,189
March .....	3,995,330	4,570,653	4,410,718	4,335,206
April .....	3,897,729	4,354,220	4,427,763	3,872,133
May .....	3,620,452	4,059,227	4,304,167	3,416,822
June .....	3,479,323	3,968,046	4,256,910	3,637,009
July .....	3,404,816	4,022,055	4,088,177	3,570,927
August .....	3,169,457	3,589,204	3,658,211	3,624,043
September ..	3,144,333	3,424,338	3,902,581	3,698,388
October .....	3,110,432	3,491,763	4,086,562	3,751,030
November ...	2,933,891	3,639,636	4,125,345	3,673,000
December ..	2,850,000	3,943,596	4,417,193	3,976,712

**AGRICULTURE.** The year on the whole proved exceptionally favorable in agriculture. Drought, which had been so destructive over large parts of the country during the previous year, was absent, except in limited sections, largely in the Middle Northwestern States. Both cotton and wheat turned out large normal crops, cotton amounting to 16,918,000 bales and wheat (spring and winter) to about 892,271,000 bushels. However, the low prices prevailing not only for grain, but for almost all agricultural products proved the source of utmost suffering and discontent among farmers, and led to radical utterances with respect to financial and other alleged remedies. There was no relief during the year, and the efforts of the Farm Board, largely devoted to speculation in wheat and cotton, seemed to have no particular result, or if any was traceable to them, it was in the direction of depressing prices. Although many schemes for agricultural relief made their appearance in the public prints, it was not until the reassembling of Congress in December that most of them became articulate. They then took form as plans for the rehabilitation of the Federal Land Banks which had fallen into bad condition, and occasionally as proposals for assisting farmers in re-seeding and other essential operations of various sorts. The agricultural situation so far as output in the United States goes is reviewed in the table on page 133.

See also **AGRICULTURE** and articles on the various crops such as **BARLEY**, **OATS**, **WHEAT**, etc.

TOTAL NUMBER OF COMMERCIAL FAILURES IN THE UNITED STATES, WITH ASSETS AND LIABILITIES, FOR FOUR YEARS, AS REPORTED TO BRADSTREET'S

	Number of Failures				Assets				Liabilities			
	1931	1930	1929	1928	1931	1930	1929	1928	1931	1930	1929	1928
New England States .	2,545	2,641	2,462	2,383	\$ 157,744,140	\$ 21,410,441	\$ 13,892,401	\$ 14,184,826	\$ 199,349,512	\$ 54,107,502	\$ 42,350,255	\$ 39,065,612
Middle States .....	7,619	7,560	5,948	5,570	447,298,242	341,856,457	76,858,133	46,521,157	788,418,739	543,112,753	187,591,819	128,861,382
Western States .....	6,068	5,314	4,229	4,537	468,616,651	184,408,181	57,986,230	62,150,869	705,948,290	322,881,251	98,726,626	105,583,119
Northwestern States .	1,939	1,496	1,457	1,454	85,089,710	38,260,902	23,385,619	82,073,770	129,117,474	60,739,436	40,365,597	50,260,249
Southern States .....	5,648	4,893	4,208	4,295	247,655,470	372,895,491	148,531,008	108,078,900	348,423,020	448,151,821	202,908,452	182,929,502
Far-western States ...	2,562	2,305	1,199	2,131	66,905,557	29,557,824	30,546,259	15,373,250	109,572,281	56,718,916	57,047,984	30,904,065
<b>Totals, United States</b>	<b>26,381</b>	<b>24,209</b>	<b>19,203</b>	<b>20,370</b>	<b>\$1,473,309,800</b>	<b>\$988,389,396</b>	<b>\$351,149,650</b>	<b>\$278,382,152</b>	<b>\$2,280,829,316</b>	<b>\$1,485,591,679</b>	<b>\$628,990,633</b>	<b>\$517,603,929</b>

UNITED STATES AGRICULTURAL PRODUCTION,  
1931

	Production	Value
Corn .....bushels	2,556,868,000	\$920,142,000
Oats .....do.	1,112,142,000	256,483,000
Cotton .....bales	16,818,000	485,611,000
Cottonseed .....tons	7,523,000	78,581,000
Barley .....bushels	198,965,000	70,119,000
Apples .....do.	34,732,000	62,612,000
Oranges (7 States) boxes	50,814,000	82,517,000
White potatoes .....bushels	376,248,000	161,264,000
Wheat .....do.	892,271,000	395,600,000
Hay .....tons	64,233,000	581,833,000
Tobacco .....pounds	1,610,098,000	156,097,000

**GENERAL BUSINESS.** General business throughout the year was naturally greatly depressed. In financial fields, the extent of depression and failure was greatest. About 2200 banks closed their doors during the year, while the list of commercial failures (see table, page 132.) was heavy. Retirements from financial business of every kind were numerous, particularly on the stock exchanges of the country. Year-end statements showed a remarkable recession of corporate earnings, probably averaging about 30 per cent below 1930. Declines in many cases brought about deficits and dividend suspensions were unprecedented in number. Only about 125 listed firms (New York Stock Exchange) were able to keep up dividend distributions on the same plane as formerly. Among these, however, were not a few who paid dividends out of accumulated surplus, not wishing to interrupt their records for payment. Railroads, in a large number of cases, cut or suspended their payments to stockholders, and the volume of bonds in default was greater than for many years. (See RAILWAYS.) Enterprises which did not suffer so severely as others or in some cases showed actual improvement were found sporadically in some luxury trades, in tobacco production, in some automobile specialties, and in a few businesses which, for special reasons, enjoyed a partial or total monopoly of the field. On the whole, the condition of trade, and the profits earned, were less satisfactory than at any period for fully 40 years, current comparisons usually going back to the conditions attendant on the panic of 1893, though some were inclined to refer back to that of 1873 for a parallel.

**BUSINESS FAILURES.** In the table on page 132 the failure situation as reflecting the entire business field is depicted, following *Bradstreet's* figures which show a record total of over 26,000 of all kinds. The table indicates the wide distribution of the embarrassments and difficulties which resulted from the conditions already described. In general, failures were due to three major causes—the continuous losses in inventory, due to the reduction of prices; the inability to collect receivables, resulting from unemployment of customers and other difficult conditions; and the failure to keep up sales causing closings on account of excessive "overhead." Difficulties were extraordinarily widespread, affecting many enterprises which had previously supposed themselves immune to ordinary business disturbance.

See also **BANKS AND BANKING**; **FINANCIAL REVIEW**; **PUBLIC FINANCE**; and articles on various fundamental and staple industries, such as **COPPER**, **SILK**, **SUGAR**, ETC.

**BUSSES.** See **AUTOMOBILES**.

**BUTTER.** See **DAIRYING**.

**BYZANTINE ART.** See **ART EXHIBITIONS**.

**CAINE, SIR (THOMAS HENRY) HALL.** A British novelist and dramatist, died at Greeba Castle

on the Isle of Man, Aug. 31, 1931. He was born in Runcorn, Cheshire, May 14, 1853, and attended schools on the Isle of Man and in Liverpool. He was trained to be an architect, but instead of practicing became a journalist, serving for six years as editorial writer on the Liverpool *Mercury*. During 1881-82, the last two years of Dante Gabriel Rossetti's life, he lived with him in London, and on his death published *Recollections of Rossetti*. He also wrote during this period for the *Athenæum*, *Academy*, and other magazines and published *Life of Coleridge* (1883) and *Cobwebs of Criticism* (1883). In 1895 he visited Canada as a representative of the Authors' Society and the British Colonial Office to promote the international copyright movement and negotiate terms with the Dominion Government regarding the Canadian copyright.

His early novels, marked for the most part by a strong religious or moral interest and dealing with Manx characters and subjects, include *The Shadow of a Crime* (1885); *The Son of Hagar* (1886); *The Deemster* (1887); *The Bondman* (1890); *The Scapergoat* (1891); *The Manaman* (1894); *The Christian* (1897); *The Eternal City* (1901); *The Prodigal Son* (1904); *The White Prophet* (1909); and *The Woman Thou Gavest Me* (1913). Of these, *The Deemster*, *The Manaman*, *The Christian*, *The Eternal City*, *The Prodigal Son*, and *The White Prophet* were dramatized, but the latter, because it placed the British Army in an unenviable light, came under the ban of the English censor. Among his later plays are *The Iron Hand* (1916) and *The Prime Minister* (1918). Many of his novels were filmed, both in the United States and in England, and a collected edition of his works was issued in 1921. During the World War he was concerned with British propaganda in the United States, his articles appearing in an American syndicate, and he also published *The Drama of 365 Days, Scenes in the Great War* (1915) and *Britain's Daughters* (1916). As a tribute to the Belgian king and people, he edited *King Albert's Book* (1914-15), for which he was made an Officer of the Order of Leopold. He also was created a Knight of the British Empire (1918) and a Companion of Honor (1922). His later works include *The Master of Man* (1921); *The Woman of Knockaloe* (1923); and *The Life of Christ* (posthumous, 1931).

**CAISSON CONSTRUCTION.** See **FOUNDATIONS**.

**CALIFORNIA. POPULATION.** According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 5,677,251, as against 3,426,861 for 1920. Its composition in 1930 was, as to origin: native white, 4,230,213, as against 2,583,049 for 1920; foreign-born, white, 810,034 (excluding Mexicans); Mexican, 368,013; Negro, 81,048; Japanese, 97,456; Chinese, 37,361; Indian, 19,212; Filipino, 30,470. There were also small numbers of other Asiatic or Pacific groups. The number of persons in gainful occupations was 2,500,969. Of these, 334,241 were in agriculture, including 120,399 farmers and their farm laborers. Manufacturing and mechanical industries claimed 618,023; mineral extraction, 55,623; transportation, 246,616; trade, 535,061; professions, 251,834; domestic work, 289,787. Among the cities, Los Angeles led in population, with 1,238,048 (1930); 576,673 (1920). San Francisco had 635,394 (1930); 506,676 (1920). Oak-

land, 284,063 (1930); 216,261 (1920). San Diego, 147,995 (1930); 74,683 (1920). Sacramento, the capital, had 93,750 (1930); 65,908 (1920).

**AGRICULTURE.** The following table gives the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Oranges ...	1931 .....	34,900,000*	\$55,840,000	
	1930 .....	35,000,000*	52,500,000	
Grapes ....	1931 .....	1,287,000*	27,519,000	
	1930 .....	2,181,000*	33,646,000	
Hay, tame .	1931 1,764,000	3,679,000*	37,526,000	
	1930 1,715,000	4,281,000*	46,668,000	
Barley .....	1931 820,000	13,776,000	6,750,000	
	1930 1,094,000	32,820,000	15,754,000	
Dry beans ..	1931 334,000	3,467,000*	12,134,000	
	1930 363,000	4,264,000*	20,467,000	
Wheat .....	1931 456,000	6,475,000	4,209,000	
	1930 592,000	12,136,000	10,316,000	
Peaches ....	1931 .....	24,460,000	8,744,000	
	1930 .....	33,189,000	15,595,000	
Cotton .....	1931 195,000	181,000*	.....	
	1930 270,000	264,000*	.....	
Rice .....	1931 125,000	8,000,000	4,480,000	
	1930 110,000	7,271,000	6,035,000	
Potatoes ...	1931 35,000	6,825,000	4,914,000	
	1930 38,000	6,930,000	7,623,000	
Corn .....	1931 90,000	2,610,000	1,749,000	
	1930 90,000	2,700,000	2,349,000	
Oats .....	1931 67,000	1,273,000	458,000	
	1930 96,000	2,688,000	1,156,000	
Sugar beets .	1931 90,000	1,067,000*	.....	
	1930 65,000	768,000*	5,731,000	

\* Boxes. \* Tons. \* 100-lb. bags. \* Bales.

**MINERAL PRODUCTION.** The production of petroleum, which had constituted more than half of the value of the State's mineral total year by year, fell off somewhat sharply to 228,099,000 barrels for 1930, from 292,534,000 for 1929; in value, it was \$251,000,000 (estimated) for 1930 and \$321,367,000 for 1929. The increasingly valuable production of natural gas (totals not available for 1930) amounted to 342,214,000 M cubic feet, in value \$68,972,000 for 1929 (for 1928, 246,215,000 M cubic feet valued at \$56,695,000). There were made from natural gas, in 1930, 814,100,000, gallons of natural-gas gasoline; in 1929, 840,325,000. These quantities were valued at \$57,000,000 (estimated) for 1930 and \$67,009,000 for 1929. The State's clay products came to \$22,733,974 for 1929, as against \$20,993,347 for 1928. Cement mills shipped 10,438,479 barrels of Portland cement in 1930, and 12,064,746 in 1929; this product was valued at \$15,241,089 for 1930 and \$22,805,576 for 1929. Stone production, while of low average grade, attained for 1929, 11,818,300 short tons and a value of \$10,861,539.

Though gold no longer ranked among the State's foremost mineral products, California held the lead as a domestic producer of gold. The quantity produced rose to 450,289 fine ounces for 1930, from 409,020 for 1929; and the value of the product to \$9,308,300 (1930), from \$8,455,200 (1929). There were produced also 1,434,126 ounces of silver in 1930; in 1929, 1,194,651; the value, \$552,139 for 1930, however, was lower than the \$636,749 of 1929. Copper production fell to 20,262,447 pounds (1930), from 33,084,232 for 1929, when its value was \$5,846,543. Borates, salt, sodium salts, and mercury each yielded more than \$1,000,000 in 1929. The total value of the State's mineral products was \$554,916,020 for 1929; for 1928, \$434,261,175.

The total value of the gold, silver, copper, and lead produced from placer and lode mining in California in 1931 was estimated at \$12,192,700,

pared with 1930. Gold and lead showed increases in output compared with 1930, but silver and copper declined in yield, owing to the drop in price of the metals and the consequent curtailment of production. No recovery of zinc was reported in 1931. The value of the gold recovered from lode and placer mining in California in 1931 was estimated at \$10,708,000 (518,000 fine ounces), compared with \$9,451,162 (457,200 fine ounces) in 1930. Silver output from mines in California in 1931 was estimated at 836,000 fine ounces, valued at about \$242,440, compared with 1,622,803 ounces, valued at \$624,779, in 1930. Silver ore mined in the State yielded approximately 18 per cent of the total silver produced in the United States in 1931, but the output from this source was 20 per cent less than in 1930. The yield of copper from mines in California in 1931 was estimated at 13,250,000 pounds, valued at about \$1,099,750, a decrease of approximately 14,035,300 pounds in quantity and of about \$2,447,300 in value, compared with 1930. This large decrease was due to the closing of the Engels copper mine in Plumas County and the cessation of mining copper ore by the Mountain Copper Co. (Ltd.) at its property in Shasta County. The output of lead from mines in California in 1931 was estimated at 3,750,000 pounds, valued at about \$142,500, an increase of approximately 190,500 pounds in quantity and a decrease of about \$35,500 in value, compared with 1930.

**MANUFACTURES.** Federal Census data obtained in 1930 and covering 1929 gave the number of the State's manufacturing establishments as 12,003, or some 20 per cent more than for 1927. These employed in 1929, 290,702 wage earners, or 10.6 more than in 1927. The wages paid in 1929 totaled \$418,797,162. The materials used in manufacture in 1929 cost \$1,706,204,154; the fuel and purchased electricity, \$53,725,229. The manufactured product was valued at \$3,104,086,175, or about 20 per cent above that of 1927. The value added in the year 1929 by manufacture was calculated at \$1,344,156,792. Los Angeles held first rank in manufacturing, having in 1929, 3438 establishments employing 74,593 wage earners, who received \$108,026,221 in wages, while the manufactured product of the year totaled \$745,100,403. San Francisco, with 2521 establishments, 45,098 wage earners, wage payments of \$66,461,917 and a manufactured product of \$475,618,387, came next.

**FINANCE.** Total revenue receipts for the fiscal year ended June 30, 1930, were \$115,178,669 and total expenditures, including interest and capital outlays, \$116,634,642. Expenditures included \$32,974,905 for highways (new construction, \$25,226,972), \$27,117,115 for education, \$34,078,212 for permanent public service improvements, and \$5,669,114 for interest on debt. The funded debt outstanding June 30, 1930, was \$123,580,844, of which \$61,175,000 was for highways.

**TRANSPORTATION.** The total number of miles of railroad line in operation on Jan. 1, 1931, was 8240. Additions to the mileage of line in the year preceding had totaled 12.47 miles, and abandonments, 64.64. In 1931 were built 178.21 miles of new first track, 0.67 mile of third track and 0.68 of fourth track.

**EDUCATION.** The number of persons reported as the registered school population of October, 1930, was 1,383,650. There were enrolled, however, in the public schools of the State, during

1,455,995. Of those enrolled, 783,497 were in elementary grades and 564,020 in high-school grades. The total expenditure of the academic year for public school education (kindergarten, elementary school, high school, and junior college included) was \$153,168,453. According to report in the *Journal of the National Education Association*, the Legislature of 1931, by empowering elementary school districts to impose a tax up to a yearly 70 cents ad valorem for the benefit of a special building fund, made it possible for local school systems to take care of their building needs in many cases without resort to bond issues.

**CHARITIES AND CORRECTIONS.** The State Department of Social Welfare was consolidated from previous boards and was made a major State department in 1927. Director in 1931 Mrs. Rheba Crawford Splivalo. The activities of the State Department of Social Welfare, include the inspection and supervision of County Hospitals, charitable, correctional and penal institutions of the State, and licensing of institutions for children and for aged. The Divisions of the Department are as follows: Aid to children, Aid to aged, Aid to blind, Adoptions and Probation. There were 16,000 children on aid in 1931—85 per cent with their mothers, 6 per cent in institutions, 9 per cent with relatives or in boarding homes. Under the Old Age Security Act Dec. 31, 1931, 9596 active cases were on aid. Under the Blind Act at the same date there were 1427 active cases. Among the chief State institutions are Agnew State Hospital, Agnew; Industrial Home for the Adult Blind, Oakland; Mendocino State Hospital, Talmadge; Napa State Hospital, Imola; Norwalk State Hospital, Norwalk; Patton State Hospital, Patton; Pacific Colony, Spadra; Sonoma State Home, Eldridge; Stockton State Hospital, Stockton; Ventura School of Girls, Ventura; Whittier State School, Whittier; Preston School of Industry, Ione; State Prisons at Folsom and San Quentin. The California Institution for Women at Tehachapi was to be open in April 1932.

**LEGISLATION.** The regular legislative session, extending over four months, ended on May 18. It failed conspicuously to dispose of a number of the State's foremost legislative problems. Among these were the need of a more ample water supply in parts of the State, particularly the southern San Joaquin district, and the demand for the improvement of the revenue laws. Governor Rolph held to an announcement made at the outset of his administration that he would not put executive pressure on the legislators to carry out any given programme of bills. This policy of abstention was in consonance with the idea of distinct and separate legislative and executive functions, but it found the legislators facing a new departure and lacking any definite plan and leadership of their own.

California having acquired nine additional seats in the House of Representatives through the Federal reapportionment of 1930, extensive and in some cases radical changes were made in a redistricting measure which occupied the chief attention of the Legislature for the greater part of the session. The total of appropriations made for the ensuing two years was estimated to exceed the expected revenue for the period and as likely to reduce by \$15,000,000 the surplus of \$30,000,000 existing in the State Treasury. The act for the redistricting of the State's representation in Congress was a subject of especial conflict. Under the new Federal apportionment

California had 20 seats in the House of Representatives, a gain of 9. The rivalry between the northern and southern halves of the State shaped the outcome. Eleven districts were fashioned out of the southern area, south of the Tehachapi ridge, and 9 only were granted to the northern part. San Francisco suffered particularly, obtaining only 2 Representatives, whereas her advocates asserted the city to be fully entitled to 3 on the strict basis of population. The assertion was made that the redistricting law had been made in repudiation of an agreement entered into by political leaders in the previous autumn, according to which each half of the State was to have had 10 Representatives. The South deemed that this arrangement would, if carried out, have been unduly unfavorable to it, as the Census gave it somewhat the greater population. The North on the other hand felt itself entitled on the population basis to more than 9 seats.

**POLITICAL AND OTHER EVENTS.** The State's system of judicial procedure was criticized in a report issued on July 15 by the Federal Wickersham Commission, dealing with weakness in the State's laws. It was asserted that the State had given its courts no power to issue a writ of *coram nobis* in cases such as that of the Mooney appeal, where it was alleged that matter not appearing in the record justified a new trial. The progress of a company known as Fruit Industries Limited, dealing in products of the grape usable for the production of fermented beverage, and serving as an outlet medium for a part of the State's grape crop, attracted wide attention. As the company was connected with the California Grape Control Board and thus in relations with the Federal Farm Board it sought and received loans of over \$2,000,000 from that source. But at the same time shops in other States, selling its goods, were raided by the Federal Prohibition Enforcement personnel.

The company finally in November, discontinued home distribution. The State Supreme Court rendered in May a decision upholding the California Toll Bridge Authority as a valid body and its issue of \$75,000,000 of revenue bonds for financing the San Francisco Bay bridge project as legal. San Francisco adopted at an election on March 26 a new city charter giving increased power to the Mayor. The charter was to become operative in January of 1932. Government by city manager went into effect in Oakland on July 1, with Ossian Carr as city manager. The City Council of Los Angeles voted on March 9 to restrict the height of buildings by ordinance to 150 feet.

**OFFICERS.** Governor, James Rolph, Jr.; Lieutenant-Governor, Frank F. Merriam; Secretary of State, Frank C. Jordan; Treasurer, Charles G. Johnson; Comptroller, Ray L. Riley; Attorney-General, U. S. Webb; Adjutant-General, Seth E. Howard; Superintendent of Public Instruction, Vierling Kersey; Director of the Department of Agriculture, Dudley Moulton.

**JUDICIARY.** Supreme Court: Chief Justice, William H. Waste; Associate Justices, William H. Langdon, John W. Preston, Jesse W. Curtis, Emmet Seawell, John E. Richards, John W. Shenk.

**CALIFORNIA, UNIVERSITY OF.** A coeducational institution of higher learning with headquarters in Berkeley, Calif., founded in 1868. Branches are found in various parts of the State;

University of California at Los Angeles, with the colleges of letters and science, and education; branch of the college of agriculture in Davis; citrus experiment station and graduate school of subtropical horticulture in Riverside; Scripps Institution of Oceanography, near La Jolla; Lick Observatory on Mount Hamilton; and agricultural stations at Kearney Vineyard, near Fresno, near San Jose, and in the Imperial Valley. The number of full-time resident students in courses leading to degrees on Nov. 1, 1931, was 18,342, of whom 9755 were men and 8587 were women. The enrollment in the university extension division in 1930-31 was 37,446 in classes and correspondence courses. The 1931 summer session enrollment totaled 7294. At the beginning of the autumn term there were approximately 2000 members on the regular teaching staff and 800 on the extension staffs. The endowment funds for 1930-31 amounted to \$16,696,497. The total income for the year was \$16,112,226. Total assets are listed at \$63,534,582, improvements and equipment at \$40,614,099. The libraries contained approximately 1,200,000 bound volumes.

During the year 1931 there were completed on the Berkeley campus three new buildings for the college of engineering group, at an approximate cost of \$685,000. Eshleman Hall, a building to house student publication activities, was completed at a cost of \$250,000. On the 13 acres of land acquired southwest of the campus for recreational purposes, a track and track stadium were under construction at a cost of \$250,000; baseball bleachers, to cost \$35,000, were being built; and a new \$1,000,000 gymnasium for men was completed. At San Francisco \$600,000 was being spent for a building to house the outpatient department of the university hospital at the medical school. At Los Angeles, Kerckhoff Hall, a student union building costing \$800,000, a mechanics arts building costing \$100,000, and a subtropical horticulture building to cost \$20,000 were completed; a gymnasium for men and a gymnasium for women, at a total cost of approximately \$1,000,000, and a new wing of the physico-biology building, to cost \$300,000, were under construction. Mira Hershey Hall, a dormitory for women, was completed at a cost of \$300,000. At Scripps Institution of Oceanography, a new laboratory building, costing \$120,000, was completed. At Riverside, an insectary was built at a cost of \$25,000, and an entomology building, to cost \$150,000, was under construction. Robert Gordon Sproul, B.S., LL.D., was president of the University of California; Monroe E. Deutsch, A.B., LL.B., M.A., Ph.D., vice president and provost; Ernest Carroll Moore, A.B., LL.B., M.A., Ph.D., vice president and provost of the University of California at Los Angeles.

**CALIFORNIA INSTITUTE OF TECHNOLOGY.** An institution for collegiate and graduate instruction and research in the pure and applied sciences in Pasadena, Calif., founded as Throop Polytechnic Institute in 1891. The enrollment in 1931, was 751, of whom 531 were in the undergraduate and 220 in the graduate school, the faculty numbered about 200. The endowment was approximately \$10,000,000, and the annual income \$800,000. There were 30,000 volumes in the library. During the year an astrophysical laboratory (part of a 200-inch telescope project), two geological laboratories and units of

the chemical and biological laboratories, and the W. K. Kellogg radiation laboratory for the study of high-potential X-rays were under construction. An outstanding development was the opening in September of a group of residence halls—Dabney, Ricketts, Blacker, and Fleming—accommodating some 300 undergraduate students, and the Athenaeum for graduate students. Among the visiting professors during 1931 were Albert Einstein, Jacob Gould Schurman, and Charles A. Beard. The institute has no president, the administration centering in an executive council of eight, of which Robert A. Millikan, Ph.D., LL.D., Sc.D., is chairman.

**CALIPHATE.** See **PALESTINE** under *History*.

**CAMBODIA**, kām-bō'dī-d. A French protectorate constituting one of the five component states of French Indo-China. Area, 67,800 square miles; population at the census of 1929, 2,611,349, of whom 2004 were Europeans (including military forces), and 156,277 Chinese. Phnôm-Penh, with a population of 83,079, is the capital and chief town. There were 133 French schools, with 11,252 pupils in 1930. The soil is fertile, but only a comparatively small area is under cultivation. The chief product is rice, its annual export amounting to about 250,000 tons. Other products include cotton, pepper, kapok, tobacco, rubber, silk, salt fish, hides, cattle, coffee, sugar, and iron. Imports in 1929 were valued at 64,665,000 francs (1 franc equals \$0.039), compared with 44,396,000 francs in 1928, while exports totaled 14,722,000 francs, against 19,995,000 francs in 1928. The budget for 1931 balanced at 11,434,020 piasters (the piaster was stabilized at \$0.392 on May 31, 1930), and included 728,000 piasters allowed for the civil list of the king and princes. A railway between Phnôm-Penh and Battambang was under construction in 1931. There were in the same year 1430 miles of hard-surfaced roads, 188 miles of dirt roads, and 50 miles of highway under construction. Executive authority is exercised by the French Resident-Superior, who acts through the native King. King in 1931, Sisowathmonivong (crowned July 22, 1928). Resident-Superior, F. Lavit. Cambodia is famous for its ruins of ancient civilizations, particularly those of Angkor. See **FRENCH INDO-CHINA**.

**CAMEROON**, kī'me-rōon, or **CAMEROONS**. The former German territory of Kamerun on the Gulf of Guinea, West Africa, bounded on the north by Nigeria and on the east and south by French Equatorial Africa and Spanish Guinea. Occupied by French and British troops in 1916, it was divided between the two nations in 1919 under mandates of the League of Nations.

**FRENCH CAMEROON.** France received an area of 166,489 square miles, in addition to 107,270 square miles ceded to Germany in 1911 and later incorporated in French Equatorial Africa. The population of the French portion in 1929 was estimated at 1,944,000, including 2009 Europeans. In 1929, there were 89 Government schools, with a total attendance of 7000, and 38 private schools, with 6748 pupils. Tobacco, almonds, palm oil, timber, rubber, cacao, and ivory are the chief products. Imports in 1929 totaled 193,618,213 francs (1 franc equals \$0.039) and exports 164,368,670 francs. The general budget for 1929 balanced at 63,041,485 francs; the special railway budget amounted to 21,766,000 francs. Highways extended 2406 miles and railroads,

292 miles. In 1929, 415 vessels entered Douala, the chief port. Yaoundé is the seat of administration. Commissioner in 1931, M. Marchand.

**BRITISH CAMEROONS.** The British portion, extending along the Nigerian frontier from the sea to Lake Chad, has an estimated area of 34,236 square miles and an estimated population of 700,050. Imports in 1929 were valued at £214,621; exports at £307,007. Government revenue (1928-29) amounted to £88,904; expenditure, £138,501. A total of 137 vessels of 265,738 tons entered the port of Victoria in 1929. British currency is in use. The Governor of Nigeria administers the territory. See NIGERIA.

**CAMP FIRE GIRLS OF AMERICA.** An organization primarily for the adolescent girl, whose purpose is to "seek beauty, give service, pursue knowledge, be trustworthy, hold on to health, glorify work, and be happy." It was organized nationally in March, 1911, and chartered in 1912, with Dr. Luther H. Gulick as president, but its foundations were laid some time before by a group who felt that the leisure time of young girls could and should be used to help them grow. A flexible programme of activities in seven fields, or crafts, and a system of awards, or honors, for accomplishment in these fields was outlined. A girl may win honors in any of the seven crafts: Home, health, hand, camp, nature lore, business, and citizenship. The purpose of these activities is not the attainment of particular skill, but the development, and happiness through development, of the individual girl who discovers new interests and new talents and at the same time enjoys the companionship of other girls. The programme also appeals to her æsthetic sense through its ritual and symbolism, based on Indian lore and handicraft, and upon joining she chooses a symbol which signifies her ambition or ideal.

Each year Camp Fire girls launch a special project. International friendship was the objective selected for 1931, and the girls, starting with their own family histories, developed an interest in the songs, stories, costumes, and folkways of many nations and carried out programmes demonstrating the interdependence of nations.

The membership of the organization in 1930 was 236,643, including 173,985 Camp Fire girls and guardians and 35,995 Blue Birds, the youngest members. During the school year of 1929-30 and the summer of 1930, 145 training courses were given, with an attendance of 2769 leaders. In order to reach more leaders a plan was worked out in the fall of 1930 for guardians' training institutes, to be held week-ends for concentrated study and consultation. During the summer of 1930, 23,099 Camp Fire girls attended 101 Class A camps (camps having an attendance of 25 or more), while thousands of others went camping in small groups with their leaders. The organization publishes *Everygirl's*, a monthly magazine for girls, and *The Guardian*, a programme resource for leaders.

The national Council, composed of delegates from local councils, is responsible for the management of the organization. The executive officers of the national board of directors, elected by the national council, have charge of special departments covering the activities of groups not under the council as well as those organized in council territory. At the meeting of the national

council held in Minneapolis, Minn., Sept. 13-21, 1931, Mrs. Lida Foote Tarr was elected president; Miss Florence Hughes, first vice president; Dr. Joseph E. Raycroft, second vice president; Dr. Jay B. Nash, third vice president; Dr. Myron T. Scudder, treasurer; Lester F. Scott, secretary and national executive. National headquarters are at 41 Union Square, New York City.

**CANADA.** A dominion of the British Commonwealth of Nations, bounded on the north by the Arctic Ocean, on the south by the United States, and on the east and west by the Atlantic and the Pacific oceans, respectively. Capital, Ottawa.

**AREA AND POPULATION.** The total land area of Canada, revised according to the Labrador Boundary Award of 1927, is estimated at 3,510,008 square miles. The water area is about 180,035 square miles. Canada consists of nine Provinces, each with its own parliament and administration, and two Territories, viz., the Northwest Territories and Yukon Territory, each under a commissioner, assisted by a council.

The accompanying table shows the areas of the provinces, etc., with the population at recent censuses.

AREA AND POPULATION OF CANADA

Province	Land area, sq. miles	1921	1931*
Prince Edward Island	2,184	88,615	88,040
Nova Scotia	21,068	523,837	512,027
New Brunswick	27,911	387,876	408,255
Quebec	583,895	2,361,199	2,869,793
Ontario	365,880	2,933,662	3,426,488
Manitoba	231,926	610,118	699,841
Saskatchewan	240,200	757,510	921,281
Alberta	250,925	588,454	727,487
British Columbia	353,416	524,582	689,210
Yukon Territory	206,427	4,157	4,213
Northwest Territory	1,258,217	7,988	7,133
Total	8,542,049	8,788,483	10,353,778

\* Preliminary figures subject to correction.

The principal cities, with the census populations of 1931 and 1921 (the 1921 figures in parentheses), are: Montreal, 810,925 (618,506); Toronto, 627,582 (521,893); Vancouver, 245,307 (163,220); Winnipeg, 217,587 (179,087); Hamilton, 154,914 (114,151); Quebec, 129,103 (95,193); Ottawa, 124,988 (107,843); Calgary, 83,362 (63,305); Edmonton, 78,829 (58,821); London, 71,022 (60,959); Windsor, 62,957 (38,591); Verdun, 60,378 (25,001); Halifax, 58,939 (58,372); Regina, 53,034 (34,432); St. John, 46,640 (47,166); Saskatoon, 43,025 (25,739); Victoria, 38,441 (38,727). The figures for 1931 are subject to revision.

In 1929, exclusive of the Territories, there were 234,915 births, 113,450 deaths, and 77,265 marriages. The rate of natural increase per 1000 of population was 12.4, as compared with 13.2 in 1928 and 15.8 in 1924. Canada's comparatively high birth rate of 24 per 1000 of population in 1929 was due largely to the influence of Quebec, which had a birth rate of 30.3 per 1000, as compared with 20.9 per 1000 in Ontario. In the other Provinces the rate varied from 17.4 per 1000 in British Columbia to 25.9 in Alberta. For vital statistics of the Provinces, see under separate article on each Province.

Immigrants into Canada during the fiscal year ended Mar. 31, 1931, totaled 88,223, as compared with 163,288 in the previous fiscal year. Im-



migrants from the United Kingdom numbered 27,584 in 1930-31 (64,082 in 1929-30); from the United States, 24,280 (30,727); and from other countries, 38,359 (68,479). Canadians returning to Canada from the United States during the 1930-31 fiscal year numbered 30,209, of whom 26,811 were Canadian-born, 2111 were British-born with Canadian domicile, and 1287 were naturalized Canadian citizens. In the fiscal year 1931-32 immigration declined even more drastically, due to restrictive regulations; for the first quarter immigrants numbered 10,188, as against 49,890 in the same period of 1930-31. In the calendar year 1930, 4205 persons were deported from Canada, of whom 2804 were returned to Great Britain and the remainder to foreign countries.

**EDUCATION.** Education is directly controlled by the respective Provinces (see separate article on each Province for statistics). During the academic year ending in 1929 there were 2,387,057 pupils in attendance at Canadian educational institutions, or 24.4 per cent of the estimated 1929 population. Pupils in ordinary day schools under provincial control numbered 2,080,949, the average daily attendance being about 1,647,871. There were 122,671 in vocational schools, 18,600 in private business colleges, and 74,238 in other private schools under college grade. The enrollment of regular students in universities was 28,870; in colleges, 9128; in classical colleges (mostly seminaries), 10,894. The expenditure on public schools in 1929 aggregated \$138,223,885, of which the Provincial Government contributed \$19,038,719 and local governmental units the remainder.

Higher education is carried on in 23 universities and 88 colleges, 50 of the colleges, most of them classical colleges or seminaries, being in the Province of Quebec. Of the universities, six (New Brunswick, Toronto, Manitoba, Saskatchewan, Alberta, and British Columbia) are state controlled; four (Dalhousie, McGill, Queens, and Western) are un denominational; and the remainder are denominational.

**AGRICULTURE.** Of the total land area of the nine Provinces (1,309,724,800 acres), approximately 358,162,190 acres are available for agricultural use and of this area only 140,887,903 acres were occupied in 1921. In 1930 the area under field crops was 62,214,670 acres and 9,889,513 acres were devoted to pasture; the value of field crops in the same year was \$631,592,900, as compared with \$958,981,400 in 1929 and \$1,125,003,000 in 1928. In 1929 the total estimated agricultural revenue was \$1,631,124,000, or 9.7 per cent less than the \$1,806,020,000 estimated for 1928. Of the 1929 total, field crops accounted for \$948,981,400; dairy products, \$291,743,000; farm animals, \$217,317,000; poultry and eggs, \$107,664,000; and fruits and vegetables, \$46,398,000.

The reduced farm income in 1929, 1930, and 1931 was due principally to the short wheat crop of 1929 followed by the drastic decline in wheat prices in 1930 and 1931. Although larger than in 1929, the 1930 wheat crop was valued at only \$173,589,000, compared with \$319,715,000 in 1929. Wheat is the principal money crop of Canada, which supplied about one-third of the world's wheat shipments during the year ended Mar. 31, 1931. Yields of the principal crops in 1929 and 1930, with comparative estimates for 1931, are set forth in the accompanying table.

CANADIAN CROP YIELDS, 1929, 1930, AND 1931  
[Units in thousands of bushels, except as indicated]

	1929	1930	1931*
Wheat .....	304,520	397,872	304,144
Oats .....	282,888	423,148	328,278
Barley .....	102,313	185,160	67,888
Rye .....	13,160	22,018	5,822
Flax seed .....	2,060	4,399	2,565
Potatoes .....	39,980*	48,241*	52,305*
Hay and clover .....	15,883 <sup>b</sup>	16,397 <sup>b</sup>	.....

\* 1,000 cwt. <sup>b</sup> 1,000 tons. ° Estimates.

The agricultural production in 1931 was less than in any year since 1919, notwithstanding the fact that sowings for the 1931 harvest year were 6,694,486 acres greater than in 1921. The census figures for the acreage sown to the principal crops in the spring of 1921 and 1931 were 47,450,859 and 54,145,345 acres, respectively. The wheat acreage showed the greatest increase (5,839,656 acres). The Dominion Bureau of Statistics estimated the value of the 1931 field crops, on the basis of average prices received at production points up to the end of December, 1931, at \$425,065,000. This was 32 per cent less than the estimated value in 1930 and less than half the average value for the preceding five years. The unit price for the principal grains in cents per bushel for 1931 was calculated at: Wheat, 37 cents; oats, 23 cents; barley, 24 cents; rye, 25 cents; flaxseed, 79 cents. Potatoes sold for an average of 43 cents per hundredweight; and sugar beets for \$5.80 per ton. The 1931 apple, tobacco, sugar beet, potato, root, and fodder crop production was in general greater than in 1930. Final estimates for 1931 crop production: Wheat, 304,144,000 bushels; oats, 328,278,000 bushels; barley, 67,382,000 bushels; rye, 5,322,000 bushels; flaxseed, 2,565,000 bushels; potatoes, 52,305,000 cwt.; sugar beets, 459,000 tons.

Livestock in Canada in 1930, valued at \$687,225,000, included 3,295,000 horses, 3,683,000 milch cows and 5,254,000 other cattle, 3,696,000 sheep, and 4,000,000 swine. The wool clip in 1930 was 21,016,000 pounds, valued at \$2,311,000, as compared with 20,283,000 pounds, valued at \$4,470,000, in 1929. Dairy products in 1929 consisted of: Creamery butter, \$65,929,782; dairy butter, \$28,929,000; factory cheese, \$21,471,330; home-made cheese, \$82,800; milk, \$153,238,000; miscellaneous products, \$22,091,945. There were 1202 creameries and 1290 cheese factories in the Dominion.

**FRUIT FARMING.** The total value of the commercial fruit production of Canada in 1930 was estimated \$19,224,970, as compared with \$19,591,240 in 1929. Apples constitute the most important commercial fruit crop in Canada, production in 1930 amounting to 3,165,936 barrels worth \$10,863,940. Of the other fruits, estimated production and value for 1930 were as follows: Grapes, 51,062,000 pounds, \$1,801,100; strawberries, 12,934,555 quarts, \$1,748,691; peaches, 759,702 bushels, \$1,519,404; cherries, 286,000 bushels, \$861,774. Raspberries, pears, plums and prunes, and apricots were other products. The total value of the 1930 fruit crop was \$17,689,835.

**FISHERIES.** Canada's large salt-water fishing areas are supplemented by 220,000 square miles of fresh water containing many varieties of food fish. Lobsters, halibut, whitefish, pilchards, haddock, salmon, cod, herring, sardines, pickarel, trout, and smelts are the principal commercial fishes caught. The investment in the

industry in 1929 was \$62,579,000 and the number of employees, 80,450. Due to a fall in prices, the total value of the catch in 1930 was \$47,798,920, compared with \$53,518,521 in 1929. Of the 1930 total, sea fisheries contributed \$41,451,977, or 87 per cent, and inland fisheries \$6,346,943 or 13 per cent.

**FORESTS.** With a total forest area of 1,151,454 square miles in 1931, Canada had about 200,000 square miles of mature merchantable timber, 111,234 square miles of immature but merchantable timber, and 554,646 square miles of young growth capable of producing commercial timber eventually, according to the *Canada Year Book* for 1931. The value of woods operations in 1929 was \$219,570,129, compared with \$212,950,799 in 1928. Exports of wood, wood products, and paper in 1930 totaled \$289,566,675 (\$288,621,745 in 1929).

**FUR INDUSTRY.** The number of fur farms in Canada increased by more than 2700 between 1926 and 1929. In the latter year there were 5515 fur farms, with fur-bearing animals valued at over \$16,401,453, and a total capital investment of \$30,659,649. Pelts sold from fur farms (1928) were worth \$2,389,026, compared with \$783,313 in 1925. The total raw fur production in the fiscal year 1928-29, including wild animals trapped, was \$18,054,499; for 1929-30 it declined in value to \$12,218,547 (provisional figure).

**MINERAL PRODUCTION.** Mineral production increased from \$172,000,000 in 1921 to a record net value of \$310,850,000 in 1929, but in 1930 declined to \$278,470,000, due to a drop in metal prices and a smaller output of coal, asbestos, gypsum, and structural materials. Copper and zinc production set a record for volume but not for value in 1930, while both the quantity and value of gold produced exceeded all previous totals. Of the total world mineral production in 1929, Canada produced 85 per cent of the nickel, 68 per cent of the asbestos, nearly 50 per cent of the cobalt, 16 per cent of the copper, 10 per cent of the gold, 9 per cent of the silver, 8 per cent of the lead, and 5 per cent of the zinc. The Dominion contains 16 per cent of the world's known coal resources. The distribution of the 1930 production by Provinces (preliminary figures for 1929 in parentheses), was: Ontario, \$112,288,805 (\$117,062,505); British Columbia, \$54,814,955 (\$68,162,878); Quebec, \$40,966,805 (\$46,359,285); Alberta, \$30,629,997 (\$34,739,986); Nova Scotia, \$26,771,300 (\$30,904,453); Manitoba, \$5,326,568 (\$5,423,825); Yukon Territory, \$2,503,197 (\$2,905,736); Saskatchewan, \$2,298,725 (\$2,253,506); New Brunswick, \$2,270,812 (\$2,439,072).

Preliminary values for the leading mineral products in 1931, with figures for 1930 in parentheses, were: Gold, \$55,395,000 (\$43,454,000); coal, \$41,320,000 (\$53,288,000); copper, \$23,772,000 (\$37,948,000); cement, \$15,922,000 (\$17,818,000); nickel, \$14,697,000 (\$24,455,000); natural gas, \$9,645,000 (\$9,636,000); lead, \$7,241,000 (\$13,103,000); zinc, \$6,019,000 (\$9,636,000); silver, \$5,984,000 (\$10,089,000); asbestos, \$4,611,000 (\$8,390,000); petroleum, \$4,566,000 (\$4,954,000). The total value of mineral production in 1931 was estimated at \$227,768,000, compared with \$279,873,578 in 1930.

Capital invested in the mining industry in 1929 was \$867,021,000, the number of employees was 95,102, and the salaries and wages totaled

\$124,490,511. As a result of the introduction of the airplane for mineral surveys, the prospecting and development of one of the largest unprospected mineral areas in the world was under way in Northern Canada.

**MANUFACTURES.** Canada in 1930 occupied second place in the manufacture of automobiles, third place in paper and aluminum, and fifth place in rubber manufacture. In the amount of hydro-electric energy produced, Canada ranked second among the nations in 1931; new installations of 541,000 horse power during the year brought the total for the whole Dominion to 6,666,000 turbine horse power. Of the 1930 installations, 136,000 were in Ontario, 123,000 in Quebec, and 71,000 in British Columbia.

In 1929, the gross value of manufactured products was \$4,063,987,279 (\$3,769,850,364 in 1928), of which the value added in process of manufacture was \$1,997,350,365 (\$1,819,046,025 in 1928). The 23,597 manufacturing establishments in operation in 1929 represented a capital investment of \$5,083,014,754 and had 693,816 employees, the salaries and wages of which totaled \$813,049,842. Ontario, with a gross value of production of \$2,103,080,788 in 1929, was the leading manufacturing Province. Following in order were: Quebec, \$1,160,612,992; Manitoba, \$104,909,127; Alberta, \$107,556,792; Nova Scotia, \$94,292,816; Saskatchewan, \$80,501,159; New Brunswick, \$71,433,966; and Prince Edward Island, \$4,638,725. The value of production of the leading manufacturing lines in 1929 was: Vegetable products, \$771,457,665; iron and its products, \$738,012,980; wood and paper, \$725,819,740; animal products, \$477,761,855; textile products, \$426,247,587; non-ferrous metals, \$283,545,666; non-metallic minerals, \$242,234,518; chemicals and allied products, \$138,545,221; central electric stations, \$157,499,385.

Production of pig iron in 1930 was 747,178 long tons, or 30.8 per cent less than the record figure of 1,080,000 tons established the preceding year. Steel production totaled 1,009,578 tons, or 26.8 per cent less than the record output of 1,378,000 tons in 1929. Automobile production declined 41.3 per cent, from 262,625 cars in 1929 to 154,192. Newspaper output declined 8.4 per cent to 2,498,631 tons. The daily capacity of Canadian newsprint mills, however, increased from 2630 tons in 1920 to 12,105 tons in 1930. On May 1, 1931, the mills announced a reduction of \$5 per ton in the general price of newsprint at the mill. See **PAPER AND PULP**.

**FOREIGN INVESTMENTS IN CANADA.** A survey by the Dominion Bureau of Statistics in 1931 showed that 1260 branch plants and manufacturing establishments, representing a combined capital of \$1,746,220,000, were owned or controlled by British and foreign interests. American capital owned 1071 branch plants, with an investment of \$1,189,590,000, or 68 per cent of the total; Great Britain, 172 plants and an investment of \$246,616,000, or 14 per cent; and other foreign interests, 17 branch plants and an investment of \$5,982,000, or less than 1 per cent. The remaining \$304,032,000, or 17 per cent of the total investments in foreign enterprises, represented Canadian holdings in such concerns.

Total capital invested in Canada, including Dominion, provincial, and municipal debts but excluding private capital in homes, farms, etc., was estimated by the Bureau at \$17,500,000,000. Of this \$11,500,000,000, or 65 per cent, was

owned in Canada; \$3,500,000,000, or 20 per cent, in the United States; \$2,200,000,000, or 13 per cent, in Great Britain; and less than 2 per cent in other foreign countries. Canada's total national wealth was estimated at \$30,000,000,000, of which about \$6,000,000,000, or 20 per cent, was owned abroad. Canadian investments abroad were estimated at \$1,750,000,000.

**BUSINESS CONDITIONS.** The decline in wheat prices in 1930 and the first half of 1931, following upon the short wheat crop of 1929, seriously deranged the national economy. Curtailment of Canada's export shipments and other effects of the world-wide economic depression accentuated the strain upon the economic structure. Industrial activities in Quebec and Ontario were sharply restricted by the slackened demand for manufactured products from the agricultural Provinces and unemployment assumed serious proportions, necessitating extensive relief projects. The volume of business in the Dominion in 1930 was estimated to have been more than 20 per cent smaller than in the previous year, while with the exception of Nova Scotia and New Brunswick, all the Provinces reported a larger number of commercial failures than in any year since 1923. An upturn in business activity was indicated early in November, 1931, however, after an average increase of 20 cents in the price of wheat and the inauguration of extensive public works projects.

For the first time in Canadian history, manufacturing supplanted agriculture as the premier productive enterprise in 1930, due to the drastic decline in farm prices. In January, 1931, farmers in some districts were receiving but 35 cents a bushel for best-quality wheat, and the drought of the previous summer had left them little grain to sell. Poverty and even hunger stalked the prairies. Cases were reported of farmers subsisting on roasted gophers and soup made of Russian thistles. Grain prices improved markedly in November, 1931, with the aid of a Government subsidy equivalent to five cents a bushel. But the hoped for relief from the 1931 crop failed to materialize in large areas of the West. In the eastern Provinces, crops were fairly good; in the West drought, disease, and insect pests reduced the yields to the lowest recorded for over 10 years. Large groups of farmers and others were utterly dependent upon public aid to carry them through until the 1932 harvest.

The number of unemployed was estimated at the beginning of September by the Minister of Labor at 530,000, distributed as follows: British Columbia, 38,880; Alberta, 14,450; Saskatchewan (cities and towns), 26,904 (drought areas), 150,000; Manitoba, 41,489; Ontario, 130,000; Prince Edward Island, 1500; Quebec, 100,000; Nova Scotia, 18,000; and New Brunswick, 8000.

**COMMERCE.** According to preliminary figures, Canada's external trade for the fiscal year ended Mar. 31, 1931, declined to \$1,723,550,729 from \$2,393,211,652 in the preceding year, or a shrinkage of \$669,660,923. Imports were \$341,660,901 less than in 1929-30, domestic exports were \$320,605,635 less, and reexports \$7,394,387 less. The balance of trade was unfavorable by \$89,674,633 in 1930-31 and by \$103,300,000 in 1929-30. Thus for two years Canada had a small adverse balance on her visible imports and exports, due chiefly to the low prices received for her agricultural products, although a favorable balance

previously had prevailed since 1921-22. For the calendar year 1931, imports totaled \$628,098,000 (preliminary), as compared with \$1,008,479,000 in 1930, while exports amounted to \$617,243,000, compared with \$905,370,000 in 1930. The unfavorable trade balance was reduced from \$103,109,000 in 1930 to \$10,855,000 in 1931.

The accompanying figures showing imports and exports for the years 1924-25 to 1930-31 indicate the steady growth of imports as compared to exports.

#### CANADIAN IMPORTS AND EXPORTS, 1924-25 TO 1930-31

Year ended March 31	Total exports	Imports for home consumption
1924-25 .....	\$1,081,861,648	\$ 796,982,537
1925-26 .....	1,328,700,137	927,828,732
1926-27 .....	1,267,573,142	1,030,892,505
1927-28 .....	1,250,456,297	1,108,956,466
1928-29 .....	1,388,773,075	1,265,679,091
1929-30 .....	1,144,938,070	1,248,278,582
1930-31 .....	816,938,048	906,612,681

The values of imports and exports by industrial groups in 1929-30 and 1930-31 are shown in the accompanying table compiled from the *Canada Year Book* for 1931.

#### CANADIAN FOREIGN TRADE BY INDUSTRIAL GROUPS

IMPORTS	1929-30 *	1930-31 *
Agricultural products ..	\$227,048,817	\$177,628,778
Animal products . . . .	69,853,833	45,995,705
Fibres, textile products	185,241,252	130,717,022
Wood products, paper .	60,951,077	46,042,029
Iron and its products ..	316,878,627	194,888,443
Non-ferrous metals . . .	87,950,252	59,623,263
Non-metallic minerals ..	186,496,388	153,578,658
Chemicals . . . . .	89,907,503	35,650,772
Miscellaneous . . . . .	73,945,833	62,488,011
Total imports . . . . .	1,248,273,582	906,612,681
Total dutiable imports	819,230,474	574,090,216
Total free imports ..	429,043,108	332,522,465
Duty collected . . . . .	199,011,628	149,097,855
EXPORTS		
Agricultural products ..	384,635,751	292,280,037
Animal products . . . .	183,009,145	83,714,772
Fibres, textile products	9,066,226	6,504,182
Wood products, paper .	289,566,675	230,514,474
Iron and its products ..	78,589,580	38,937,661
Non-ferrous metals . . .	154,319,429	95,652,063
Non-metallic minerals ..	28,545,096	21,107,780
Chemicals . . . . .	22,468,462	12,825,852
Miscellaneous . . . . .	20,057,938	18,115,846
Total domestic exports	1,120,258,302	799,652,667
Total foreign exports	24,679,768	17,285,881
Total exports . . . . .	1,144,938,070	816,938,048
Grand total external trade . . . . .	\$2,393,211,652	\$1,723,550,729

\* Fiscal years ending March 31.

Among the export items, wheat registered the greatest decrease in value in 1930-31, with 217,343,037 bushels valued at \$177,419,769 exported, as compared with 177,006,373 bushels valued at \$215,753,475 in the preceding fiscal year.

Despite the drastic decline in imports from and exports to the United States in 1930-31, that country retained its preponderant position in Canada's foreign trade, taking 44 per cent of all exports and supplying 64 per cent of the imports. Exports to the United States were valued at \$349,571,000, as compared with \$515,050,000 in the previous fiscal year, while imports

from the United States shrank to \$584,429,301 from \$847,442,000 in 1929-30. The United Kingdom, which ranked second in Canada's trade, purchased exports valued at \$219,246,000, compared with \$281,700,000 in 1929-30, and supplied imports worth \$149,488,000, as against \$189,200,000 in the previous fiscal year. Japan, Belgium, Italy, France, and New Zealand, in the order named, were the other leading markets for Canadian exports, while the leading sources of imports after the United States and the United Kingdom were France, Germany, Japan, British India, and the Netherlands. Exports to British Empire countries totaled \$292,884,145 and imports from the Empire \$204,935,079. Imports from Russia, embargoed in 1931, amounted to \$1,917,652 in 1930-31 while exports to Russia totaled but \$568,100. The French islands of St. Pierre and Miquelon (q.v.) off eastern Canada rose to ninth place in the Dominion's foreign trade through the purchase of \$11,004,479 of Canadian goods—mostly liquor destined for re-export to the United States.

**TOURIST EXPENDITURES.** The adverse visible balance of trade with the United States, amounting to \$220,531,277 in 1930-31, was offset in part by the expenditures of American tourists in Canada. In the calendar year 1930, according to the Dominion Bureau of Statistics, expenditures of tourists from all foreign countries totaled about \$280,000,000 (\$308,000,000 in 1929) and expenditures of Canadian tourists abroad were \$113,000,000 (\$122,000,000 in 1929), leaving a credit balance for Canada of \$167,000,000 (\$186,000,000 in 1929). Automobile tourists from the United States alone spent about \$202,500,000 in Canada in 1930 (\$215,577,000 in 1929), while Canadian automobile tourists in the United States spent about \$63,500,000 (\$65,055,000 in 1929). American tourists of every description spent about \$294,077,000 in Canada in 1929, while Canadian tourists in the United States expended about \$95,055,000. In 1931, tourist expenditures shrank \$25,000,000 to \$30,000,000 compared with 1930.

**FINANCE.** For the fiscal year ended Mar. 31, 1931, the Prime Minister reported an overall deficit of \$83,845,000 in the closed account, as compared with a surplus of \$44,507,000 returned in the previous fiscal year. Total expenditures were \$440,060,000 and total revenues \$356,215,000, the expenditures being \$41,848,000 above the 1929-30 figure and the revenues \$89,967,000 less. The ordinary revenues for 1930-31 amounted to \$349,593,000 or \$91,818,000 less than in 1929-30, while ordinary expenditures were \$393,990,000, or \$36,210,000 more than in the previous year. General revenues and expenditures in the Consolidated fund for the years 1924-25 to 1930-31 are shown in the accompanying table.

CANADIAN PUBLIC FINANCE, 1925-31  
[Thousands of Canadian dollars]

Fiscal year ended March 31,	Revenue		Expenditure	
	Grand total	Total ordinary	Grand total	
1925 .....	351,515	318,892	351,170	
1926 .....	382,893	320,660	355,186	
1927 .....	400,453	319,548	358,556	
1928 .....	429,847	336,168	378,868	
1929 .....	461,647	350,953	389,595	
1930 .....	446,182	357,780	398,442	
1931 .....	356,215	398,992	440,060	

All the principal revenue items except the income tax, which was amended in 1930, showed

a decrease in 1930-31 compared with 1929-30, as shown in the following figures (1929-30 figures in parentheses): Customs receipts, \$131,209,000 (\$179,430,000); excise, \$57,747,000 (\$65,036,000); Post Office, \$30,212,000 (\$33,345,000); excise taxes, \$34,735,000 (\$63,409,000); income tax, \$71,048,000 (\$69,021,000). Expenditures included some \$56,000,000 for war pensions to 61,341 persons, a sum representing more than one-seventh of the national income.

The budget for 1931-32, with extensive tariff and tax revisions, was passed by the House of Commons June 18, 1931. The anticipated revenue for the year was reduced \$4,000,000 through the Government's acceptance of the Hoover moratorium proposal (see GERMANY under *History*; REPARATIONS). Revenue from all sources in 1931-32 was estimated at \$403,000,000, of which customs duties were expected to provide \$122,000,000, excise taxes and duties \$159,000,000; and income tax \$63,500,000. Total expenditures were estimated at \$430,458,000, including \$13,000,000 of the 1930 unemployment relief fund carried over to the 1931-32 fiscal year. For the 12 months ended Dec. 31, 1931, ordinary receipts totaled \$277,492,000 and ordinary expenditures \$296,676,000, compared with receipts of \$303,485,000 and expenditures of \$309,530,000 for the calendar year 1930, according to preliminary returns.

The gross public debt of Canada on Mar. 31, 1931, was \$2,673,000,000 (\$2,603,000,000 on Mar. 31, 1930) and the net debt was \$2,262,000,000 (\$2,178,000,000). Of the net funded debt on Mar. 31, 1930, the sum of \$1,804,977,000 was held in Canada, \$257,185,700 was payable in London, and \$165,965,900 in New York. In May, 1931, a \$250,000,000 conversion loan was oversubscribed two and one-half times, thus relieving the Treasury of the necessity of redeeming maturing bonds.

**SHIPPING.** For the fiscal year ended Mar. 31, 1930, a total of 43,468 ocean-going vessels, of 52,992,232 registered tons, entered and cleared Canadian ports, as compared with 45,426 vessels of 54,408,527 tons in 1928-29. Including vessels in the ocean-going, coastwise, and inland international trade, arrivals at Canadian ports in 1929-30 totaled 158,530, of 88,373,217 registered tons; departures, 159,682, of 88,800,345 tons. Vessels on the Canadian registry of shipping in 1930 totaled 8703, of 1,410,432 tons. Halifax, Montreal, Quebec, and Saint John (New Brunswick) and Vancouver were the leading ports.

Direct steamship service between Montreal and the Scandinavian peninsula and between Montreal, Halifax, and Haiti was established during 1931. The opening of Port Churchill on Hudson Bay, calculated to bring European grain markets 1000 miles nearer to the Prairie Provinces, was announced for 1932 and two trial shipments of grain were sent out during the summer of 1931. With the opening of the new Welland ship canal Apr. 15, 1931, the draft of vessels using it was increased from 14 to 18 feet and the average time required for 10 vessels to pass through was reduced from 20 to 7 hours. In 1930, 5252 vessels passed through the canal, or 859 more than in 1929. Work on the Beauharnois ship canal 22 miles west of Montreal, connecting Lakes St. Louis and St. Francis, was under way in 1931 (see below under *History*). When completed in 1933 or 1934, the canal will allow ocean-going vessels of 27-foot draught to

dock at Valleyfield at the eastern edge of Ontario. Meanwhile the deepening of the St. Lawrence waterway between Montreal and Quebec to a minimum depth of 35 feet was in progress, with completion scheduled for 1934.

**RAILWAYS.** The single-track mileage of Canadian railways on Jan. 1, 1930, was 41,409 miles, including 336 miles operated in the United States. In the calendar year 1930, freight traffic, as measured by ton miles, was the lightest in nine years and passenger traffic, as measured in passenger miles, was lighter than for any year since 1909. Gross revenues totaled \$450,398,143, which was \$78,753,980, or 14.9 per cent, less than for 1929. Operating expenses were \$391,383,318, or \$51,693,815 smaller than in 1929, and net revenues were \$72,867,841, as against \$99,928,006 in 1929. The two chief railway systems were the government-owned Canadian National Railways, with a single-track mileage in Canada of 21,563 miles, and the privately-owned Canadian Pacific Railway, with 14,812 miles of single track. Fourteen branch lines of the Canadian National system, authorized by Parliament in 1927, were completed by the end of 1930 at a cost of \$18,128,000. The Temiskaming & Northern Ontario Railway extension from Cochrane, Ontario, to Moose Harbor on James Bay, a distance of 142 miles, was completed on Aug. 31, 1931. A 33-mile line along the west shore of Kootenay Lake in the Canadian Rockies, constituting the final link in the Canadian Pacific's southern route between Winnipeg and Vancouver, was placed in operation Jan. 1, 1931, replacing the former boat and barge service on Kootenay Lake. The Canadian Pacific on May 1, 1931, and the Canadian National in August reduced the salaries of the supervisory staffs by 10 per cent and laid off other employees without pay from two to three days a month. See below under *History*.

**OTHER COMMUNICATIONS.** At the beginning of 1930, Canada had 390,060 miles of highway and roads, as compared with 381,976 miles a year earlier and with 394,372 miles in 1931. Of the 1930 total, 2365 miles were of concrete, 6262 of macadam, 63,514 miles of gravel, and the remainder earth. Construction of the Ontario section of the trans-Canada highway was authorized in 1931 as an unemployment relief measure, the cost to be divided between the Dominion and Ontario governments. The number of automobiles registered in Canada increased from 407,064 in 1920 to 1,239,889 in 1930.

The total mileage flown by civil aircraft in 1930 was 7,547,420 (6,284,079 in 1929), the number of passenger-miles recorded was 5,408,676 (6,114,997 in 1929), the total freight or express carried was 1,759,259 pounds (3,903,908 pounds in 1929), and total mail carried was 474,199 pounds (430,636). There were 70 licensed civil air ports, and 493 licensed civil aircraft at the end of 1930. In the spring of 1930 regular air service was maintained by ten companies over 23 routes having a total length of 6944 miles. Early in 1931 a new air line was opened from Saint John, N. B., to Halifax. In the summer, however operations ceased on five lines, due to financial stringency.

**GOVERNMENT.** Executive power is exercised in the King's name by the Governor-General of Canada, acting through a responsible ministry or cabinet. Legislative power is in a Parliament

of two Houses: a Senate and a House of Commons, the former consisting of 96 members appointed for life and the latter of 245 members in accordance with the distribution act of 1924, elected for five years (unless sooner dissolved) by popular vote, including woman suffrage. Women are eligible for election to Parliament. The Governor-General in 1931 was the Earl of Bessborough, who assumed office Apr. 4, 1931, as successor to Viscount Willingdon, the new Viceroy of India. The composition of Parliament following the election of July 28, 1930, was: Conservatives, 136; Liberals, 89; United Farmers of Alberta, 9; Progressives, 3; Liberal-Progressives, 3; Labor, 3; Independents, 2. The Conservative Ministry sworn in Aug. 7, 1930, in order of precedence, was as follows: Prime Minister, President of the Privy Council, Secretary of State for External Affairs, Minister of Finance, Richard B. Bennett; Minister without Portfolio, Sir George H. Perley; Labor, Gideon D. Robertson; Justice and Attorney-General, Hugh Guthrie; Fisheries, E. N. Rhodes; Trade and Commerce, H. H. Stevens; Railways and Canals, Dr. R. J. Manion; National Revenue, E. B. Ryckman; Minister without Portfolio, J. A. Macdonald; Postmaster-General, Arthur Sauvé; Pensions and National Health, Murray MacLaren; Public Works, H. A. Stewart; Secretary of State, C. H. Cahan; National Defense, Lt.-Col. D. M. Sutherland; Marine, Alfred Duranleau; Interior and Superintendent-General of Indian Affairs, Thomas G. Murphy; Solicitor-General, Maurice Dupré; Immigration and Colonization, and Mines, W. A. Gordon; Agriculture, Major Robert Weir.

#### HISTORY

Intensification of the economic depression, with increasingly adverse effects upon Canadian agriculture, industry, and public finance, brought the tariff and the budget to the forefront of Dominion politics in 1931. In general, industry, and trade bore up comparatively well in the face of acute world-wide business stagnation. The agricultural regions, particularly of the Prairie Provinces, however, suffered a blow which Premier Bennett described as a national calamity (see above under *Business Conditions*).

**POLITICS AND LEGISLATION.** Conditions in the Prairie Provinces gave rise to talk about the repudiation of debts, boycott of manufactured goods, Communistic programmes, and secession from Eastern Canada. In Saskatchewan, the movement for secession gained considerable ground, but it was considered to be primarily intended to wrest concessions from the financial and industrial interests of the east. Unrest and want on the prairies, business stagnation and unemployment throughout Canada, and rapidly declining governmental revenues constituted an acid test of the ability and leadership of Premier Bennett during the unusually long session of Parliament, from March 12 to August 3. He proved himself a man of tremendous energy and capacity, according to the Ottawa correspondent of the *New York Times*, dominating the House of Commons throughout the session and handling all important legislation.

The Conservative Premier was effectively attacked by the Liberal Opposition during the first part of the session for the increase of taxation and his failure to banish the depression. The

waning tide of his political fortunes turned, however, with the exposure of the Beauharnois scandal (see below). The revelations undermined the morale of the Opposition and placed it upon the defensive, while the Premier emerged with enhanced prestige. The all-important developments of the session, however, were the upward revision of the tariff and a noteworthy increase in taxation to offset the \$75,000,000 deficit in the 1930-31 budget. Both measures were elaborated in the Premier's budget speech of June 1 and adopted in substance June 18.

**THE BENNETT TARIFF.** The Premier had been elected by an overwhelming majority in 1930 on a platform of economic nationalism which aimed at excluding American and other foreign competitive imports and making Canada a self-contained nation industrially. He lost no time in putting his pledge of a protective tariff for Canadian industry and agriculture into effect. In the special session of September, 1930, the tariff was increased on 130 items, affecting adversely millions of dollars' worth of imports from the United States. The new rates imposed in 1931 made little alteration in the British preferential tariff but increased materially the intermediate and general tariffs, the latter affecting imports from the United States. Dr. Julius Klein, Assistant Secretary of Commerce at Washington, estimated that the new rates would definitely imperil about \$25,000,000 of American exports to Canada, or about 4 per cent of the value of 1930 shipments. Canadian estimates were higher; in some quarters it was calculated that the 1931 adjustments would cut off ultimately about two-thirds of the goods imported annually from the United States. American products particularly affected by the 1931 changes were automobiles, coal, coke, food and utility products delivered in cartons, live hogs, fresh meats, bacon, hams, canned fruits and vegetables, raisins and oranges, and many other foods and food products.

In an effort to exclude the flood of cheap magazines from the United States, with their advertisements of American products, magazines and periodicals were made subject to a duty of 15 cents a pound. In response to numerous protests, this section was later modified. Magazines with less than 20 per cent advertising content were to enter free, those with between 20 and 30 per cent were made dutiable at two cents a copy, and those with over 30 per cent at five cents a copy. The 15-cents-a-pound rate was retained on newspapers and magazines composed largely of fiction or feature articles.

Mr. Bennett denied that his tariff was promulgated in retaliation for higher duties on Canadian exports imposed by the Hawley-Smoot tariff in the United States. His policy was announced as the conservation of the home market for domestic production. Developments of the year indicated that the Canadian farmers and other groups formerly opposed to a policy of tariff protection were moving in that direction. Labor's interest in increasing factory production and bringing branch factories into Canada from the United States and Great Britain, insured its support of the tariff.

These changes in tariff sentiment boded ill for the future of the Liberal party. The French-Canadians, high-tariff in sentiment, had for years been the dominant element in the party.

With the loss of much French-Canadian support in 1930, the Liberals tended to return to their traditional low-tariff policy. But Free Trade was no longer the popular rallying cry among the farmers of the prairies.

The Liberals denounced the Conservative tariff policy as imposing a heavy and unnecessary burden upon the farmer and thereby ruining the main markets for industries which the tariff was designed to protect. They contended that Canada was essentially a trading nation by reason of its heavy exportable surplus of newsprint, wheat, nickel, asbestos, and other products, and because its limited range of products made it necessary to import a wide variety of commodities. Furthermore, there are distinct obstacles in the way of making Canada industrially self-sufficient. The coal deposits in Nova Scotia and Alberta are remote from the centre of industry in Ontario, and Newfoundland is the nearest Empire source of high-grade iron ore, so far sought without success in Canada.

**THE 1931-32 BUDGET.** The measures inaugurated by Premier Bennett to wipe out the deficit for the fiscal year ended Mar. 31, 1931, included: (1) a special excise tax of 1 per cent on imported goods; (2) an increase of 8 to 10 per cent in the income tax; (3) an increase in the sales tax from 1 to 4 per cent; (4) an increase in letter postage from 2 to 3 cents. The income-tax increase was made applicable to corporations and joint stock companies. Farm aid for export wheat was extended in the form of a reduction of five cents a bushel in the cost of transporting all wheat produced in Western Canada. The coal industry of Western Canada and the Maritime Provinces was subsidized to the extent of \$1,800,000 by means of a sliding scale of bonuses on coal shipped to Ontario and Quebec.

A measure which attracted much criticism was the imposition of a 2 per cent tax at the source on dividends of Canadian securities owned abroad. The measure affected American investments in Canada estimated (1931) at between \$3,600,000,000 and \$3,900,000,000 and British holdings of about \$2,300,000,000. The Premier further announced that on Mar. 31, 1931, 248,000 persons were employed on contracts aggregating \$69,690,948, which had been initiated in accordance with the unemployment relief measure passed at the special 1930 session of Parliament. On Dec. 10, 1931, a deficit of \$100,000,000 was forecast for 1931-32. A national service loan of \$150,000,000 floated in December, 1931, was over-subscribed by \$65,000,000.

**THE BEAUHARNOIS SCANDAL.** One of the major political scandals of Canada's history was provided by a parliamentary investigation of the Beauharnois Light, Heat & Power Company, Ltd., engaged in the construction of a huge hydro-electric power and canal project in the St. Lawrence River near Montreal. The inquiry was authorized by Premier Bennett May 19, 1931, following charges by Robert Gardiner, leader of the United Farmers of Alberta. The committee of inquiry found that the project, although basically sound, had been ruthlessly exploited for the profit of company officials and three Liberal Senators who were close friends of the former Liberal Premier, William Lyon Mackenzie King. The Federal permit for the project had been obtained from the Mackenzie King Govern-



ment. Millions had been added to the overhead through contributions of approximately \$950,000 to the leading political parties in the Dominion, Quebec, and Ontario and by huge profits collected by favored individuals in the original Beauharnois syndicate. The committee outspokenly condemned Senators Andrew Haydon, W. L. McDougald, and Donant Raymond for their relations with the Beauharnois company. It also censured the general-manager and secretary-treasurer of the company. The committee reported that the work being carried on by the company differed in important respects from the plans submitted to the government. Mr. King was forced to admit that he and his party were humiliated by the disclosures, although his own integrity was never in question.

To prevent the threatened collapse of the project due to public loss of confidence in the management, the Government put through Parliament two bills, which received the approval of the Province of Quebec. One of them declared the project of general advantage to Canada and provided for the completion of the work under government supervision. The other cancelled the order-in-council by which the Mackenzie King government authorized the project and the agreement based thereon. The company was restricted to the diversion of not more than 53,000 cubic feet of water a second from the St. Lawrence for power purposes. The Premier promised protection for the legitimate investors in the \$30,000,000 of bonds sold by the company. It was estimated that \$46,000,000 more would be required for the completion of the first 500,000 horse power unit of the power project.

**OTHER LEGISLATION.** Other legislation passed by the 1931 session of Parliament provided for a fact-finding tariff board of three members, appointed by the Premier for 10 years; assistance to vocational students; and the taking over of the Ottawa Mint as a branch of the Canadian Government services. The Federal contribution toward the provincially-controlled old-age pension systems was increased from 50 to 75 per cent. In line with British practice, the necessity of holding by-elections when members of Parliament accepted Cabinet posts was eliminated. Despite Liberal opposition, the Premier was granted unlimited authority to relieve distress and unemployment through public works or by direct relief through the Red Cross. On July 15, Mr. Bennett announced that the government would purchase 2,000,000 bushels of wheat, grind it into 450,000 barrels of flour, and distribute it at a low price in the drought-stricken areas of the west. In response to demands for the immediate institution of unemployment insurance, Premier Bennett stated (April 29) that the government was studying the problem but would not be in a position to submit legislation for some years. He considered the co-operation of the nine Provinces with the Federal Government in a uniform system essential to the success of such a scheme.

A reciprocal trade treaty with Australia, ratified by Parliament, was calculated to give Canada a status in the Australian market equivalent to that of the United Kingdom and much more favorable than that of the United States. The Statute of Westminster, drafted following the Imperial Conferences of 1926 and 1930 to bring empire legislation in line with the changed status of the members of the British Common-

wealth of Nations, was passed by Parliament without a division. The act provided that laws of the United Kingdom do not apply to any dominion unless that dominion so requests. In accordance with the decision of the Federal-Provincial conference held at Ottawa April 7 and 8, the statute stipulated that the British North America Act should remain unaltered. The Premier announced that procedures for amending the Constitution and for dispensing with the judicial appeal to the Privy Council in the United Kingdom would be considered at a future Federal-Provincial conference.

The announcement in the Premier's budget speech that the government-owned Canadian National Railways had failed to earn their fixed charges to the public by \$29,219,738 in the fiscal year ended Mar. 31, 1931, was followed by an investigation of the railway's finances by a Parliamentary committee. The committee recommended the creation of a commission to survey the general problem of Canadian transportation, the abandonment of the government merchant marine which was operated by the Canadian National, and the curtailment of capital expenditures on Canadian National projects. Another act authorized the investigation of the moving-picture industry. The investigator, Peter White, reported July 6 that a monopoly of the industry in Canada had been established by the Famous Players Canadian Corporation and its parent organization, the Paramount Public Corporation of the United States. The Railway commission was established by Order-in-Council November 30 and opened its sittings in Ottawa December 4.

Parliament had been expected to act favorably upon a Royal Commission's recommendation for the establishment of a single national radio-broadcasting company, vested with the powers of a private corporation and the functions of a public utility. Action was held up, however, by the claim of Quebec and Ontario to control of radio transmission and reception within their respective borders. The question went to the Supreme Court of Canada, which decided in July that jurisdiction rested with the Dominion Government. This decision was appealed to the Privy Council. The agitation for Dominion control was primarily the result of the predominant influence of American radio broadcasting in Canada. Four-fifths of the programmes to which Canadians listened came from stations in the United States and many of these were considered detrimental to Canadian institutions and national character.

The exchange value of the Canadian dollar declined following the abandonment of the gold standard in Great Britain (September 21) and on October 19 an Order-in-Council was passed prohibiting the exportation of gold from Canada except by license issued by the Minister of Finance. The move was intended to maintain the statutory gold reserve for the currency and thus prevent the further decline of the Canadian dollar. Effective October 26 to December 31, the par value of the pound sterling for special or dumping duty purposes was fixed at \$4.40, while the value of regular duty remained at \$4.8663.

**FOREIGN RELATIONS.** Canada's foreign relations during 1931 were marked by a continuance of friendly relations with the United States, tariff difficulties with New Zealand, an embargo on imports from the Soviet Union, and the conclusion of a mutually favorable trade agree-

ment with Australia. The Washington Government took the stand that there was nothing discriminatory in the Canadian tariff revisions and made no protest thereto. A new Canadian Minister to the United States, Major W. D. Herridge, presented his credentials to President Hoover June 23, 1931. Shortly afterward occurred the marriage of Major Herridge to Miss Mildred Bennett, sister of the Prime Minister.

Negotiations with regard to the international St. Lawrence waterway project continued and on Oct. 7, 1931, the Canadian Government formally notified the Washington Government that it was ready to undertake the negotiation of a treaty. The Dominion Government seemed to have committed itself to the project in principle through the preamble to the law under which it assumed supervisory control of the Beauharnois project. The preamble stated that the development of a deep waterway was "now in progress, from Lake Superior to the sea through the Great Lakes and connecting waters and in part in, over, or along the St. Lawrence River. . . ." It went on to assert that this fact required that the Beauharnois power work "should hereafter be under the legislative jurisdiction of the Parliament of Canada and be made available for navigation for vessels of such size and draught as may use the new Welland Canal upon its completion." Opposition to the project was voiced by Premier Taschereau of Quebec.

Rum-running activities of Canadian ships along the Atlantic coast of the United States served to irritate sections of American public opinion. Charges that a Canadian rum-runner had "gassed" an American Coast Guard vessel with noxious fumes were forwarded to Ottawa by the U. S. State Department on July 20. The Speech from the Throne, closing the second session of the Seventeenth Parliament (August 3), expressed wholehearted approval of President Hoover's "generous and constructive" moratorium proposal. The depreciation of the Canadian dollar with relation to the United States dollar aroused some resentment in Canada toward the end of the year.

Premier Bennett's precipitate action in doubling the Canadian duty on New Zealand butter provoked drastic retaliation. New Zealand on June 1 withdrew the imperial preference accorded on imports from Canada, thus severely penalizing Canadian exports as compared with those from other parts of the Empire. Canada then opened negotiations for the conclusion of a mutually satisfactory trade agreement. In 1930, Canada shipped goods valued at £3,802,925 to New Zealand and purchased goods valued at £2,539,212 in return. Failing to secure a satisfactory revision of the trade treaty with France, the Government on Dec. 17, 1931, abrogated the treaty, effective June 16, 1932.

The embargo on Soviet products was imposed by an Order-in-Council proclaimed Feb. 27, 1931, which asserted that Soviet coal and lumber were produced by forced labor, that political prisoners were exploited in the Soviet Union, and that the standard of living was below "anything conceived of in Canada." The Soviet Commissar for Foreign Trade retaliated by forbidding the importation of any goods from Canada or the use of Canadian bottoms by Soviet importing organizations.

The financial difficulties of Newfoundland (q.v.) during the year attracted attention to

the relations of the two dominions. In response to questions in Parliament, Prime Minister Bennett was quoted as saying that Canada was considering the possible purchase of the Labrador Coast from Newfoundland but that no political union of Canada and Newfoundland was contemplated.

The Imperial Economic Conference, scheduled to meet in Ottawa in August, 1931, was postponed to 1932 because of impending elections in Australia and New Zealand and the hopelessness of obtaining an agreement satisfactory to the Dominions from the British Labor Government. Canada's effort to improve the condition of her wheat farmers through the calling of the International Wheat Conference at Canada House, London, England, in May failed through the inability of the countries represented to agree upon a plan for acreage reduction. Demands for legislation to check Oriental immigration to the west coast were presented to Parliament by members from British Columbia (q.v.). The House of Commons on May 15 unanimously approved the adhesion of Canada to the General Act for the Pacific Settlement of International Disputes, subject to the reservation agreed upon at the Imperial Conference of 1930. See LEAGUE OF NATIONS; ARBITRATION, INTERNATIONAL.

OTHER EVENTS. Communist activities in Canada during the year resulted in a round up of five alleged "key men" of the organization by provincial and Royal Northwest Mounted Police in August. The Dominion Bureau of Statistics took a 1931 business census of merchandising and service establishments in Canada, the first since 1924. On Oct. 22, 1931, the British Privy Council ruled on an appeal carried from the Canadian Supreme Court that the control of aviation lies with the Dominion and not with the provincial governments. Opposition to Dominion control centred chiefly in Quebec. The Quebec election of August 24 resulted in the continuance in office of the administration of Premier Taschereau (see QUEBEC under *History*). In Prince Edward Island the Liberal administration was defeated by the Conservatives in the election of August 6 (see PRINCE EDWARD ISLAND). See NAVAL PROGRESS; COMMUNISM.

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CANADA, THE UNITED CHURCH OF. The designation applied to the single body formed by the union of the Congregational, Methodist, and Presbyterian churches in Canada; the Methodist churches of Newfoundland and Bermuda are also included. Since the formal consummation of the union on June 10, 1925, a total of 600 congregations, mostly in smaller towns and rural districts, had amalgamated into approximately one-half that number of self-supporting charges. The board of home missions had also established 412 new fields of home-missions status, each field including three or four places at which public worship had been inaugurated and regularly conducted. Since 1925, 688 fields, which formerly received aid, had become self-supporting and had passed off the home-mission list. Foreign mission work was being carried on in Japan, Korea, China, India, Trinidad, and Angola (West Central Africa).

In 1930 there were in Canada, Newfoundland, and Bermuda 7633 preaching places (including home missions) in 3041 pastoral charges. Between June 10, 1925, and Dec. 31, 1930, the

communicant membership had increased from 600,522 to 662,450, and the number of persons under pastoral care from 1,261,778 to 1,574,152. In the same period 153,000 persons were received as communicants on profession of faith. The fourth general council of the United Church of Canada was held in London, Ont., in September, 1930. The Rt. Rev. Edmund H. Oliver, D.D., F.R.S.C., was chosen moderator for 1930-32; the Rev. T. Albert Moore, D.D., was secretary. Headquarters are at 421 Wesley Buildings, Toronto, Ont.

**CANALS.** In the United States interest in waterways was centred on three areas. The Isthmian ship canal situation, involving the relative merits of the Panama and Nicaragua routes, was again brought to the fore after many years of peaceful slumber. The St. Lawrence waterway proposals were also actively discussed and involve the nearly completed Welland Canal and the future of the New York State Barge Canal. Finally, in the Middle West the operations of the Inland Waterways Commission continued to furnish a storm centre which focused attention on the problems of utilizing the great Ohio River Canalization, the Illinois Waterway, and the related river improvements of the Federal Government.

**THE ISTHMIAN SITUATION.** It would appear that there is actually no isthmian canal situation and that proposals for a Nicaraguan Canal are premature and have no economic *raison d'être*. Under the direction of Lieut-Col. D. I. Sultan, Corps of Engineers, U. S. Army, who was named by President Hoover to succeed the late Lieut-Gen. Edgar Jadwin on the Inter-oceanic Canal Commission, a new survey of this route was completed. The report showed that a canal of 80,000,000 tons yearly capacity was feasible from the engineering standpoint at an estimated cost of \$750,000,000. Colonel Sultan, however, admitted that there was no present need of such construction although he believed that the time would come when the Panama Canal would be taxed to full capacity.

In reviewing this report, Gen. Lytle Brown, Chief of Engineers, U. S. Army, noted that an estimate of the present traffic capacity of the Panama Canal indicated 70,000,000 tons per annum or sufficient for the maximum traffic to be expected in 1970. Furthermore this capacity can be increased to 107,000,000 tons by the construction of a third set of locks at a cost of \$104,000,000. Ten years would be required for this work.

Statistics show that 1928 was the peak year to date for Panama traffic and that the Canal in 1931 was being operated at about one half capacity. While in recent years oil shipments from California fields caused a sharp increase in the slope of the graph on the chart representing traffic growth, it was clearly unreasonable, as canal enthusiasts had done, to project this part of the growth graph and thus conclude that the Canal would be taxed to capacity within a few years. Such growth would be out of all proportion to normal traffic increase.

The present minimum capacity at Panama was 32 lockages per day, and the maximum yet required was 16.7 in 1928. This present capacity is limited by the water supply available and steps were being taken to increase the water supply, and incidentally to remedy the present occasional canal delays due to flood difficulties,

by building a large reservoir on the upper Chagres River. This construction was authorized by Congress in March, 1928 and was made the special subject for study by a board of consulting engineers which reported in January, 1931. On September 14 the contract for the work was let for \$4,048,657.

Due to heavy rains, lasting three days, over the Gatun watershed, it was necessary to suspend traffic through the Canal November 7 for the first time since October, 1923. The suspension was due to the fact that it was necessary to supplement the discharge of the Gatun spillway by using the lock culverts to discharge the flood waters from Gatun Lake. While traffic was resumed in part the next day it was expected that the Madden Reservoir, as just noted, would make such delays unnecessary in the future.

Due to the same heavy rains the closing of the Canal on November 7-8 was followed by a slide in the Gaillard Cut on November 9. The slide occurred in the east bank about half a mile north of Gold Hill and traffic was not resumed until November 11 when 14 vessels of drafts up to 25 feet were passed.

Statistics for the year showed the smallest volume of traffic in six years with December the lowest month. See PANAMA CANAL.

**ST. LAWRENCE WATERWAY.** The joint Canadian-American engineering board reached substantial accord on this great project and it was a foregone conclusion that the American engineers would agree to the two-stage development urged by the Canadians. There were many details to be smoothed out, however, before work could actually begin. The treaty under which the construction of this waterway was to be undertaken was to be negotiated through diplomatic channels rather than by a joint commission appointed for the purpose.

Opinion seemed to differ as to the need for this waterway. The head of the Farm Board, for example, took the position that grain exports were nearing their end, due to the fact that other countries were increasing their grain production and were making rapid progress toward replacing the supply heretofore drawn from the United States. This change, plainly indicated by the grain market situation of the previous two or three years, would remove all support for the always questionable grain-freight argument which had been basic in plans for an ocean vessel waterway.

The status of the New York State Barge Canal was of course directly connected with the problem of securing an outlet from the Great Lakes to the sea. Legislation looking toward the taking over of the unprofitable Barge Canal by the Federal Government was passed in 1930 but completion of this step was still awaiting acceptance by New York State of the requirements laid down by Congress.

**INLAND WATERWAYS CORPORATION.** Despite a loss in bulk traffic and unfavorable operating conditions, the Mississippi River barge line made a net operating income of \$65,177.09 in 1930 as compared with a deficit of \$72,798.08 in 1929. Gen. T. Q. Ashburn, head of the corporation, explained that earnings for 1930 were largely due to increased operating efficiency.

The Interstate Commerce Commission in February agreed to permit extension of barge service up the Illinois River as far as Peoria. This was to be done as fast as the river was made

ready for navigation. The terminal at Peoria was practically completed by the end of the year. Opponents of this government transportation operation continued to point out that no allowance was made for taxes or interest on the cost of facilities, and the government was entering into unfair competition with established carriers, namely the railroads, which pay both taxes and interest on the cost of right-of-way and other equipment.

**ILLINOIS WATERWAY.** The U. S. War Department finally agreed to take over and complete the Illinois waterway, inasmuch as the State of Illinois was unable to finish the work within the \$20,000,000 bond issue approved and since the State constitution did not permit an additional bond issue. It was confidently predicted that this 63-mile connecting link between the Chicago Drainage Canal and the Illinois River on the proposed Great Lakes-Gulf Waterway, would be completed in 1932, a year ahead of schedule. Plans and procedure for the work were approved, Federal funds were made available, and contracts were let. A 9-foot depth of water with a waterway 200 feet wide was to be provided. Five locks and dams are required. The lock chambers will be 110 feet wide and 600 feet long with 14 feet of water over the sills. Works at Lockport, which include a notably high lift of 41 feet, and also at Marseilles and Starved Rock had been completed.

On the upper Mississippi River work on the existing project for a 6-foot channel as far as Minneapolis was continued. This is being carried out in such a manner that it can be fitted into a projected channel of 9 feet depth. On the Missouri River Government activities were confined chiefly to revetment and dike construction in connection with the existing 6-foot channel project from the mouth to Sioux City.

**CAPE COD CANAL.** The Secretary of War transmitted to Congress a report of the Chief of Engineers on a preliminary examination and survey of the Cape Cod Canal. This Canal was bought from private interests by the Federal Government as noted in the 1930 YEAR BOOK. There has always been difficulty with rapid currents caused by the tidal differences in Cape Cod Bay and Buzzards Bay, and the report proposed to modify the existing sea level construction by introducing a lock. Tentative dimensions of 1000 feet in length, 250 feet in width, with 40 feet depth of water over the sill were suggested. Improvements in width, depth, and alignment were also recommended.

**ALL-AMERICAN CANAL.** Having reached an agreement as to the allocation of the water, to be supplied by the new Hoover Dam on the Colorado River through the All-American Canal, representatives of the water users met September 7 in Washington to work out details of the contract with the government officials. This canal was authorized as part of the great Boulder Canyon project and the water users have contracted for repayment of the cost of the canal, which will run from the Colorado to the Imperial Valley in Southern California.

Objections to the construction of the Imperial diversion dam, which will divert water from the Colorado to the Canal below the Hoover Dam, were overruled by Secretary Wilbur on October 22. The Palo Verde Irrigation District claimed that back water from this essential part of the project would damage their works. Provisions

against such possible damage were included in the contract, said Secretary Wilbur.

While detailed plans had not been decided upon the Imperial Valley project was provided for to the extent of \$38,500,000 in the \$165,000,000 to be spent in the entire Boulder Canyon work. The canal will be 75 miles long and will require about 65,000,000 cubic yards of excavation. The canal section is to be 134 feet wide at the bottom, 200 feet at the water surface, and 22 feet deep, with a capacity of 15,000 cubic feet of water per second. Provision had not been made for the so-called Coachilla Branch Canal, not included in the original project, which will be 115 miles long. See also DAMS under *Hoover Dam*.

**SUEZ CANAL.** The world-wide depression which has affected traffic on the Panama Canal, as noted above, has also resulted in decreased tonnages passing through the Suez waterway. During the first three quarters of 1930, ships of 23,834,000 net tons passed through the canal, a decrease of over a million net tons from the corresponding period of 1929. See *SUEZ CANAL*.

**CANARY ISLANDS.** A group of small islands off the northwest coast of Africa, belonging to Spain. Area, 2810 square miles; population, estimated at 554,750 on Jan. 1, 1930. Santa Cruz de Teneriffe, with an estimated population of 58,173 (Jan. 1, 1930), and Las Palmas, population 73,737, are capitals of the two provinces into which the islands were divided in 1927. Fruits and vegetables are grown for export. There is regular steamship, cable, and wireless communication with continental Spain, of which the islands are administratively a part. See *SPAIN*.

**CANCER.** See *CHEMISTRY, INDUSTRIAL*.  
**CANTON PROVISIONAL GOVERNMENT.** See *CHINA* under *History*.

**CAPE COD CANAL.** See *CANALS*.

**CAPE COLONY.** See *CAPE OF GOOD HOPE COLONY*.

**CAPE OF GOOD HOPE PROVINCE.** The southernmost of the four original Provinces of the Union of South Africa; formerly known as Cape Colony or the Colony of the Cape of Good Hope. Capital, Cape Town. Area, 276,536 square miles; population at the census of 1921, 2,781,542, of whom only 650,327 were Europeans. The total estimated population on June 30, 1930, was 3,105,943, including 749,314 Europeans, 1,821,882 Bantus, 8035 Asiatics, and 526,712 of mixed and other origin. The white population at the census of May, 1931, was 748,455. The census of 1926 showed 706,137 Europeans. The chief towns, with their white populations in 1926, were: Cape Town, 130,568 (146,249 in 1931); Kimberley, 17,268; Port Elizabeth, 33,371; East London, 23,210. The movement of population in 1929 among Europeans was: Births, 19,008; deaths, 7315; marriages, 6560. For non-Europeans, so far as registered, it was: Births, 39,426; deaths, 25,637; marriages, 9620.

Education is compulsory for white children. In 1929, there were 2351 public and 34 aided private schools for white children, with 141,109 pupils, and 2319 public and aided private schools for colored children, with 199,693 pupils. Education of non-Europeans is carried on mainly by missionary and church bodies. The total ordinary provincial expenditure in 1928-29 was £4,231,045 and the total revenue was £4,214,367, including £2,410,506 received as a subsidy from

the Union Government. Administrator of the Province in 1931, J. H. Conradie, appointed 1929. See SOUTH AFRICA, UNION OF.

**CAPE VERDE (vürd) ISLANDS.** A group of 14 islands about 320 miles off the western coast of Africa belonging to Portugal. Area, 1517 square miles; population in 1929, 153,738, including 54,559 Negroes, 94,977 mulattoes, and 4202 whites. Sisal, castor oil, coffee, mustard, brandy, oranges, and hides are the chief products. Imports in 1929 were valued at 80,955,304 escudos and exports at 4,380,581 escudos (1 escudo exchanged at about \$0.0447 in 1929). The budget for 1930-31 estimated revenue and expenditure at 19,621,660 escudos. A total of 1593 ships of 4,197,000 tons entered the ports in 1929. St. Vincent, the chief port, is a transatlantic coaling station. A Governor administers the islands from Praia (Praya), the capital. Governor in 1931, Col. Antonio A. Guedes Vaz. See PORTUGAL.

**CARAWAY, THADDEUS H.** An American lawyer and U. S. Senator, died in Little Rock, Ark., Nov. 6, 1931. He was born in Stoddard Co., Mo., Oct. 17, 1871, and was graduated from Dixon (Tenn.) College in 1896. Admitted to the Arkansas bar in 1900, he practiced in Lake City, and was twice elected, in 1908 and 1912, prosecuting attorney for the Second Judicial Circuit of Arkansas. In 1931 he was elected to Congress as Democratic Representative from the First Arkansas District and continued there until 1921; when he was chosen U. S. Senator. He was re-elected in 1926 for the term expiring in 1933.

**CARDINALS.** See ROMAN CATHOLIC CHURCH.

**CARINTHIA, ka-rin'thi-ä.** A Province of the Republic of Austria; formerly a crownland of the Austro-Hungarian Empire. Area, 3680 square miles; population at the census of 1923, 370,817, as compared with 396,200 in 1910. Capital, Klagenfurt, with a population in 1923 of 27,423. See AUSTRIA.

**CABLETON COLLEGE.** A coeducational institution of higher learning in Northfield, Minn., founded in 1866 and maintaining relations of cooperation with the Congregational, Baptist, and Protestant Episcopal churches. The enrollment of the autumn of 1931 was 865. There were 64 faculty members. The endowment amounted to \$2,837,381, and the total income of the year was \$567,674. There were 101,000 volumes and 31,000 pamphlets in the library. President, Donald John Cowling, Ph.D., D.D., LL.D.

**CARNEGIE CORPORATION OF NEW YORK.** Established by Andrew Carnegie in 1911, this corporation was formed for the advancement and diffusion of knowledge and understanding among the people of the United States, Canada, and the British colonies. Its total endowment is approximately \$135,000,000 of which \$10,000,000 is applicable elsewhere than in the United States. The corporation has conceived its function to be not that of an operating agency in itself, but rather that of an agency charged with the duty of studying and estimating those forces and institutions that make for the advancement and diffusion of knowledge and understanding in the areas specified and of aiding these institutions in such measure as may be possible within the income of the corporation, having care always to the fact that the income of this endowment is to be a liquid asset for each generation. In the year 1931, as in the previous year of 1930, approximately

two-thirds of the annual income of the corporation was devoted to a reduction of unpaid obligations which on September 30 amounted to \$19,747,531. The annual report of the president, Frederick P. Keppel, showed that during the fiscal year 1930-31, the sum of \$3,629,500 was appropriated. Of this amount, \$880,700 was applied toward library service; \$282,500 toward the encouragement of adult education activities; \$537,000 toward the support of national organizations in the field of fine arts and of departments of art in colleges and universities and of projects for developing appreciation of the arts; \$892,000 toward the support of educational and scientific studies and research publications; and \$1,037,300 toward general interests, including the Carnegie Endowment for International Peace.

The corporation made scholarship grants for graduate study by prospective college teachers of the arts and qualified students of library science. It continued to support various important projects, such as research in the study of paleontology and genetics, investigation in the field of spectroscopy, and study of susceptibility to infectious diseases. Various studies conducted by the American Historical Association, the Institute of Economics, and the American Law Institute were continued through the year. From the income of its \$10,000,000 fund, the corporation continued its five-year programme in British Africa, involving a total of \$500,000. This included scientific research, aid to Jeanes Schools, exchange of educational visits, and library service, carried on largely through responsible local bodies. Various educational enterprises in Canada, Australia, and New Zealand also were aided.

The trustees of the corporation in 1931 were: James Bertram, Nicholas Murray Butler, John J. Carty, Samuel Harden Church, Robert A. Franks, William J. Holland, David F. Houston, Henry James, Frederick P. Keppel, Russell Leffingwell, John C. Merriam, John A. Poynton, and Elihu Root. Officers of administration were: Elihu Root, chairman of the board; Robert A. Franks, vice chairman and treasurer; Frederick P. Keppel, president; James Bertram, secretary; and Robert M. Lester, assistant to the president. The headquarters are located at 522 Fifth Avenue, New York City.

**CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING, THE.** A foundation established on Apr. 16, 1905, by Andrew Carnegie who placed an endowment of \$10,000,000 in trust with 25 trustees, mostly presidents of universities and colleges, for the purpose of encouraging higher education in the United States, Canada, and Newfoundland. The foundation provides retiring allowances for teachers in universities and colleges and pensions for their widows, and studies various phases of the educational process. It was incorporated by Act of Congress in 1906. Its resources were increased by a further gift of \$5,000,000 from Mr. Carnegie in 1908, and by appropriations of \$1,250,000 in 1913 and \$12,000,000 in 1918 from the Carnegie Corporation of New York, which Mr. Carnegie established in 1911. On June 30, 1931, the foundation had endowments and accumulated reserves amounting to \$31,824,500, and had distributed \$21,979,800 in retiring allowances and pensions to 1229 teach-

ers and 599 widows, chiefly through 95 associated institutions, selected for their educational standing.

The foundation publishes extensive annual reports, which deal with many educational problems. Its division of educational inquiry, established in 1913, has issued 26 comprehensive bulletins, dealing with medical, legal, engineering, dental, and vocational education, the training of teachers, intercollegiate athletics, and kindred subjects. In 1931, the foundation was engaged in comprehensive studies of policies respecting public higher education in California, upon legislative and executive invitation, and the relations between secondary and higher education in Pennsylvania. Dr. Henry Suzzallo is president, Dr. Henry Smith Pritchett, president emeritus; Howard J. Savage is secretary. The headquarters are at 522 Fifth Avenue, New York City.

**CARNEGIE INSTITUTE OF PITTSBURGH.** See ART EXHIBITIONS; ART MUSEUMS.

**CARNEGIE INSTITUTE OF TECHNOLOGY.** A nonsectarian institution for technical education at Schenley Park, Pittsburgh, Pa., founded in 1900. The enrollment for the autumn of 1931 was 5262, including 2544 registered in the regular day courses and 2718 in the evening courses. For the summer session 826 students were enrolled. The faculty numbered 427, of whom 294 were on full time and 133 on part time. The endowment of the institution was \$16,383,000 and the annual income \$880,900 (not including student fees.) The institute has a campus branch of the Carnegie Library of Pittsburgh, which has 450,600 volumes. President, Thomas Stockham Baker, Ph.D., LL.D., Sc.D.

**CARNEGIE INSTITUTION OF WASHINGTON.** An organization founded in 1902 "to encourage in the broadest and most liberal manner investigation, research, and discovery, and the application of knowledge to the improvement of mankind." The institution attempts to advance fundamental research in fields not normally covered by the activities of other agencies, and to concentrate its attention upon specific problems with the idea of shifting attack from time to time to meet the more pressing needs of research. Its major activities in 1931 were carried on through the following departments and divisions: Department of embryology (located in the Hunterian laboratory of the Johns Hopkins University medical school); department of genetics (laboratory in Cold Spring Harbor, Long Island, N. Y.); geophysical laboratory; division of historical research, including the section of aboriginal American history, section of United States history, and section of the history of science; department of meridian astrometry (headquarters in the Dudley Observatory, Albany, N. Y.); Mount Wilson Observatory, in Pasadena, Calif.; nutrition laboratory, in Boston; division of plant biology (central laboratory at Stanford University); department of terrestrial magnetism; Tortugas (Fla.) laboratory of marine biology.

During 1931 the institution undertook special studies of the oceanographic material obtained during the last cruise of the *Carnegie* in 1928-29, and it was expected that comprehensive reports on this material, through the aid of many coöperating agencies, would be available in the near future. Arrangements also were made, through the generous coöperation of Johns Hop-

kins University, for increasing the space occupied by the animal colony being studied by the department of embryology, thus enlarging the scope of the investigations leading to an understanding of the structure and physiology of the adult. At the Mount Wilson Observatory progress was made during the year on investigations concerning the structure and extent of the physical universe, the studies by visiting and collaborating investigators proving of great importance. Publication of Morris's elaborate monograph *The Temple of the Warriors*, describing the Caracol at Chichen Itzá in Yucatan, completed one of the great projects of the institution in the field of early American history. Progress also was made in the other phases of the institution's programme relating to the Maya civilization and to knowledge of aboriginal American cultures.

Public lectures and exhibits relating to the work of the institution proceeded as usual, with increasing emphasis upon determination of the most effective means for the dissemination of such information. Results of the institution's investigations are made known through technical and scientific journals, the institution's *Year Book*, and a series of scientific monographs. During 1931 the executive committee authorized publication of 11 new volumes, and a total of 14 volumes were issued. Total receipts, representing interest on investments, bank balances, and sales of publications, amounted to \$1,691,030 for the year. The president in 1931 was John C. Merriam. The officers of the board of trustees were: Elihu Root, chairman; Henry S. Pritchett, vice chairman; Frederic A. Delano, secretary. The executive committee included: Elihu Root, chairman, Frederic A. Delano, Cass Gilbert, John C. Merriam, W. Church Osborn, W. Barclay Parsons, Stewart Paton, and Henry S. Pritchett. Headquarters are at Sixteenth and P Streets, N.W., Washington, D. C.

**CAROLINE ISLANDS.** A group of about 500 coral islets in the western Pacific, transferred from Germany to Japan under mandate of the League of Nations by the Versailles Peace Treaty. The chief islands are Ponapé, with 8551 inhabitants; Yap, an important wireless and cable station, with 6799; and Parao, with 7872. See JAPAN.

**CARR, HERBERT WILDON.** A British philosophical writer, died in Los Angeles, Calif., July 8, 1931. Born Jan. 16, 1857, he was educated at King's College, University of London. After being engaged in banking for many years he became in 1918 professor of philosophy at King's College, and at the time of his death was visiting professor of philosophy at the University of Southern California. He was also president of the Aristotelian Society during 1916-18 and editor of the *Proceedings* of that body. His publications include: *The Problem of Truth* (1912); *Henri Bergson* (1912); *The Philosophy of Change* (1914); *The Philosophy of Benedetto Croce* (1918); *Bergson's Mind Energy* (Trans., 1920); *The Principle of Relativity* (1920); *Genetic's Theory of Mind as Pure Act* (Trans., 1921); *A Theory of Monads* (1922); *The Scientific Approach to Philosophy* (1924); *Changing Backgrounds in Religion and Ethics* (1927); *The Unique Status of Man* (1928); *The Free-will Problem* (1928); *Leibnitz* (1929); and *Cogitans Cogitata* his last work, was published in 1930.



**CARBOLL, HENRY KING.** An American clergyman, died in North Plainfield, N. J., Jan. 21, 1931. He was born in Dennisville, N. J., Nov. 15, 1848. From 1876 to 1898 he was religious and political editor of the *Independent*, and in 1890 had charge of the religious census of the United States. After serving as a special United States commissioner to Porto Rico during 1898-99, he was appointed assistant corresponding secretary of the Methodist Episcopal Church Missionary Society, retaining that post until 1908. He was executive secretary of the western section of the Ecumenical Methodist Conferences of 1911 and 1921, and from 1913 to 1916 was an associate secretary of the Federal Council of the Churches of Christ in America. Besides government reports and numerous reviews, he published *The Religious Forces of the United States* (1893); *Missionary Growth of the Methodist Episcopal Church* (1907); and *Francis Asbury in the Making of American Methodism* (1923). His findings as general religious statistician for the leading Protestant denominations in the United States also were published each spring from 1916 to 1930 in the *Christian Herald*.

**CARS, MOTOR.** See **AUTOMOBILES**.

**CARSON, HOWARD ADAMS.** An American civil engineer, died in Malden, Mass., Oct. 26, 1931. He was born in Westfield, Mass., Nov. 28, 1842, and was graduated from the Massachusetts Institute of Technology in 1869. In 1871 he was appointed assistant engineer on the construction of the Providence waterworks and two years later installed the sewer system in that city. From 1878 to 1885 he was principal superintendent of construction of the Boston system of intercepting sewers and main drainage, and in 1889 was appointed chief engineer of the Metropolitan and Charles River Valley sewerage systems, which embraced about 20 cities and towns in the vicinity of Boston. During 1894-1909 he was chief engineer for the Boston Transit Commission, having charge of the design and construction of the original Boston subway, completed in 1898, and of the East Boston and Washington Street tunnels. He also served as consulting engineer in the building of the original New York and Philadelphia subways and of the double-track railway tunnel under the Detroit River for the Michigan Central Railroad.

**CARTELS.** See **CHILE**; **CUBA**.

**CASE SCHOOL OF APPLIED SCIENCE.** An engineering college in Cleveland, Ohio, founded in 1881. In the autumn of 1931 the enrollment was 808 students. The summer session registration was 162. The faculty numbered 79 members. The endowment amounted to \$4,601,042. The library contained 25,000 volumes. President, William Elgin Wickenden, D.Eng., D.Sc.

**CASUALTY INSURANCE.** See **INSURANCE**.

**CATALAN.** See **SPANISH LITERATURE**.

**CATALONIA (CATALUÑA).** A formerly independent principality occupying the north-east corner of Spain, which was deprived of its liberties and parliament in 1714 by Philip V of Spain and divided in 1833 into the four Provinces of Barcelona, Girona, Lérida, and Tarragona. The area is 12,427 square miles; the population was estimated at 2,475,793 on Jan. 1, 1930. Barcelona, the principal city, had 775,271 inhabitants on the same date. It is the centre of a thriving industrial, commercial, and agricultural region. For political developments in 1931, consult the article on **SPAIN** under *History*.

**CATHOLIC ACTION.** A Roman Catholic organization, the Italian general and branch headquarters of which were closed by the Fascist Government in May, 1931, for alleged political activity. See **ITALY** under *History*.

**CATHOLIC CHURCH.** See **ROMAN CATHOLIC CHURCH**.

**CATHOLIC UNIVERSITY OF AMERICA, THE.** A national institution of higher education in Washington, D. C., founded in 1887 by the Roman Catholic hierarchy with the approval of the Holy See and chartered by an Act of Congress. The enrollment for the autumn term of 1931 was 1340, distributed in the following schools: Graduate school of sacred sciences, 9; seminary, 156; canon law, 24; law (coeducational), 40; engineering, 158; arts and sciences, 440; and graduate school of arts and sciences (coeducational), 502. The enrollment for the summer session of 1931 was 891. Affiliated with the university is the Catholic Sisters' College (190 students); Trinity College for Women (375 students); National Catholic School of Social Service (52 students); and 33 religious houses of study in the immediate vicinity with an enrollment of about 800 students. In addition, there are affiliated throughout the United States 4 seminaries, 29 colleges, 225 high schools and academics, and 57 novitiates.

The university is governed by a board of trustees (prelates, priests, and laymen) through the Rector, who is advised by an academic senate composed of representatives (lay and clerical) of the various faculties. The faculty of the university proper numbered 140, of whom 39 were full professors. The endowment amounted to approximately \$3,000,000, plus an annual collection of about \$300,000. The library contained 340,000 volumes. Administrative officers: the Rt. Rev. James H. Ryan, S.T.D., Ph.D., LL.D., Litt.D., rector; the Rt. Rev. Edward A. Pace, S.T.D., LL.D., vice rector; the Rt. Rev. David T. O'Dwyer, procurator; and Prof. Richard J. Purcell, Ph.D., general secretary.

**CATTLE.** See **DAIRYING**; **LIVESTOCK**.

**CATTLE DISEASES, CATTLE PLAGUE, CATTLE TICK ERADICATION.** See **VETERINARY MEDICINE**.

**CAUCASUS, kô'ká-süs.** A term applied to the isthmus which separates the Black Sea from the Caspian Sea; formerly an administrative division of the Russian Empire. It was divided into two districts of Transcaucasia and Ciscaucasia, of which the former, after the World War, was divided among the three republics of Armenia, Georgia, and Azerbaijan. These were incorporated under the constitution of 1923, in the Union of Soviet Republics, as the Transcaucasian Socialist Federated Soviet Republic. See **ARMENIA, AZERBAIJAN, GEORGIA, TRANSCAUCASIAN SOCIALIST FEDERATED SOVIET REPUBLIC, and UNION OF SOVIET SOCIALIST REPUBLICS**.

**CAVALRY.** See **MILITARY PROGRESS**.

**CELEBES.** See **NETHERLAND EAST INDIES**.

**CELEBRATIONS.** These events continue to present to the public anniversaries that are noteworthy and emphasize by appropriate ceremonies their historical importance. Those in the United States were notably of events pertaining to the War of the Revolution and culminated in the celebration of the surrender of Cornwallis at Yorktown. Very elaborate and universal preparations for the bicentennial anniversary of the birth of George Washington were

under way and the celebration of the first settlement of Maryland was to come up for 1933.

*January 18.* The 60th anniversary of the proclamation of the German empire at Versailles in 1871 was commemorated in Berlin with impressive ceremonies in the Reichstag, which was decked with many old regimental flags. There were gatherings of all veterans' associations in the Sportpalast and a march of an honor company bearing fifty regimental flags from the Franco-Prussian War. These events were attended by President von Hindenburg.

*March 4-11.* The 200th anniversary of the construction of the Spanish government's palace and the founding of the Spanish Missions was celebrated in San Antonio, Tex., beginning with blessing and dedication of the restored palace. Church, military, and civil officials present at the service included Cardinal Hayes, Gov. Ross Sterling of Texas, Maj. Gen. Edwin B. Winans, U.S.A., commanding 8th Corps Area, and Pablo de Ubarri, Spanish consul general of Galveston, representing his majesty King Alfonso XIII of Spain. Following this ceremony a colorful pageant of the arrival of the first Canary Islanders was presented. Direct descendants of the original settlers took part, including priests, Indians, soldiers, and the military governor. Later, other appropriate exercises were held, which ended with a Te Deum in the cathedral.

*March 9.* The 100th anniversary of the founding of the French Foreign Legion was celebrated in Sidi-bel-Abbes, Algeria, where the First Regiment passed in review to the blare of bands and the tunes of the Legion's famous marching songs. Colonel Rollet, who led his legionnaires on the Western Front during the World War, read the Legion's roll of honor. In Fez, Marrakech, and other outposts various regiments marched in review.

*April 14.* The date on which in 1890 the resolution creating the Pan-American Union (q.v.) was approved at the First Pan-American Conference, was observed as "Pan-American Day" by the United States and Bolivia, Chile, Costa Rica, Cuba, Ecuador, Dominican Republic, El Salvador, Guatemala, Mexico, Peru, and Venezuela. The exercises at the Pan American Union building in Washington, D. C. included addresses by the President of the United States, the Secretary of State, the Ambassadors of Mexico and Cuba, and a musical program by the U. S. Navy Band.

*April 21.* According to tradition 2684 years ago King Romulus plowed a furrow on Palatine Hill to mark the place of the walls of Rome. This date was celebrated throughout Italy with solemn ceremonies, since April 21 was declared a national holiday by the Fascist Government, which also decreed that Labor Day be celebrated on that date instead of May 1. Throughout Italy hundreds of thousands of workers paraded behind Fascist banners. As usual on this day under the Fascist régime, a number of public works were inaugurated. Some were of archaeological interest, such as the demolition of houses around the imperial forums; some were intended to beautify the city, such as the beginning of public gardens; some were of general interest, such as new schools and streets, and some were of interest chiefly to workers, as new workers' dwellings.

*April 27.* The 324th anniversary of the landing at Cape Henry of the band of pilgrims,

who planted English civilization in the New World, was celebrated by a religious ceremony conducted by Bishop Thomson of Southern Virginia, at which President Hoover and Governor Pollard were present.

*April 28.* The 100th anniversary of the granting of a charter to the New York University by the State legislature was appropriately celebrated, notably by a charter day dinner at the Hotel Astor, New York City. Governor Franklin D. Roosevelt and Dr. James Rowland Angell, president of Yale University, were among the guest speakers, and Dr. Elmer Ellsworth Brown, chancellor of the University, was the presiding officer.

*May 16.* The 100th anniversary of the founding of Gramercy Park in New York City was celebrated by a pageant in which more than 200 persons, depicting the old time costumes of a century ago, participated. There was an address by Dr. John H. Finley, and also a May pole dance for the younger generation.

*May 20.* Mecklenburg County in North Carolina celebrated the signing by Mecklenburg farmers of what is asserted to be the first formal declaration of independence from Great Britain. The date of the signing is accepted locally as May 20, 1775, although disputed by some historians. There was a parade and Gen. Charles P. Sumner, U.S.A., was the principal speaker.

*May 21.* The 50th anniversary of the founding of the American Red Cross (q.v.) was generally celebrated by local organizations throughout the United States, and conspicuously in Washington, D. C., by a banquet at which addresses were made by President Hoover and other distinguished members from home and abroad. The Post Office Department issued a commemorative postage stamp in honor of the event.

*May 24-31.* The 500th anniversary of the martyrdom of Joan of Arc was celebrated in Rouen, France. The exercises began with ceremonies in the Cathedral of Notre Dame and were followed by a military parade in which some of the famous regiments of the French army participated. It was led by groups impersonating the most glorious soldiers of France's past, thus the 1600 costumed participants were led by Gauls of Vercingetorix and included Franks of Charles Martel, soldiers of Bayard, Knights of Douguesclin, Napoleon's Guard, and, finally, heroes of the World War represented by veterans' organizations. Noteworthy were the American Legion veterans, led by Commander Sparks of the Paris Post of the American Legion.

*June 21.* The 300th anniversary of the death of Captain John Smith, the founder of the Jamestown Colony of Virginia, was celebrated in the Church of St. Sepulchre in Holborn, London, where a tablet had been placed in memory of the "Sometime Governor of Virginia and Admiral of New England."

*June 22.* The ancient city of Rochester in England celebrated its 2000 years of existence with a historical pageant in which 5000 characters recreated its old time glories. Prince George was a spectator and hundreds of American visitors, including some from Rochester, N. Y., were among those who watched the pageantry outside Rochester Castle. Chaucer's pilgrims, Queen Elizabeth, and King Charles II are all associated with the old city and many in Roches-

ter are convinced that Mr. Pickwick, immortalized by Charles Dickens, stayed at the Bull Inn.

*July 4.* The 100th anniversary of the death of James Monroe, the author of the Monroe Doctrine, was celebrated at the University of Virginia in Charlottesville, Va., with addresses and patriotic pilgrimages to historic shrines in the vicinity.

*July 29.* The 100th anniversary of the invention of the reaper by Cyrus Hall McCormick was celebrated at the Virginia Polytechnic Institute in Blacksburg, Va., by a special session at which addresses were made by Hon. Alexander Legge and former Governor E. Lee Trinkle, who described McCormick as "the great emancipator of farm labor." The McCormick family was represented by a son and two grandsons.

*July 31.* The discovery of the island of Trinidad by Columbus was celebrated at Port of Spain by an elaborate display of fireworks and other appropriate exercises.

*August 1.* The 100th anniversary of the opening of London Bridge by King William IV and Queen Adelaide was celebrated with suitable ceremonies.

*August 4.* The 75th anniversary of the founding in Rochester, N. Y., of the Western Union Telegraph Company was celebrated by gray-haired operators, many of them retired, taking prominent parts in the diamond jubilee observances in many cities throughout the United States.

*August 18.* The anniversary of the founding of the first English Colony in America by Sir Walter Raleigh was celebrated by a pageant on Roanoke Island, N. C., under the auspices of the Roanoke Colony Memorial Association.

*September 5-13.* The 150th anniversary of the founding of Los Angeles, Calif., was celebrated by a series of pageants and other exercises. Huge Mexican and Spanish shawls were draped from every trolley cross-wire and replicas of historic scenes having to do with the early days of the town swung above the intersections. The "Fiesta de Los Angeles" began with a reënactment of the ceremonies which founded the pueblo, followed by historical parades telling the story of California under four flags, the dawn of Christianity through the sacrifices of the Franciscan padres, and led up to coronation ceremonies in Olympic Stadium, and a long series of pageantry that terminated on September 13, with an international air fiesta. On Sunday morning a solemn Pontifical high mass was celebrated at the stadium, where John McCormack sang the "Ave Maria" and the Apostolic Delegate to the United States, the Most Rev. Pietro Fumasoni Biondi, officiated assisted by Archbishop Hanna and other bishops. The exercises were in part broadcasted over the radio.

*September 6.* The 150th celebration of the Battle of Groton Heights and the burning of New London, Conn., was celebrated at that place by addresses by Governor Cross and by Senator Bingham of Connecticut together with a reproduction of the Battle of Groton Heights and a naval and float parade. A deed presenting the site of Fort Griswold to the State was accepted by Governor Cross.

*September 7.* The 100th anniversary of the independence of Brazil by separation from Portugal was celebrated by a military review, including the army and navy air corps, in Rio

de Janeiro and also by patriotic ceremonies there and elsewhere throughout the entire country.

*September 10-October 3.* The 100th anniversary of the simultaneous discovery by Michael Faraday in England and by Joseph Henry in the United States that when magnets and wire coils are moved relatively to each other a steady electrical current is generated, was celebrated at the opening session of the American Physical Society in Schenectady, N. Y. on September 10 when tributes were paid to Faraday and Henry by American and British scientists. Later in London on September 21 in the Royal Institute appropriate exercises were held with an exhibition in the Royal Albert Hall, and on September 30 addresses by Prime Minister Macdonald and others were broadcasted over the world. To this discovery we owe the electric wonders of to-day—the lights that convert Broadway into a nocturnal fairyland, the electric trains that thunder in subways, the telephones and telegraphs that span continents and oceans, the central stations that send energy wherever it is wanted, and the motors that relieve labor from drudgery.

*September 12.* The 155th anniversary of the historic peace conference between Benjamin Franklin, John Adams, Edward Rutledge, and Lord Howe at the Billop House on Staten Island, in 1776 in an effort to establish peace between England and the Colonists was celebrated by a pageant. The first scene showed a seventeenth-century fair at which Captain Christopher Billop said farewell to his friends before setting sail in his sloop for the New World. Thirteen men and thirty women took part in this scene, with William Sunderman as Captain Billop. An Indian attack on the stockaded village of Oude Dorpe and Billop's arrest as a Tory were reproduced in the second episode. The conference in the Billop House 155 years ago was shown in the final episode.

*September 17.* Known as Constitution day, the 144th anniversary of the promulgation of the Constitution of the United States was celebrated by members of the patriotic societies with appropriate exercises throughout the Union.

*September 18.* The 121st anniversary of the independence of Chile was celebrated in Santiago and elsewhere in that country by patriotic exercises, notably of thanksgiving, at the termination of the recent naval meetings.

*September 23-30.* The 100th anniversary of the founding of the British Association for the Advancement of Science (q.v.) was celebrated at its centenary meeting held in London, England, under the presidency of Lt. Gen. the Right Hon J. C. Smuts, P.C., F.R.S.

*September 29.* The 20th anniversary of the first air mail in the United States was celebrated by a commemoration trip of the coast-to-coast air mail. A special post mark, authorized for Los Angeles, Calif., and Mineola, N. Y., marked the day for stamp collectors.

*October 12.* In commemoration of the discovery of America by Christopher Columbus there was dedicated on the summit of Corcovado, a high elevation in the harbor of Rio de Janeiro, a colossal figure of Christ the Redeemer, standing guard over the city. The lamps at the left of the statue were lighted by Marconi in Italy at the first illumination of this great statue.

*October 15.* The 300th anniversary of the first

Christian Church service held in Maryland was celebrated at Camp Wright on Kent Island, Md., by an outdoor service at that place when a commemorative sermon was preached by the Rt. Rev. James E. Freeman, Bishop of Washington, which was then followed by a pageant depicting a series of episodes of the Church of England on the Isle of Kent.

*October 16-19.* The 150th anniversary of the surrender of Cornwallis to Washington at Yorktown, Va., was celebrated by an elaborate series of events, including the dedication of memorial tablets to Cornwallis and de Gallatin; addresses by governors of the Thirteen Original States; a pageant depicting scenes of the history and characters of the original colonies, beginning with the landing at Jamestown in 1607 and closing with the signing of the Declaration of Independence; dedication of tablets to de Grasse and Martiau; addresses by Pershing, Pétain, and others; religious services; and terminating with exercises at which President Hoover spoke, Marshal Pétain, and other distinguished guests from France and Great Britain were present. A special commemorative stamp was issued by the Post Office Department.

*October 23.* The 100th anniversary of the founding of Lafayette College (q.v.) in Easton, Pa., was celebrated with a programme which included the unveiling of a tablet to the memory of Dr. Traill Green, former faculty member; an address by Thomas J. Watson, president of the Merchants' Club of New York; the announcement of a gift of \$50,000 from Israel P. Pardee of Hazleton as a memorial for his son; the conferring of honorary degrees; and other academic features.

*October 28.* The 155th anniversary of the battle of White Plains was celebrated at White Plains, N. Y., with an address by Jacob Gould Schurman, former Ambassador to Germany.

*November 1.* A special service commemorating the 170th anniversary of the initiation of George Washington into the Masonic Order was held at St. Paul's Episcopal Chapel, in New York City, where Washington worshipped. The services were held under the auspices of the Second Masonic District, Manhattan, and the sermon was preached by the Rev. Dr. Joseph P. McComas, vicar of the chapel.

*November 19.* The 100th anniversary of the birth of James A. Garfield was celebrated in Hiram, Ohio, by an address at Hiram College by Henry Garfield, president of Williams College, in eulogy of his distinguished father; services at the Garfield Memorial Church near the birthplace; and the placing of a boulder on the four-acre plot marking the birthplace.

*December 1-12.* The 400th anniversary of the reported miraculous appearance of the Virgin of Guadalupe, the patron saint of Mexico, was celebrated by a series of events, beginning on Dec. 1st with the restoration of the jeweled crown (valued at \$250,000) to the head of the Virgin. The number of visitors was estimated at 250,000, some of whom made the approach to the restored church on their knees, a distance of two miles.

*December 12.* The 30th anniversary of the first wireless transmission across the Atlantic Ocean from England to Newfoundland by Marconi was celebrated by a radio roll call around the world starting from New York and participated in by London, Paris, Warsaw, Berlin, Brussels,

Madrid, Ottawa, Honolulu, Tokyo, Caracas, Manila, and Rome with addresses by Marconi, Pupin, and others, and musical selections characteristic of the country from many of the stations; also, with the presentation of a gold medal to Marconi by the Veteran Wireless Operators' Association in New York City.

**MASSACHUSETTS BAY TERCENTENARY.** In April there was published a report giving the results of this great series of celebrations. It shows that in 253 towns and cities 2083 events took place and that the total attendance was 11,041,625 persons. The events are described as religious services; school exercises; pageants; parades; musical events; dedications of permanent monuments, markers and structures; historical meetings; old home weeks or days; exhibits, fairs, and expositions; and congresses, conventions, and assemblies, of each of which an account is given in the volume.

The financial report shows that for the support of the Tercentenary in its various aspects there was received from the Commonwealth of Massachusetts \$253,000; from cities and towns including committees \$500,000; from Tercentenary, Inc. \$115,000; and from conference of City and Town Committees Inc., \$35,000; making a total of \$903,000. At the close of the celebration with all bills paid, there was a surplus of \$40,000. It was therefore a financial success. According to the *Holyoke Transcript*:

In Boston they will tell you that the American Legion alone, spent in and around the city more than the entire cost of all the celebrations in the State. During the Tercentenary more than four million people came into Massachusetts, stopped in our hotels, ate our food, bought our taxed gasoline, gloried in the beauties of Massachusetts during the most perfect summer and fall season the State has ever had. Every celebration brought employment to all sorts of people. Dressmakers, shoe dealers, painters, caterers, the markets and farms, the garage and gasoline, the hotel and home businesses were all stimulated and people given extra work to take care of the tourists who helped to celebrate this great event. It served to raise Massachusetts out of the level of unemployment that might otherwise have been deeper. Perhaps it had something to do with raising Massachusetts Savings Bank investment by \$1,000,000 more than ever before.

**WASHINGTON BICENTENNIAL COMMISSION.** During 1931, the United States George Washington Bicentennial Commission continued organizing the entire nation for the nine-months world-wide celebration in 1932 of the Two Hundredth Anniversary of the Birth of George Washington. The membership of the Commission was changed by the resignation of Lieut. Col. U. S. Grant, 3d, as associate director, and the death of Nicholas Longworth, Speaker of the House of Representatives. Colonel Grant's resignation left Congressman Sol Bloom of New York as the executive officer in charge, and the place held by Speaker Longworth was filled by the new Speaker. The office personnel of the Commission was increased to handle the great volume of correspondence, research work, and keeping city and state commissions abreast of the general activities. This was all cared for under divisions as follows:

*Division of Information and Publication.* This division continued to publicize the country in preparation for the Celebration. The success of the event depending largely on the "Washington-mindedness" of the country, considerable effort was taken in this direction. Newspapers and magazines in every State and city devoted columns to the Celebration and historical articles

telling of George Washington and his times. An additional activity was the distribution of 1,000,000 portrait-posters of George Washington to the schools of America. Another poster, "The Dawn of American Liberty," was sent to all post offices in the nation. Broadcasting of radio announcements was also part of the activity of this Division.

**Organisation Division.** The act creating the United States George Washington Bicentennial Commission, called for the appointment of Bicentennial commissions in each State. This has been accomplished under the supervision of this division, and these Commissions have a personnel of more than 1400. In addition to commissions in the States, Bicentennial organizations existed in the District of Columbia, Alaska, and in the Virgin Islands, the Philippines, Porto Rico, Hawaii, and the Canal Zone. The ultimate aim was to have a committee in every town and city in the United States to prepare programmes of various sorts. More than 16,000 city and town committees have been appointed. Besides these organizations, Bicentennial commissions were formed among churches and fraternal organizations, thus providing direct contact between the Commission and some 90,000,000 members of these groups.

**Women's Division.** Through this division the units of national organization of women have received information concerning the purpose, aim, and scope of the Commission. These organizations extend to every State in the Union as well as to the territories, and represent a membership of over twenty-five million women. Twelve George Washington programmes and forty-eight historical papers on topics in the programmes, have been prepared and published by the Commission, which depict the life, character, and achievements of George Washington from the time of his birth in Wakefield to the end at Mount Vernon.

**Educational Division.** The first aim of this division was to develop a consciousness of the purpose, aim, and scope of the Celebration in the minds of the school children and teachers of the United States. This was done by correspondence and representation at the national meetings of the educational forces. Letters and material were sent to the president of every normal school, junior college, teachers' college, senior college, and university in the nation, asking cooperation in the Celebration. Similar information was sent to all State Departments of Education and to every county superintendent. To supply the teachers with a background of the Bicentennial activities and authentic information of George Washington, a handbook was prepared as a suggestive guide to an appreciation course designed by the Commission, which dealt with the life and achievements of George Washington and the history of the creative period in which he lived. Opening new avenues of participation and expression in the Celebration are the declamatory, essay, and oratorical contests which will be carried on in all the schools. These were to be under the supervision of the various State Bicentennial Commissions, and the Washington commemorative medal was to be presented by the National Commission to the State winners.

**Historical Division.** The Historical Division was engaged in the publication of a series of sixteen pamphlets, "Honor to George Wash-

ington," which has been prepared by a group of eminent scholars on the various phases of George Washington's life. In addition to this work the Division serves as a clearing house for inquiries for historical information of Washington and his times.

**Play and Pageant Department.** This department has supervised the preparation of more than thirty plays and pageants of varied character suitable for presentation under different conditions and adapted to the use of schools, churches, and organizations in general. The themes of these dramatic productions cover a wide range from the boyhood days of Washington to his retirement to Mount Vernon after his second term as President of the United States. Percy MacKaye, writer and dramatist, was commissioned to prepare the folk-masque, *Wakefield*, which was to be presented in all the large cities of the United States during the Celebration. A catalogue of all available plays and pageants dealing with the life of Washington was issued by the department. *How to Produce a Pageant in Honor of George Washington*, and a booklet on the costumes suitable for Washington plays and pageants, also were prepared by this department.

**Music Division.** This Division assembled all facts regarding the music of Washington's time, songs, and pieces written specifically in honor of Washington, and American music and works from abroad which were known and played in the eighteenth century. All music publishers were invited to send to the Commission copies of music in their catalogues suitable to George Washington celebrations and programmes—either historic music in modern editions, or contemporary music commemorating Washington, or otherwise suitable for use in Bicentennial programmes. This research was made available in a booklet entitled *The Music of George Washington's Time*. The Commission also published a collection of eighteenth-century songs and piano pieces which were selected with the cooperation of the Music Division of the Library of Congress. Three American composers were commissioned to contribute musical compositions to the Celebration: John Alden Carpenter who wrote a choral ode, *Song of His Children*; John Philip Sousa who wrote the *George Washington Bicentennial March*, and George M. Cohan who contributed the song, *Father of the Land We Love*.

**Foreign Participation.** Assistance was given to foreign diplomatic representatives in planning the participation of their governments in the Celebration. Bicentennial committees of Americans were organized in foreign countries and were assisted in planning their part in the Celebration. This department also was instrumental in organizing all foreign language groups in the United States for the Bicentennial.

**Miscellaneous.** A number of special activities were carried on by the Bicentennial Commission throughout the year in the interest of the Celebration. One of these was the collection of photographs of Washington portraits and paintings by eminent artists, contemporary with Washington and later, which were being used to illustrate publications and various articles and stories in connection with the Bicentennial Celebration. This is the largest and finest collection of such Washington pictures ever made. A National Historical Loan Exhibition of life por-

traits of Washington and their replicas, together with other Washingtoniana, was to be shown for the first time in the Nation's Capital in 1932 under the direction of the Bicentennial Commission. The Commission had sponsored the production of a motion-picture epic of George Washington's life which was filmed by the Eastman Teaching Films Company. This picture will be appropriate for use by schools and organizations in general, and may be shown in large or small auditoriums. The Bicentennial Commission cooperated with various governmental departments in carrying out features of the Celebration. Such was the case in a series of memorial postage stamps and stamped envelopes issued by the Post Office Department, depicting George Washington at different times in his life. A special act of Congress authorized the issuance of a George Washington quarter dollar to replace the present coin of that denomination. An official Bicentennial medal was prepared as an award to winners of various contests during the Celebration. The coin and the medal were prepared by the Treasury Department with the cooperation of the Bicentennial Commission. The participation of the young people of the Nation in the celebration was being furthered by the work being done with various junior organizations such as the Scout groups and 4-H Clubs, Camp Fire Girls, Junior Red Cross, and similar groups. In the Braille Department of the Bicentennial Commission the government established for the first time a department for the blind. George Washington material and suggestions were being set in Braille so that those without sight might have an equal share with the sighted in the Celebration.

A model library exhibit of Washingtoniana was prepared and photographed. The pictures were to be sent to public and school libraries in the United States to furnish a pattern for similar exhibits during 1932. The Commission also distributed Washington literature and material among the libraries of the country and planned to publish a Washington bibliography

civic, social, fraternal, and other groups throughout the United States. A pamphlet was published to revive interest in the planting of colonial gardens; a short history was compiled of eighteenth century business firms in existence to-day; moving picture and radio broadcasting companies also benefited by the cooperation of the Commission—in short, every means by which a great nation might show its appreciation for its founder was adopted.

**MARYLAND TERCENTENNIAL CELEBRATION.** A commission appointed by Governor Ritchie, of which William L. Marbury was made chairman, had already begun the study of plans, and active preparations for the celebration of this event were under way.

**CELL.** See ZOOLOGY.

**CELTIC LITERATURE.** See PHILOLOGY, MODERN.

**CEMENT.** The preliminary estimates of production for the Portland cement industry in the United States, compiled by the U. S. Bureau of Mines, showed a decrease of 22.7 per cent in production and 20.5 per cent in shipments from the totals for 1930, and the total production of 1931 was estimated at 124,594,000 barrels as against 161,197,000 barrels in 1930, and the shipments from mills in 1931 amounted to 126,465,000 barrels with an estimated factory value of \$139,381,000 as compared with 159,059,000 barrels shipped in 1930. During the calendar year 1931 the production related to capacity was 46.5 per cent as against 61.5 per cent in 1930. In addition to Portland cement, the production of clinker (unground Portland cement) in 1931 was 121,814,000 barrels as against 160,992,000 barrels in 1930.

The exports of hydraulic cement from the United States in 1930 aggregated 755,778 barrels valued at \$2,454,515 while the imports in the same year were 977,997 barrels valued at \$1,140,929. In 1931 the exports of cement amounted to 429,653 barrels valued at \$1,220,600 and the imports amounted to 457,944 barrels valued at \$507,918.

ESTIMATES OF PRODUCTION AND SHIPMENT OF UNFINISHED PORTLAND CEMENT BY DISTRICTS  
[Quantities in thousands of barrels]

(U. S. Bureau of Mines, Revised Jan. 18, 1932)

Districts	Production		Shipments		
	1931	1930	1931	Estimated value, 1931	1930
Eastern Pennsylvania, New Jersey and Maryland . . . . .	28,360	35,141	28,596	\$29,725,000	35,857
New York and Maine . . . . .	10,289	11,842	10,740	11,939,000	11,122
Ohio, Western Pennsylvania, and West Virginia . . . . .	10,957	17,620	11,105	10,823,000	17,068
Michigan . . . . .	6,133	11,511	7,164	7,461,000	10,818
Wisconsin, Illinois, Indiana, and Kentucky . . . . .	15,185	20,233	15,903	14,599,000	19,572
Virginia, Tennessee, Alabama, Georgia, Florida, and Louisiana . . . . .	12,341	12,881	12,311	15,310,000	12,729
Eastern Missouri, Iowa, Minnesota, and South Dakota . . .	12,878	16,694	12,298	11,941,000	16,886
Western Missouri, Nebraska, Kansas, Oklahoma, and Arkansas . . . . .	9,212	12,510	9,634	9,430,000	11,880
Texas . . . . .	6,182	6,781	6,268	8,868,000	6,792
Colorado, Montana, Utah, Wyoming, and Idaho . . . . .	2,174	2,269	2,016	3,374,000	2,375
California . . . . .	7,882	10,124	7,566	11,357,000	10,439
Oregon and Washington . . . . .	3,001	4,091	2,864	4,554,000	4,021
Total . . . . .	124,594	161,197	126,465	139,381,000	159,059

which was compiled by the American Library Association. The Commission has also extended assistance to merchants and manufacturers in general in the production and sale of articles of the Bicentennial year. Through the cooperation of the Commission with the American Tree Association more than 18,000,000 George Washington trees were planted by schools and various

**CENSUS.** The Bureau of the Census during the year continued the work of compiling, publishing, and distributing the various reports of the Fifteenth Census of the United States. Through the improved and permanent organization of the Bureau, it was possible to advance the publication dates on all phases of census work, so that in addition to the preliminary reports of the



decennial census, which were published in 1930 and 1931 as fast as they were available, the complete returns were brought out in final form for a number of the divisions, and the current bulletins were issued regularly. Thus, Volume I of the Fifteenth Census, giving the number and distribution of inhabitants, was printed and distributed 13 months after the canvass started as compared with 20 months required for the publication of a similar volume at the 1920 Census. The Division of Manufactures completed its preliminary release for industry within the year 1930 in place of the following year, which had been usual in previous censuses. Publication dates were advanced in all phases of the Census work notwithstanding the increased number of inquiries on the various schedules and the fact that the censuses of distribution and unemployment had been added.

At the close of the fiscal year, June 30, 1931, more than 50 per cent of individual State population and agricultural reports had been printed and distributed, these reports including the following topics: Number and distribution of inhabitants, composition and characteristics of the population, unemployment, and agriculture—two series, one presenting information by minor civil divisions and the other by counties. The Distribution Division completed its series of press releases giving retail trade statistics for towns of 10,000 or more populations and wholesale trade statistics for cities of 100,000 or more, and made considerable progress during the year on its State and Merchandise reports. The Division of Manufactures completed its preliminary summaries for the States and was issuing printed industry reports.

The work of the Census Bureau on vital statistics was improved by the addition of the State of South Dakota to the registration area for deaths, so that 47 States, the District of Columbia, the Territory of Hawaii, the Virgin Islands, and eight cities in the remaining non-registration State of Texas were included; in all, 96.2 per cent of the total population of the United States was represented in the area for death registration. The birth registration area included 46 States, the District of Columbia, and the insular possessions, Hawaii and the Virgin Islands, or about 95 per cent of the total population. Marriage and divorce statistics were published each year by States, and statistics on institutions, State and city government, and special industries were compiled annually.

The Census Bureau was engaged in publishing an elaborate series of population figures which include compilations for metropolitan areas and statistics on families. Part of the statistics on families are being presented in a series of State bulletins and the remainder in a series of subject bulletins. The State bulletins give the number of families by counties with figures for all incorporated places having 2500 inhabitants or more and showed the number of families classified by size, color, nativity of head, and according to the number in the family under ten years of age. In addition, there are given the number of dwellings classified as one-family, two-family, and three-or-more family and the number of owned homes classified according to value and the number of rented homes classified according to monthly rental. The families are also classified according to the number of children under 21; according to the number of gainful workers, and

according to the number of lodgers. The home-makers are classified according to their employment status, first, those who have no gainful occupation, and second, those who have an occupation which takes them away from home. The latter classification is divided into several groups, such as professional workers, office workers, and industrial workers.

At the end of the year the Census Bureau had ready for distribution the final reports on the composition and the character of the population consisting of two quarto volumes containing about 1400 pages. The volumes consisted of the bulletins for the individual States previously printed, while the opening chapter of the first volume is a summary of the United States of unusual statistical value. It contained the composition and characteristics of the population of the United States based on color, nativity, and parentage, sex, citizenship of the foreign born, age, school attendance, illiteracy, marital condition, country of birth of the foreign born, country of origin for foreign white stock, and gainful workers by industry groups.

In addition to the U. S. Census, there was considerable census activity during the year in other countries. The Dominion of Canada took a census of population on June 1st and the preliminary reports were available during the latter part of the year. (See CANADA.) Italy took a census of population from April 21, while Great Britain, on April 27, took its census of population. Provisional reports were available for the population of England, Scotland, and Wales. (See GREAT BRITAIN.) France in March had a census of population and provisional returns were announced before the end of the year. (See FRANCE.) Poland took its second census in December, 1931, which as expected showed a heavy increase in population over the 30,000,000 in 1925. India took a census in 1931, as did the Union of South Africa and Cuba.

Besides the population censuses taken in India, Canada, and South Africa, official counts were made also of the number of inhabitants in Palestine, Nigeria, and most of the colonies and protectorates of the British Commonwealth of Nations. Results of a number of these censuses were made public, in preliminary form, toward the close of 1931. The censuses taken during 1930 and 1931 showed a rapid growth of population in Italy, Poland, and Japan, while in more highly organized countries such as Great Britain and France the population was almost stationary, with the prospect of continued future declines. The Governments of Brazil and Germany also authorized the compilation of censuses of industry during 1931.

The results of these various censuses so far as announced when the YEAR BOOK went to press are given in the articles on the various countries. For Farm Statistics see AGRICULTURE and sections on *Agriculture* or *Crops* under the UNITED STATES and articles on the separate States and countries.

POPULATION OF CITIES AND TOWNS IN THE UNITED STATES. The corrected statistics of population for cities, towns, and boroughs, in the United States of 3000 or more inhabitants by States, as enumerated by the U. S. Census Bureau in 1930, are given in the tabulation on the following pages. With the population statistics for 1930, are given those for 1920 for the purpose of comparison, and where a \* follows the name, the population of the township is indicated.

## ALABAMA

Place	Pop. 1930	Pop. 1920
Alabama City	8,544	5,432
Alexander City	4,519	2,293
Andalusia	5,154	4,023
Anniston	22,345	17,734
Athens	4,238	3,823
Atmore	8,035	1,175
Attalla	4,585	3,462
Bessemer	20,721	18,674
Birmingham	259,678	178,806
Canoe *	7,425	4,955
Cottondale *	6,839	4,482
Crichton *	4,858	4,120
Daleville *	3,400	3,280
Decatur	15,593	4,752
Demopolis	4,037	2,779
Dothan	16,046	10,034
Dundee *	3,187	2,729
Enterprise	3,702	3,013
Eufaula	5,208	4,939
Fairfield	11,059	5,003
Florence	11,729	10,529
Fort Payne	3,375	2,025
Gadsden	24,042	14,737
Greenville	3,985	3,471
Homewood	6,103	.....
Huntsville	11,554	8,018
Jasper	5,313	3,246
Juddo *	3,212	2,512
Lanett	5,204	4,976
Meridianville *	3,291	3,187
Mobile	68,202	60,777
Montgomery	66,079	43,464
Mount Meigs *	3,274	2,416
Opehka	6,156	4,960
Ozark	3,103	2,518
Phenix City	13,862	5,432
Piedmont	8,668	2,645
Prichard	4,680	.....
Roanoke	4,973	3,841
Russellville	3,146	2,269
Sawyer ville *	3,042	2,858
Selma	18,012	15,589
Sheffield	6,221	6,682
Shoalford	3,133	2,842
Six Mile *	3,386	4,447
Somerville *	3,212	3,104
Sylacauga	4,115	2,141
Talladega	7,596	6,546
Tarrant City	7,341	734
Troy	6,814	5,696
Tuscaloosa	20,659	11,996
Tuscumbia	4,533	3,855
Tuskegee	3,314	2,475
Warristorand *	3,143	3,394
Whitesburg *	3,622	1,892

## ARIZONA

Ajo *	4,571	.....
Bisbee	8,023	9,205
Clarkdale	5,526	.....
Douglas	9,828	9,916
Flagstaff *	3,891	3,186
Glendale	3,665	2,737
Globe	7,157	7,044
Jerome	4,032	4,030
Mesa	3,711	3,036
Miami	7,693	6,689
Morenci *	5,108	5,010
Nogales	6,006	5,199
Phoenix	48,118	29,053
Prescott	5,517	5,010
Ray *	4,102	900
Show Low *	3,150	.....
Sonora	3,075	800
Superior *	4,295	900
Tuba City	3,105	.....
Tucson	32,506	20,292
Warren *	3,034	2,145
Winslow	3,917	3,730
Yuma	4,892	4,237

## ARKANSAS

Arkadelphia	3,880	3,311
Baker *	3,557	3,764
Batesville	4,484	4,299
Benton	3,445	2,933
Biglake *	4,042	2,941
Big Rock *	85,831	66,933
Blytheville	10,098	6,447
Brinkley	3,046	2,714
Camden	7,273	3,238
Chickasawba *	17,035	11,158
Clarksville	3,031	2,127
Conway	5,534	4,564
De View *	3,148	2,498
El Dorado	16,421	3,887

## ARKANSAS—(Continued)

Place	Pop. 1930	Pop. 1920
Fayetteville	7,394	5,362
Fordyce	3,206	2,996
Forrest City	4,594	3,377
Fort Smith	31,429	28,870
Harrison	3,026	3,477
Helena	8,316	9,112
Hope	6,008	4,790
Hot Springs	20,238	11,695
Jonesboro	10,326	9,384
Lapile *	4,534	4,057
Little Rock	81,679	65,142
McGehee	3,488	2,868
Malvern	5,115	3,864
Marianna	4,314	5,074
Mena	3,118	3,441
Monticello	3,076	2,378
Morrilton	4,043	3,010
Newport	4,547	3,771
North Little Rock	19,418	14,048
Paragould	5,966	6,306
Paris	3,234	1,740
Pine Bluff	20,760	19,280
Prescott	3,033	2,691
Proctor *	3,286	3,561
Rogers	3,554	3,818
Russellville	5,628	4,505
Searcy	3,387	2,836
Short Mountain *	5,616	3,567
Spadra *	5,395	4,210
Stuttgart	4,927	4,522
Taxarkana	10,764	8,257
Van Buren	5,182	5,224
West Helena	4,489	6,226
White Oak *	3,216	3,387
Wynne	3,505	2,933

## CALIFORNIA

Alameda	35,033	28,806
Albany	8,569	2,462
Alhambra	29,472	9,096
Alisal *	15,764	6,663
Anaheim	10,995	5,526
Antioch	3,563	1,936
Arcadia	5,216	2,239
Artesia	3,891	.....
Azusa	4,808	2,460
Bakersfield	26,015	18,639
Bell	7,884	.....
Belvedere *	33,023	.....
Berkeley	82,109	56,036
Beverly Hills	17,429	674
Bloomington *	3,439	.....
Brawley	10,439	5,389
Brighton *	6,488	1,665
Broderick *	4,137	2,638
Burbank	18,662	2,913
Burlingame	13,270	4,107
Calexico	6,299	6,223
Camarillo *	3,092	1,789
Caruthers *	3,340	.....
Castroville *	3,106	2,213
Chico	7,961	9,339
Chino	3,118	2,132
Chula Vista	8,869	1,718
Clarksburg *	3,021	1,088
Colton	8,014	4,282
Compton	12,516	1,478
Corona	7,018	4,129
Coronado	5,425	3,289
Costa Mesa	3,037	.....
Crockett	4,314	1,800
Cucamonga *	4,812	2,796
Culver	5,669	503
Daly City	7,838	3,779
Dominguez *	4,267	.....
Downey	18,098	.....
East Pasadena	8,044	.....
Edgewood *	4,572	2,808
El Centro	8,434	5,464
El Cerrito	3,870	1,505
El Monte	3,479	1,283
El Segundo	3,503	1,563
Escondido	3,421	1,789
Eureka	15,752	12,923
Fontana *	3,196	.....
Fort Bragg	3,022	2,618
Fremont *	8,611	3,974
Fresno	52,513	45,086
Fullerton	10,860	4,415
Gardena *	15,969	.....
Gilroy	3,502	2,862
Glendale	62,736	13,536
Glen Ellen *	3,449	2,242
Gonzales *	3,760	1,417
Grass Valley	3,817	4,006
Hanford	7,038	5,888

## CALIFORNIA—(Continued)

Place	Pop. 1930	Pop. 1920
Hawthorne *	6,596	.....
Hayward	5,580	3,487
Hermosa Beach	4,796	2,827
Highland *	6,273	4,198
Hollister	3,757	2,781
Huntington Beach	3,690	1,687
Huntington Park	24,591	4,513
Indio *	3,484	1,187
Inglewood	19,480	3,286
La Crescenta *	10,387	.....
Lemoncove *	3,328	2,514
Lindsay	3,878	2,576
Livermore	3,119	1,916
Lodi	6,788	4,850
Lomita *	13,202	.....
Long Beach	142,032	55,593
Los Angeles	1,238,048	576,673
Los Gatos	3,168	2,317
Lynwood *	7,323	.....
Madera	4,665	3,444
Martinez	6,569	3,858
Marysville	5,763	5,461
Maywood *	6,794	.....
Merced	7,066	3,974
Mill Valley	4,164	2,544
Modesto	13,842	9,241
Monrovia	10,890	5,480
Monterello	5,498	.....
Monterey	9,141	5,779
Monterey Park	6,406	4,108
Mott *	3,707	2,680
Mountain View	3,308	1,888
Napa	6,437	6,797
National City	7,301	3,116
Needles	3,144	2,807
Norwalk *	11,233	.....
Oakland	284,063	216,261
Oceanside	3,508	1,161
Ontario	13,583	7,280
Orange	8,066	4,884
Orosi *	3,299	3,735
Oroville	3,698	3,340
Oxnard	6,285	4,417
Pacific Grove	5,558	2,974
Palo Alto	18,652	5,900
Pasadena	76,086	45,354
Petaluma	8,254	6,226
Piedmont	9,338	4,282
Pittsburg	9,610	4,715
Pomona	20,804	13,505
Porterville	5,803	4,097
Red Bluff	3,517	3,104
Redding	4,188	2,962
Redlands	14,177	9,571
Redondo Beach	9,347	4,913
Redwood City	8,962	4,020
Richmond	20,093	16,843
Riverside	29,696	19,341
Rohnerville *	3,680	3,186
Roseville	6,425	4,477
Rowland *	4,653	.....
Sacramento	93,750	65,908
Salinas	10,263	4,308
San Anselmo	4,650	2,475
San Bernardino	37,481	18,721
San Bruno	3,610	1,562
San Buenaven- tura	11,603	4,342
San Diego	147,995	74,683
San Dimas *	3,203	.....
San Fernando	7,567	3,204
San Francisco	684,394	506,676
San Gabriel	7,224	.....
San Jose	57,651	39,642
San Leandro	11,455	5,703
San Luis Obispo	8,276	5,895
San Marino	3,730	584
San Mateo	13,444	5,979
San Rafael	8,022	5,512
Santa Ana	30,322	15,485
Santa Barbara	33,613	19,441
Santa Clara	6,302	5,220
Santa Cruz	14,395	10,917
Santa Maria	7,057	3,943
Santa Monica	87,146	15,252
Santa Paula	7,452	3,967
Santa Rosa	10,636	8,758
Sausalito	3,667	2,790
Scotia *	3,734	3,950
Selma	8,047	1,568
Sierra Madre	3,550	2,026
South Gate *	19,632	.....
South Pasadena	18,730	7,652
South San Fran- cisco	6,193	4,411

**CALIFORNIA—(Continued)**

Place	Pop. 1930	Pop. 1920
Stockton	47,968	40,296
Sunnyvale	3,094	1,675
Taft	3,442	3,317
Torrance *	7,271	....
Tracy	3,829	2,450
Tulare	6,207	3,539
Turlock	4,276	3,394
Ukiah	3,214	2,305
Upland	4,713	2,912
Vallejo	14,476	21,107
Visalia	7,263	5,753
Waterford *	3,178	2,178
Watsonville	8,344	5,018
Westmoreland *	3,444	....
Westwood *	4,800	3,300
Whittier	14,822	7,997
Willow Glen *	4,167	....
Woodland	5,542	4,147
Yuba City	3,605	1,708

\* Fontana organized from parts of Rialto Township in 1923 and 1929.

\* Gardena, La Crescenta, Lomita, Montebello, Norwalk, Rowland, San Dimas, and San Gabriel, all in Los Angeles County which was redistricted in 1928.

\* Hawthorne City incorporated in 1922.

\* Lynwood incorporated in 1921.

\* Maywood incorporated in 1924.

\* South Gate incorporated in 1923.

\* Torrance incorporated in 1921.

\* Willow Glen town incorporated as city in 1927.

**COLORADO**

Alamosa	5,107	3,171
Boulder	11,223	11,006
Brighton	3,394	2,715
Canon City	5,938	4,551
Colorado Springs	33,237	30,105
Denver	287,861	256,491
Durango	5,400	4,116
Englewood	7,980	4,356
Fort Collins	11,489	8,755
Fort Morgan	4,423	3,818
Grand Junction	10,247	8,665
Greeley	12,203	10,958
La Junta	7,193	4,964
Lamar	4,233	2,512
Leadville	3,771	4,959
Longmont	6,029	5,848
Loveland	5,506	5,065
Montrose	3,566	3,581
Pueblo	50,096	43,050
Rocky Ford	3,426	3,746
Salida	5,065	4,689
Sterling	7,195	6,415
Trinidad	11,732	10,906
Walsenburg	5,503	3,565

**CONNECTICUT**

Allington	25,808	12,400
Ansonia	19,898	17,643
Berlin *	4,875	4,298
Bethel *	3,886	3,201
Bloomfield *	3,247	2,394
Bridgeport	146,716	143,555
Bristol	28,451	20,620
Cheshire *	3,263	2,855
Collinsville	3,009	2,500
Danbury	22,261	19,943
Danielson	4,210	3,180
Darien *	6,951	4,184
Dayville *	8,852	8,178
Derby	10,788	11,238
East Hartford *	17,125	11,648
East Haven *	7,815	3,520
East Windsor *	3,815	3,741
Enfield *	13,404	11,719
Fairfield *	17,218	11,475
Forestville	4,542	3,400
Glastonbury *	5,783	5,592
Greenwich	5,981	5,989
Groton	4,122	4,286
Hamden *	19,020	8,611
Hartford	164,072	138,036
Jewett City	4,436	3,196
Manchester *	21,973	18,370
Mansfield *	3,349	2,574
Meriden	38,481	29,867
Middletown	24,554	13,688
Milford *	12,660	10,193

**CONNECTICUT—(Continued)**

Place	Pop. 1930	Pop. 1920
Montville *	3,970	3,411
Moosup	4,001	2,800
Mystic	6,021	3,900
Naugatuck	14,315	15,051
New Britain	68,128	59,316
New Haven	162,655	162,587
Newington *	4,572	2,381
New London	29,640	25,688
New Milford *	4,700	4,781
Noank	4,196	1,100
North Haven *	3,730	1,968
Norwalk	36,019	27,743
Norwich	23,021	29,685
Plainfield *	8,027	7,926
Plainville *	6,301	4,114
Plymouth *	6,070	5,942
Portland *	3,930	3,644
Preston *	3,928	2,743
Putnam	7,318	7,711
Ridgefield *	3,580	1,030
Rockville	7,445	7,726
Seymour *	6,890	6,781
Shelton	10,113	9,475
Simsbury *	3,625	2,958
Seuthington	5,125	5,085
South Manchester	10,025	9,000
Stafford *	5,949	5,407
Stafford Springs	3,492	3,383
Stamford	46,346	35,096
Stratford *	19,212	12,847
Suffield *	4,346	4,070
Taftville	6,195	4,600
Terryville	4,200	2,400
Thomaston *	4,188	3,993
Thompson *	4,999	5,055
Thompsonville	8,525	6,000
Torrington	26,040	20,623
Trumbull *	3,624	2,597
Union City	5,050	4,000
Vernon *	8,703	8,898
Wallingford	11,170	9,648
Waterbury	99,902	91,715
Waterford *	4,742	3,935
Watertown *	8,192	6,050
Waterville	3,061	3,000
West Hartford *	24,941	8,854
Westport *	6,073	5,114
Wethersfield *	7,512	4,342
Willimantic	12,102	12,330
Winchester *	8,674	9,019
Windham *	13,773	13,801
Windsor *	8,290	5,620
Windsor Locks *	4,073	3,554
Winsted	7,883	8,248

**DELAWARE**

Dover	4,800	4,042
Milford	3,719	2,753
New Castle	4,131	3,854
Newark	3,899	2,183
Wilmington	106,597	111,168

**DISTRICT OF COLUMBIA**

Washington	486,869	437,571
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**FLORIDA**

Apalachicola	3,150	3,066
Arcadia	4,082	3,479
Avon Park	3,855	800
Bartow	5,269	4,203
Bradentown	5,986	3,868
Clearwater	7,607	2,427
Coral Gables *	5,697	....
Daytona Beach	16,598	825
De Land	5,246	3,324
Fernandina	3,023	5,457
Fort Lauderdale	8,666	2,065
Fort Meyers	9,082	3,678
Fort Pierce	4,803	2,115
Gainesville	10,465	6,860
Haines City	3,037	651
Jacksonville	129,549	91,558
Key West	12,831	18,749
Kissimmee	3,163	2,722
Lake City	4,416	3,841
Lakeland	18,554	7,062
Lake Wales	3,401	796
Lake Worth	5,940	1,106
Leesburg	4,113	1,835
Manatee	3,219	1,076
Marianna	3,372	2,499
Miami	110,637	29,591
Miami Beach	6,494	644

**FLORIDA—(Continued)**

Place	Pop. 1930	Pop. 1920
New Smyrna	4,149	2,007
Ocala	7,281	4,914
Orlando	27,330	9,282
Palatka	6,500	5,102
Palmetto	3,043	2,046
Panama City	5,402	1,722
Pensacola	31,579	31,035
Plant City	6,800	3,729
Quincy	3,788	3,118
River Junction *	5,624	....
St. Augustine	12,111	6,192
St. Petersburg	40,425	14,237
Sanford	10,100	5,588
Sarasota	8,398	2,149
South Jacksonville	5,597	2,775
Tallahassee	10,700	5,637
Tampa	101,161	51,608
Tarpon Springs	3,414	2,105
Warrington *	3,231	1,400
West Palm Beach	26,610	8,659
Winter Haven	7,130	1,597
Winter Park	3,686	1,078

\* Coral Gables incorporated as city in 1925.

\* River Junction incorporated in 1921.

**GEORGIA**

Albany	14,507	11,555
Ambrose *	3,002	2,937
Americus	8,768	9,010
Athens	18,192	16,748
Atlanta	270,366	200,616
Augusta	60,342	52,548
Bainbridge	6,141	4,792
Barnesville	3,236	3,059
Brunswick	14,022	14,413
Buckhead *	10,356	2,603
Burford	3,357	2,500
Calro	3,169	1,908
Carrollton	5,052	4,363
Cartersville	5,250	4,350
Cedartown	8,124	4,053
Center Hill *	8,460	1,494
College Park	6,604	3,622
Columbus	43,131	31,125
Commerce	3,002	2,459
Cordale	6,880	6,538
Covington	3,203	3,023
Cuthbert	3,235	3,022
Dalton	8,160	5,222
Dawson	3,827	3,504
Decatur	13,276	6,150
Douglas	4,206	3,401
Dublin	6,681	7,707
Eastman	3,022	2,707
East Point	9,512	5,241
East Thomaston	3,061	1,058
Elberton	4,650	6,475
Fitzgerald	6,412	6,870
Fort Valley	4,560	3,223
Gainesville	8,624	6,272
Gill *	4,021	3,430
Griffin	10,321	8,240
Hapeville	4,224	1,631
La Grange	20,131	17,038
Lindale *	4,696	2,650
Macon	53,829	52,995
Manchester	3,745	2,776
Marietta	7,638	6,190
Milledgeville	5,534	4,619
Monroe	3,706	3,211
Moultrie	8,027	6,789
Newman	6,386	7,037
Porterdale	3,002	2,880
Quitman	4,149	4,393
Rockmart	3,264	1,400
Rome	21,843	13,252
Rossville	3,230	1,427
Sandersville	3,011	2,695
Savannah	85,024	83,252
Statesboro	3,996	3,807
Sugar Hill *	5,297	4,267
Thomaston	4,922	2,502
Thomasville	11,733	8,196
Tifton	3,390	3,005
Toccoa	4,602	3,567
Trion	3,289	1,528
Valdosta	13,482	10,783
Vidalia	3,585	2,860
Washington	3,158	4,208
Waycross	15,510	18,068
Waynesboro	3,922	3,811
Winder	3,283	3,335

## CENSUS

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## CENSUS

## IDAHO

Place	Pop. 1930	Pop. 1920
Blackfoot	3,199	3,937
Boise	21,544	21,393
Burley	3,828	5,408
Caldwell	4,974	5,106
Coeur d'Alene	8,297	6,447
Idaho Falls	9,429	8,064
Kellogg	4,124	3,017
Lewiston	9,403	6,574
Moscow	4,476	3,956
Nampa	8,206	7,621
Pocatello	16,471	15,001
Preston	3,381	3,285
Rexburg	3,048	3,569
Sandpoint	3,290	2,876
Twin Falls	8,787	8,324
Wallace	3,634	2,816

## ILLINOIS

Place	Pop. 1930	Pop. 1920
Alton	30,151	24,682
Anna	3,436	3,019
Arlington Heights	4,997	2,250
Aurora	46,539	36,397
Barrington	8,218	1,843
Batavia	5,045	4,395
Beardstown	6,344	7,111
Belleville	28,425	24,823
Bellwood	4,991	1,881
Belvidere	8,123	7,804
Benton	8,219	7,101
Berwyn	47,027	14,150
Blairsville *	7,522	9,842
Bloomington	30,930	28,725
Blue Island	16,534	11,424
Bradley	3,048	2,128
Brookfield	10,035	3,589
Cairo	13,582	15,203
Calumet City	9,972	8,463
Canton	11,718	10,927
Carbondale	7,528	6,267
Carlinville	4,144	5,212
Centralia	12,583	12,491
Champaign	20,348	15,873
Charleston	8,012	6,815
Chemung *	4,063	4,421
Chester	3,922	2,904
Chicago	3,376,438	2,701,705
Chicago Heights	22,321	19,653
Christopher	4,244	3,830
Cicero	66,602	44,995
Clinton	5,920	5,898
Collinsville	9,235	9,753
Crystal Lake	3,732	2,249
Danville	36,765	33,776
Decatur	57,510	43,818
De Kalb	8,545	7,871
Des Plaines	8,798	3,451
Dixon	9,908	8,191
Downers Grove	8,977	3,543
Dundee	5,400	4,100
Duquoin	7,593	7,285
East Alton	4,502	1,669
East Moline	10,107	8,675
East Peoria	5,027	2,214
East St. Louis	74,347	66,767
Edwardsville	6,235	5,336
Effingham	4,978	4,024
Eldorado	4,482	5,004
Elgin	35,929	27,454
Elmhurst	14,055	4,594
Elmwood Park	11,270	1,380
Evanston	63,838	37,234
Fairfield	3,280	2,754
Flagg *	4,523	3,755
Flora	4,393	3,558
Forest Park	14,555	10,763
Frankfort Heights	3,423	3,423
Freeport	22,045	19,669
Galeana	3,878	4,742
Galesburg	28,850	23,834
Geneseo	3,406	3,375
Geneva	4,607	2,803
Georgetown	3,407	3,061
Gillespie	5,111	4,063
Glencoe	6,295	3,381
Gen Ellyn	7,680	2,851
Granite City	25,130	14,757
Greenville	3,233	3,091
Harrisburg	11,625	7,125
Harvey	16,374	9,216
Havanah	3,451	3,614
Herrin	9,708	10,986
Highland	3,819	2,902
Highland Park	12,203	6,167
Highwood	3,590	1,446
Hillsboro	4,435	5,074

## ILLINOIS—(Continued)

Place	Pop. 1930	Pop. 1920
Hinsdale	6,923	4,042
Homewood	3,227	1,389
Hoopston	5,613	5,451
Jacksonville	17,747	15,713
Jerseyville	4,309	3,839
Johnston City	5,955	7,137
Joliet	42,993	38,442
Kankakee	20,620	16,753
Kewanee	17,093	16,026
Knox *	8,146	2,955
La Grange	10,103	6,525
Lake Forest	6,554	3,657
Lansing	3,378	1,409
La Salle	13,149	13,050
Lawrenceville	6,303	5,080
Libertyville	3,791	2,125
Limestone *	8,007	6,538
Lincoln	12,855	11,882
Lisle *	6,103	3,369
Litchfield	6,612	6,215
Lockport	3,383	2,684
Lombard	6,197	1,331
Lyons	4,787	2,564
Macomb	8,509	6,714
Madison	7,661	4,996
Marion	9,933	9,582
Marseilles	4,292	3,891
Mattoon	14,631	13,552
Maywood	25,829	12,072
Melrose Park	10,741	7,147
Mendota	4,008	3,934
Metropolis	5,573	5,055
Moline	32,236	30,734
Monmouth	8,666	8,116
Morris	5,668	4,505
Morrison	3,067	3,000
Mount Carmel	7,132	7,456
Mount Olive	3,079	3,503
Mount Vernon	12,375	9,815
Murphysboro	8,182	10,703
Naperville	5,118	3,830
Newell *	4,771	2,941
Niles Center	5,007	763
Normal	6,768	5,143
North Chicago	8,466	5,839
Northfield *	5,387	3,438
Norwood Park *	6,276	6,897
Oak Park	63,982	39,858
Oglesby	3,910	4,135
Olney	6,140	4,491
Ottawa	15,094	10,816
Pana	5,835	6,122
Paris	8,781	7,985
Park Ridge	10,417	3,383
Pekin	16,129	12,086
Peoria	104,969	76,121
Peoria Heights	3,279	1,111
Peru	9,121	8,869
Phoenix	3,093	1,933
Pinckneyville	3,046	2,649
Pontiac	8,272	6,664
Princeton	4,762	4,126
Proviso *	64,519	37,327
Quincy	39,241	35,978
River Forest	8,829	4,358
Riverside	6,770	2,532
Robinson	3,668	3,375
Rochelle	3,785	3,310
Rock Falls	3,893	2,927
Rockford	85,864	65,651
Rock Island	37,953	35,177
St. Charles	5,377	4,099
St. Clair *	3,956	4,038
Salem	4,420	3,457
Savanna	5,086	5,237
Shelbyville	3,491	3,568
South Ottawa *	3,277	2,329
Sparta	3,385	3,340
Springfield	71,864	59,183
Spring Valley	5,270	6,493
Stanton	4,618	6,027
Sterling	10,012	8,182
Streator	14,728	14,779
Sugar Loaf *	4,012	2,819
Summit	6,548	4,019
Sycamore	4,021	3,602
Taylorville	7,816	5,806
Urbana	13,060	10,244
Vandalia	4,842	3,316
Venice	5,362	3,895
Villa Park	6,220	854
Viridian	3,011	4,682
Washington Park	3,387	1,516
Watseka	3,144	2,817
Waukegan	33,499	19,226

## ILLINOIS—(Continued)

Place	Pop. 1930	Pop. 1920
West Chicago	8,477	2,594
Western Springs	3,894	1,258
West Frankfort	14,683	8,478
Westville	3,901	4,241
Wheaton	7,258	4,137
Wilmette	15,233	7,814
Winnetka	12,166	6,694
Wood River	8,136	3,476
Woodside *	4,748	3,818
Woodstock	5,471	5,523
Zeigler	3,816	2,338
Zion	5,991	5,580

## INDIANA

Place	Pop. 1930	Pop. 1920
Alexandria	4,408	4,172
Anderson	39,804	29,727
Attica	3,700	3,392
Auburn	5,088	4,650
Aurora	4,386	4,299
Bedford	13,208	9,076
Beech Grove	3,552	1,459
Bicknell	5,212	7,635
Bloomington	18,227	11,595
Bluffton	5,074	5,391
Boonville	4,208	4,451
Brazil	8,744	9,293
Calumet *	103,268	55,790
Cass *	4,304	5,488
Center *	35,039	31,759
Clinton	7,936	10,962
Columbia City	3,805	3,499
Columbus	9,935	8,990
Connersville	12,795	9,901
Crawfordsville	10,355	10,139
Crown Point	4,046	3,232
Culver	1,502	1,080
Decatur	5,156	4,762
Deer Creek *	3,198	3,386
East Chicago	54,784	35,967
Elkhart	32,949	24,277
Elwood	10,685	10,790
Evanston	102,249	85,264
Fort Wayne	114,946	86,549
Frankfort	12,196	11,585
Franklin	5,682	4,909
Garrett	4,428	4,796
Gas City	3,087	2,870
Goshen	10,397	9,525
Greencastle	4,613	3,780
Greenfield	4,188	4,168
Greensburg	5,702	5,345
Hammond	64,560	36,004
Hartford City	6,613	6,183
Hobart	5,787	3,450
Huntingburg	3,440	3,261
Huntington	13,420	14,000
Indianapolis	864,161	314,194
Jacksonville	3,536	4,461
Jasper	3,905	2,539
Jeffersonville	11,946	10,098
Kendallville	5,439	5,273
Kokomo	32,843	30,067
Lafayette	26,240	22,486
La Porte	15,755	15,158
Lawrenceburg	4,072	3,466
Lebanon	6,445	6,257
Linton	5,085	5,856
Logansport	18,508	21,626
Madison	6,530	6,711
Marion	24,496	23,747
Michigan City	26,735	19,457
Mishawaka	28,630	15,195
Mitchell	3,226	3,025
Mount Vernon	5,035	5,284
Muncie	46,548	36,524
New Albany	25,819	22,992
New Castle	14,027	14,458
Noblesville	4,811	4,758
North Vernon	3,989	3,084
Peru	12,780	12,410
Plymouth	5,290	4,388
Portland	5,276	5,958
Princeton	7,505	7,132
Richmond	32,493	26,765
Rochester	3,518	3,720
Rushville	5,709	5,498
Salem	3,194	2,836
Seymour	7,508	7,348
Shelbyville	10,618	9,701
South Bend	104,193	70,983
Stockton *	8,422	10,333
Sullivan	5,306	4,489
Tell City	4,878	4,086
Terre Haute	62,810	66,083
Tipton	4,861	4,507

## CENSUS

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## CENSUS

## INDIANA—(Continued)

Place	Pop. 1930	Pop. 1920
Union City	3,084	3,406
Valparaiso	8,079	6,518
Vincennes	17,564	17,160
Wabash	8,840	9,872
Warsaw	5,730	5,478
Washington	9,070	8,743
Wayne	54,809	48,186
West Lafayette	5,095	3,880
West Terre Haute	3,588	4,810
Whiting	10,880	10,145
Winchester	4,487	4,021

## IOWA

Albia	4,425	5,087
Algona	3,985	3,724
Ames	10,261	6,270
Anamosa	3,581	2,851
Atlantic	5,585	5,329
Belle Plaine	3,239	3,887
Bloomfield *	5,829	2,064
Boone	11,886	12,451
Burlington	26,755	24,057
Carroll	4,691	4,254
Cedar Falls	7,862	6,816
Cedar Rapids	56,097	45,566
Centerville	8,147	8,486
Chariton	5,865	5,175
Charles City	8,039	7,850
Cherokee	6,443	5,824
Clarinda	4,962	4,511
Clear Lake	3,066	2,804
Clinton	25,726	24,151
Council Bluffs	42,048	36,162
Cresco	3,069	3,195
Creston	8,615	8,034
Davenport	60,751	56,727
Decorah	4,581	4,039
Denison	3,905	3,581
Des Moines	142,559	126,468
Dubuque	41,679	39,141
Eagle Grove	4,071	4,433
East Waterloo	25,875	21,304
Eldora	3,200	3,189
Estherville	4,940	4,699
Fairfield	6,619	5,948
Fort Dodge	21,895	19,347
Fort Madison	13,779	12,066
Greenwood	4,269	3,862
Grinnell	4,948	5,362
Hampton	3,473	2,992
Harlan	3,145	2,821
Independence	3,691	3,672
Indianola	3,488	3,628
Iowa City	15,340	11,267
Iowa Falls	4,112	3,954
Jefferson	3,431	3,416
Keokuk	15,106	14,423
Knoxville	4,697	5,253
Le Mars	4,788	4,683
Manchester	3,413	3,111
Maquoketa	3,595	3,626
Marion	4,348	4,138
Marshalltown	17,373	15,781
Mason City	23,304	20,065
Missouri Valley	4,230	3,985
Mount Pleasant	3,743	3,987
Muscataine	16,778	16,068
Nevada	3,133	2,668
Newton	11,560	6,627
Oelwein	7,794	7,455
Oskaloosa	10,123	9,427
Ottumwa	28,075	23,003
Pella	3,326	3,388
Perry	5,881	5,642
Red Oak	5,778	5,578
Sheldon	3,320	3,488
Shenandoah	6,502	5,255
Sioux City	79,183	71,227
Spencer	5,019	4,599
Storm Lake	4,157	3,658
Valley Junction	4,280	3,631
Vinton	3,372	3,381
Washington	4,814	4,697
Waterloo	46,191	36,230
Waverly	3,652	3,852
Webster City	7,024	5,657

## KANSAS

Abilene	5,658	4,895
Arkansas City	13,946	11,253
Atchison	13,024	12,630
Augusta	4,083	4,219
Baxter Springs	4,541	3,608
Beloit	3,502	3,315
Chanute	10,277	10,286

## KANSAS—(Continued)

Place	Pop. 1930	Pop. 1920
Cherryvale	4,251	4,698
Clay Center	4,386	3,715
Coffeyville	16,198	13,452
Columbus	3,235	18,452
Concordia	5,792	4,705
Dodge City	10,059	5,061
El Dorado	10,311	10,995
Emporia	14,067	11,273
Eureka	3,698	2,606
Fort Leavenworth	5,025	2,500
Fort Scott	10,763	10,693
Fredonia	3,446	3,954
Garden City	6,121	3,848
Goodland	3,626	2,664
Great Bend	5,548	4,460
Hays	4,618	3,165
Herington	4,519	4,065
Hiawatha	3,302	3,222
Holingsworth	3,001	2,895
Horton	4,049	4,009
Hutchinson	27,085	23,298
Independence	12,782	11,920
Iola	7,160	8,513
Iowa Point *	3,051	8,199
Junction City	7,407	7,538
Kansas City	121,857	101,177
Kechi *	3,003	1,226
Kickapoo *	9,042	6,852
Larned	3,532	3,139
Lawrence	13,726	12,456
Leavenworth	17,466	16,912
Liberal	5,294	3,613
McPherson	6,147	4,595
Manhattan	10,136	7,989
Marysville	4,013	8,048
Neodesha	3,381	3,943
Newton	11,084	9,781
Olathe	3,656	3,268
Osawatimie	4,440	4,772
Ottawa	9,563	9,018
Paola	3,762	3,238
Parsons	14,903	16,028
Pittsburg	18,145	18,052
Pratt	6,322	5,183
Quindaro *	5,800	3,485
Salina	20,155	15,085
Topeka	64,120	50,022
Wellington	7,405	7,048
Wichita	111,110	72,217
Winfield	9,398	7,933
Wyandotte **	3,435	1,987

\* Part annexed to Kansas City, 1923.

## KENTUCKY

Ashland	29,074	14,729
Bellevue	8,497	7,379
Bewleyville *	3,076	3,015
Bowling Green	12,348	9,638
Cattlettsburg	5,025	4,183
Central City	4,321	3,108
Charleston *	5,731	4,357
Clifton	3,080	2,065
Cold Spring *	13,205	6,821
Corbin	8,036	3,406
Covington	65,252	57,121
Cromwell *	3,799	...
Cynthiana	4,886	3,857
Danville	6,729	5,099
Dayton	9,071	7,646
Earlinton	3,309	3,652
Elsmore *	3,870	2,568
Fort Thomas	10,008	5,028
Frankfort	11,626	9,805
Franklin	3,056	3,154
Fulton	3,502	3,415
Game *	3,056	3,056
Georgetown	4,229	3,903
Glasgow	5,042	2,559
Hardyville *	3,010	3,239
Harlan	4,327	2,647
Harrodsburg	4,029	3,765
Hazard	7,021	4,348
Henderson	11,658	12,169
Hopkinsville	10,746	9,696
Irvine	8,640	2,705
Jenkins	8,465	4,707
Lebanon	8,248	3,289
Lexington	45,736	41,534
Louisville	307,745	254,891
Ludlow	6,485	4,582
Madisonville	6,908	1,685
Massack *	3,790	2,949
Mayfield	6,557	6,583
Middlesborough	10,350	8,041

## KENTUCKY—(Continued)

Place	Pop. 1930	Pop. 1920
Millstone *	9,187	5,839
Mount Sterling	4,850	3,995
New Port	29,744	29,317
Nicholasville	3,128	2,786
Owensboro	22,765	17,424
Paducah	33,541	24,785
Paris	6,204	6,810
Pikeville	3,376	2,110
Pineville	3,567	2,908
Priceville *	3,989	4,962
Princeton	4,764	3,689
Providence	4,742	4,151
Richmond	6,495	5,622
Russellville	3,297	3,124
Shelbyville	4,033	3,760
Somerset	5,506	4,672
Temple Hill *	3,863	4,018
Upper Tygart *	3,647	3,035
Waynesburg *	4,976	4,567
Winchester	8,233	8,333

\* Cromwell, Ohio County restricted in 1921. Comparison of populations of townships cannot be made.

## LOUISIANA

Abbeville	4,356	3,461
Alexandria	23,025	17,510
Bastrop	5,121	1,216
Baton Rouge	30,729	21,782
Bogalusa	14,029	8,245
Bossier City	4,003	1,094
Covington	3,208	2,942
Crowley	7,656	6,108
De Quincy	3,589	...
De Ridder	3,747	8,535
Donaldsonville	3,788	3,745
Eunice	3,597	3,272
Franklin	3,271	3,504
Gretna	9,584	7,197
Hammond	6,072	3,855
Houma	6,531	5,160
Jackson	3,966	2,320
Jennings	4,036	3,824
Lafayette	14,635	7,855
Lake Charles	15,791	13,088
Lamourne *	5,171	4,517
Leesville	3,291	2,518
Mansfield	3,837	2,564
Minden	5,623	6,105
Monroe	26,028	12,675
Morgan City	5,985	5,429
Natchitoches	4,547	3,888
New Iberia	8,003	6,278
New Orleans	458,762	387,219
Oakdale	3,188	4,016
Opelousas	6,299	4,437
Pineville	3,612	2,188
Plaquemine	5,124	4,632
Rayne	3,710	2,720
Ruston	4,400	3,389
Shreveport	76,655	43,874
Tallulah	3,332	1,316
Thibodaux	4,442	3,526
West Monroe	6,566	2,240
Westwego *	3,987	...
Winnfield	3,721	2,975

\* Westwego not reported separately in 1920, part of ward 4 of Jefferson Parish at that time

## MAINE

Auburn	18,571	16,985
Augusta	17,198	14,114
Bangor	28,749	25,978
Bar Harbor *	4,486	3,622
Bath	9,110	14,731
Belfast	4,993	5,083
Biddeford	17,633	18,008
Brewer	6,329	6,064
Brunswick	6,144	5,784
Calais	5,470	6,084
Camden *	3,606	3,403
Caribou *	7,248	6,018
Dexter *	4,063	4,113
Dover-Foxcroft *	3,750	4,050
Eastport	3,466	4,494
Ellsworth	3,557	3,058
Fairfield	3,529	2,747
Gardiner	5,609	5,475
Houlton *	6,865	6,191
Jay *	3,106	2,897
Kennebunk *	3,302	3,132
Kittery *	4,400	4,763
Lewiston	34,948	31,791
Lisbon *	4,002	4,091

## MAINE—(Continued)

Place	Pop. 1930	Pop. 1920
Livermore Falls *	3,148	2,200
Madawaska *	3,583	1,933
Madison	3,086	3,729
Mexico *	4,767	3,242
Millinocket *	5,830	4,528
Old Town	7,266	6,956
Orono *	3,338	3,133
Paris *	3,761	3,656
Portland	70,810	69,272
Presque	4,662	3,452
Rockland	9,075	8,109
Rumford	10,340	8,576
Rumford Falls	8,726	7,016
Saco	7,233	6,817
Sanford *	13,392	10,691
Skowhegan *	6,423	5,981
South Portland	18,340	9,254
Van Buren *	4,721	4,594
Waterville	15,454	13,851
Westbrook	10,807	9,453
Wilton *	3,266	2,505
Winslow *	3,917	3,280

## MARYLAND

Abingdon *	4,418	2,554
Annapolis	12,531	11,214
Baltimore	804,874	783,826
Berwyn *	3,148	...
Brunswick	3,671	3,905
Cambridge	8,544	7,467
Chillum *	8,214	5,168
Crisfield	3,850	4,116
Cumberland	37,747	29,837
Dublin *	4,671	4,776
Easton	4,092	3,442
Elkton	3,331	2,660
Frederick	14,434	11,066
Frostburg	5,588	6,017
Guilford *	3,160	3,169
Hagerstown	30,861	28,064
Havre de Grace	3,985	4,377
Hyattsville	4,264	2,675
Mount Rainier	3,832	2,462
Mount Savage	3,100	3,600
Salisbury	10,997	7,553
Seat Pleasant *	7,022	4,670
Solomons Island *	3,488	3,876
Sunderland *	3,148	2,992
Takoma Park	6,415	3,168
Westernport	3,440	3,971
Westminster	4,463	3,521
Wheaton *	13,377	7,829

\* Berwyn, District 20 organized from parts of Districts 1 and 9, in 1924.

## MASSACHUSETTS

Abington	5,872	5,787
Acushnet *	4,092	3,075
Agawam *	7,095	5,023
Amesbury *	11,899	10,036
Amherst *	5,888	5,550
Andover *	9,969	8,268
Arlington *	36,094	18,665
Athol *	10,677	9,792
Attleboro	21,769	19,781
Auburn *	6,147	3,891
Auburndale	4,070	2,500
Ayer *	3,060	3,052
Barnstable *	7,271	4,836
Barre *	3,510	3,357
Belchertown *	3,139	2,058
Bellingham *	3,189	2,102
Belmont *	21,748	10,749
Beverly	25,086	22,561
Billerica *	5,880	3,646
Blackstone *	4,674	4,299
Boston	781,188	748,060
Braintree *	15,712	10,580
Bridgewater *	9,055	8,438
Brockton	68,797	66,254
Brookline *	37,490	37,748
Cambridge	113,643	109,694
Canton *	5,816	5,945
Chelmsford *	7,022	5,682
Chelsea	45,816	43,184
Chicopee	43,930	36,214
Cliftondale	5,216	3,500
Clinton *	12,817	12,979
Cohasset *	3,083	2,639
Concord *	7,477	6,461
Dalton *	4,220	3,752
Danvers *	12,957	11,108
Dartmouth *	8,778	6,498

## MASSACHUSETTS—(Continued)

Place	Pop. 1930	Pop. 1920
Dedham *	15,136	10,792
Dighton *	2,574	2,574
Dracut *	6,912	5,280
Dudley *	4,265	3,701
East Braintree	3,540	1,200
East Bridgewater *	3,591	3,486
East Dedham	3,000	3,800
Easthampton *	11,323	11,261
East Long Meadow *	3,327	2,352
East Milton	5,400	2,000
Easton *	5,298	5,041
East Saugus	3,000	960
East Taunton	3,030	900
East Weymouth	5,020	4,000
Everett	48,424	40,120
Fairhaven *	10,951	7,291
Fall River	115,274	120,485
Falmouth *	4,821	3,500
Fitchburg	40,692	41,029
Foxboro *	5,847	4,136
Framingham *	22,210	17,033
Franklin *	7,028	6,497
Gardner	19,399	16,971
Gloucester	24,204	22,947
Grafton *	7,030	6,897
Great Barrington *	5,934	6,315
Greenfield *	15,500	15,462
Haverhill	48,710	58,884
Hingham *	6,657	5,604
Holbrook *	3,353	3,161
Holden *	3,871	2,970
Holyoke	56,537	60,203
Housatonic	3,010	2,200
Hudson *	8,469	7,607
Indian Orchard	6,940	7,500
Ipswich *	5,599	6,201
Lawrence	85,068	94,270
Lee *	4,061	4,085
Leicester *	4,445	3,635
Leominster	21,810	19,744
Lexington *	9,467	8,350
Longmeadow *	4,437	2,618
Lowell	100,234	112,759
Ludlow *	8,876	7,470
Lynn	102,320	99,148
Malden	58,036	49,103
Mansfield *	6,364	6,255
Marblehead *	8,668	7,324
Marlborough	15,587	15,028
Maynard *	7,156	7,086
Medford	4,066	3,595
Medfield	59,714	39,038
Medford	3,153	2,956
Medway *	25,170	18,204
Melrose	21,069	15,189
Methuen *	8,608	8,453
Middleboro *	14,741	13,471
Milford *	6,957	5,653
Millbury *	16,434	9,382
Milton *	4,918	4,826
Monson *	8,081	7,675
Montague *	3,678	2,797
Nantucket *	13,589	10,907
Natick *	10,845	7,012
Needham *	112,597	121,217
New Bedford	15,084	15,618
Newburyport	65,276	46,054
Newton	7,425	6,000
Newton Center	3,890	3,000
Newton Highlands	3,000	2,800
North Abington	21,621	22,282
North Adams	24,381	21,951
Northampton	6,961	6,265
North Andover *	10,197	9,238
North Attleboro *	9,713	10,174
North Brookfield *	3,013	2,610
North Easton	3,250	3,200
North Woburn	3,336	3,000
Norwood *	15,049	12,627
Orange *	5,365	5,393
Oxford *	3,948	3,820
Palmer *	9,577	9,896
Peabody	21,345	19,552
Pittsfield	49,677	41,763
Plymouth *	13,042	13,045
Provincetown *	3,808	4,246
Quincy	71,983	47,876
Randolph *	6,553	4,756
Reading *	9,767	7,439
Revere	35,680	28,823
Rockland *	7,524	7,544
Rockport *	3,630	3,878
Salem	43,358	43,529
Saugus *	14,700	10,874
Seituate *	3,118	2,584

## MASSACHUSETTS—(Continued)

Place	Pop. 1930	Pop. 1920
Seekonk *	4,762	2,898
Sharon *	3,351	2,467
Shrewsbury *	6,910	3,708
Somerset *	5,398	3,520
Somerville	103,908	93,991
South Braintree	3,540	3,000
South Bridge *	14,264	14,245
South Hadley *	6,773	5,527
South Hadley	3,425	3,400
South Weymouth	3,036	4,000
Spencer *	6,272	5,930
Springfield	149,900	129,614
Stoneham *	10,060	7,873
Stoughton *	8,204	6,865
Swampscott *	10,346	8,101
Swansea *	3,941	2,334
Taunton	37,355	37,137
Templeton *	4,159	4,019
Tewksbury *	5,585	4,450
Turners Falls	5,860	5,200
Uxbridge *	6,285	5,584
Wakefield *	16,318	13,025
Walpole *	7,273	5,446
Waltham	39,247	30,915
Ware *	7,385	8,525
Wareham *	5,686	4,415
Warren *	3,765	3,467
Watertown *	34,913	21,457
Waverley	4,060	1,500
Webster *	12,992	13,258
Wellesley *	11,439	6,224
Westboro *	6,409	5,789
West Bridgewater *	3,206	2,908
Westfield	19,775	18,604
Westford *	3,600	3,170
West Medford	4,525	4,000
West Medway	3,115	1,250
West Newton	10,005	6,000
Weston *	3,332	2,282
Westport *	4,408	3,115
West Springfield *	16,684	13,443
Weymouth *	20,882	15,057
Whitinsville	6,090	4,500
Whitman *	7,638	7,147
Williamstown *	3,900	3,707
Wilmington *	4,013	2,581
Winchendon *	6,202	5,904
Winchester *	12,719	10,485
Winthrop *	16,852	15,455
Woburn	19,434	16,574
Worcester	195,311	179,754
Wrentham *	3,584	...

## MICHIGAN

Adrian	13,064	11,878
Albion	8,324	8,354
Allegan	3,941	3,637
Allouez *	4,279	1,150
Alma	7,634	7,542
Alpena	12,166	11,101
Ann Arbor	26,944	19,516
Battle Creek	43,573	36,164
Bay City	47,355	47,554
Belding	4,140	3,911
Benton Harbor	15,434	12,238
Berkley *	5,571	...
Bessemer	4,035	5,482
Big Rapids	4,671	4,558
Birmingham	9,539	3,694
Buchanan	3,922	3,187
Buena Vista *	3,026	5,149
Cadillac	9,570	9,750
Carrollton *	3,009	2,200
Charlotte	5,307	5,126
Cheboygan	4,923	5,642
Clawson *	3,377	...
Coldwater	6,785	6,114
Comstock *	4,438	2,281
Dearborn	50,358	2,470
Detroit	1,568,662	993,678
Dowagiac	5,550	5,440
Durand	3,081	2,672
East Detroit *	5,955	...
East Grand Rapids	4,024	1,310
East Lansing	4,389	1,889
Ecorse	12,716	4,394
Elba *	3,143	873
Escanaba	14,524	13,103
Fenton	3,171	2,507
Ferndale	20,855	2,640
Flint	156,492	91,599
Ford	4,294	4,294
Genesee *	5,889	4,096



## CENSUS

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## CENSUS

## MICHIGAN—(Continued)

Place	Pop. 1930	Pop. 1920
Gladstone	5,170	4,958
Grand Haven	8,345	7,205
Grand Ledge	3,572	3,043
Grand Rapids	168,592	137,634
Greenville	4,730	4,304
Grosse Pointe	5,173	2,084
Gross Pointe		
Farms	3,538	1,649
Hamtramck	56,268	48,615
Hancock	5,795	7,527
Hastings	5,227	5,123
Highland Park	52,959	46,499
Hillsdale	5,896	5,476
Holland	14,846	12,183
Houghton	3,757	4,466
Howell	3,615	2,951
Inkster *	4,440	
Ionia	5,582	6,935
Iron Mountain	11,552	8,251
Iron River	4,665	4,295
Ironwood	14,299	15,739
Ishpeming	9,238	10,500
Jackson	55,187	48,874
Kalamazoo	54,786	48,487
Kingsford *	5,526	
Lansing	78,397	57,327
Lapeer	5,008	4,723
Laurium	4,918	6,696
Leoni *	4,794	2,076
Lincoln Park /	12,338	
Livonia *	3,192	1,608
Ludington	8,898	8,810
McMillan *	3,593	3,058
Manistee	8,078	9,694
Manistiquette	5,198	6,880
Marine City	3,462	3,731
Marquette	14,789	12,718
Marshall	5,019	4,270
Melvindale *	4,053	
Menominee	10,320	8,907
Midland	8,038	5,483
Monroe	18,110	11,573
Mount Clemens	13,497	9,488
Mount Pleasant	5,211	4,819
Munising	3,956	5,037
Muskegon	41,390	36,570
Muskegon Heights	15,584	9,514
Nankin	17,357	5,801
Negaunee	6,552	7,419
Niles	11,326	7,311
Norway	4,016	4,533
Oscoda *	3,336	5,455
Ostego	3,245	3,168
Owosso	14,496	12,575
Petoskey	5,740	5,064
Plymouth	4,484	2,857
Pontiac	64,928	34,273
Port Huron	31,961	25,944
Redford *	3,334	5,201
River Rouge	17,314	9,822
Rochester	3,554	2,549
Rogers City	3,278	2,109
Roseville	6,836	
Royal Oak	22,904	6,007
Saginaw	80,715	61,903
St. Clair	3,389	3,204
St. Clair Shores *	6,745	
St. Johns	3,929	3,925
St. Joseph	8,349	7,251
Sault Ste. Marie	13,755	12,096
Southfield *	3,174	1,319
South Haven	4,804	3,829
Sturgis	6,950	5,995
Three Rivers	6,863	5,209
Traverse City	12,539	10,925
Trenton	4,022	1,682
Troy *	7,374	2,520
Wakesfield	3,677	4,151
Walker *	5,274	2,833
Waterford *	8,239	1,354
Wayne	3,423	1,899
Wyandotte	28,368	13,851
Wyoming *	18,277	6,501
Ypsilanti	10,143	7,413

\* Berkley incorporated in 1924.

\* Clawson incorporated in 1920.

\* Halfway Village (incorporated in 1924), name changed to East Detroit and incorporated city made independent of Erin Township in 1929.

\* Inaker incorporated in 1926.

\* Kingsford Village incorporated in 1923.

/ Lincoln Park Village (incorporated in 1921) incorporated as a city

## MINNESOTA

Place	Pop. 1930	Pop. 1920
Albert Lea	10,169	8,056
Alexandria	8,876	3,888
Anoka	4,851	4,287
Austin	12,276	10,118
Benidji	7,202	7,086
Brainerd	10,221	9,591
Chisholm	8,308	9,039
Cloquet	6,782	5,127
Columbia Heights	5,613	2,968
Crookston	6,321	6,825
Crosby	3,451	3,500
Detroit Lakes	8,675	3,426
Duluth	101,468	98,917
Edina	3,188	1,833
Ely	6,156	4,902
Eveleth	7,484	7,205
Fairmont	5,521	4,630
Fairbault	12,767	11,089
Fergus Falls	9,889	7,581
Grand Rapids	3,206	2,914
Hastings	5,086	4,571
Hubbing	15,666	15,089
Hopkins	3,834	2,800
Hutchinson	3,406	3,379
International		
Falls	5,036	3,448
Lake City	3,210	2,846
Little Falls	5,014	5,500
Mankato	14,038	12,469
Marshall	3,250	3,092
Minneapolis	464,356	380,582
Minnetonka *	4,601	2,298
Montevideo	4,319	4,419
Moorhead	7,651	5,720
New Ulm	7,308	6,745
Northfield	4,153	4,023
Owatonna	7,654	7,252
Pipestone	3,489	3,325
Red Wing	8,637	8,637
Richfield	3,344	2,411
Robbinsdale	4,427	1,369
Rochester	20,621	13,722
St. Cloud	21,000	15,873
St. Louis Park	4,710	2,281
St. Paul	271,606	234,698
St. Peter	4,811	4,355
South St. Paul	10,009	6,860
Stillwater	7,173	7,735
Thief River Falls	4,268	4,685
Two Harbors	4,425	4,546
Virginia	11,963	14,022
Waseca	3,815	3,908
West St. Paul	4,463	2,962
Willmar	6,173	5,892
Winona	20,850	19,143
Worthington	3,878	3,481

## MISSISSIPPI

Aberdeen	3,925	4,071
Amory	3,214	2,861
Bay St. Louis	3,724	3,033
Biloxi	14,850	10,987
Brookhaven	5,288	4,706
Camden *	5,052	5,188
Canton	4,725	3,252
Center *	3,645	5,528
Clarksdale	10,043	7,552
Cleveland	3,240	1,674
Columbia	4,838	2,826
Columbus	10,743	10,501
Corinth	6,220	5,498
Edinburg *	3,831	3,472
Errata *	5,509	3,843
Greenville	14,807	11,560
Greenwood	11,123	7,793
Grenada	4,849	3,402
Gulport	12,547	8,157
Hattiesburg	18,601	13,270
Indianola	3,116	2,112
Jackson	48,282	22,817
Kellis Store *	4,628	3,813
Kosciusko	8,237	2,258
Laurel	18,017	13,037
Louisville	8,013	1,777
McComb	10,057	7,775
Meridian	31,954	28,399
Mississippi City *	19,889	13,857
Moscow *	4,138	4,391

and made independent of Ecorse Township in 1925.

\* Melvindale incorporated in 1925.

\* St. Clair Shores Village was incorporated during the year 1925.

## MISSISSIPPI—(Continued)

Place	Pop. 1930	Pop. 1920
Natchez	13,422	12,608
New Albany	3,187	2,581
Newport *	5,724	5,094
Pascagoula	4,339	6,082
Pass Christian	3,004	2,857
Piave *	3,431	3,677
Picayune	4,698	2,479
Plattsburg *	3,513	3,205
Sharon *	4,510	3,746
Starkville	3,612	2,598
Tupelo	6,361	5,055
Vicksburg	22,943	18,072
Water Valley	3,738	4,315
West Point	4,677	4,400
Yazoo City	5,579	5,244

## MISSOURI

Ash Hill *	3,456	3,759
Aurora	3,875	3,575
Blue *	42,652	25,487
Bolox *	3,634	3,655
Bon Homme *	17,069	10,408
Bonne Terre	4,021	3,815
Boonville	6,435	4,665
Brookfield	6,428	6,804
Cameron	3,507	3,248
Cape Girardeau	16,227	10,252
Carrollton	4,058	3,218
Cathage	9,736	10,886
Caruthersville	4,781	4,750
Charleston	3,357	3,410
Chillicothe	8,177	6,772
Clayton	9,613	3,028
Clinton	5,744	5,098
Columbia	14,967	10,392
Como *	5,732	4,407
Crystal City	3,057	2,243
Dardenne *	3,299	3,473
De Soto	5,069	5,003
Eldon	3,171	2,636
Excelsior Springs	4,565	4,165
Farmington	3,001	2,685
Ferguson	3,798	1,874
Festus	4,085	3,348
Fulton	6,105	5,595
Hannibal	22,761	19,306
Higginsville	3,339	2,724
Independence	15,296	11,686
Jefferson City	21,596	14,490
Joplin	33,454	29,902
Kansas City	399,746	324,410
Kennett	4,128	3,822
Kirksville	8,293	7,213
Kirkwood	9,169	4,422
Lebanon	3,582	2,848
Lexington	4,595	4,695
Liberty	3,516	3,097
Louisiana	3,549	4,060
Macon	3,851	3,549
Maplewood	12,657	7,431
Marcelline	3,555	3,760
Marshall	8,103	5,200
Maryville	5,217	4,711
Mexico	8,290	6,013
Moberly	13,772	12,808
Monett	4,099	4,206
Neosho	4,485	3,968
Nevada	7,448	7,139
Poplar Bluff	7,551	8,042
Richmond	4,129	4,409
Richmond Heights	9,150	2,136
Rolla	3,670	2,077
St. Charles	10,491	8,503
Saint Francis *	14,921	12,431
St. Joseph	80,935	77,939
St. Louis	821,960	772,897
Sedalia	20,806	21,144
Sikeston	5,676	3,613
Slater	3,478	3,797
Springfield	57,527	39,681
Trenton	6,992	6,951
University City	25,809	6,792
Warrensburg	5,146	4,811
Washington	6,918	3,182
Webb City	6,876	7,807
Webster Groves	16,487	9,474
Wellston	7,400	7,312
West Plains	3,835	3,178

## MONTANA

Anaconda	12,494	11,668
Billings	16,380	15,100
Bozeman	6,855	6,188
Butte	39,532	41,611
Deer Lodge	3,510	8,780

## MONTANA—(Continued)

Place	Pop. 1930	Pop. 1920
Glendive	4,629	3,816
Great Falls	28,822	24,121
Havre	6,872	5,429
Helena	11,803	12,037
Kaliapell	6,094	5,147
Lewistown	5,858	6,120
Livingston	6,891	6,811
Miles City	7,175	7,987
Missoula	14,657	12,668
Red Lodge	3,026	4,515
Ward *	3,711	....

## NEBRASKA

Alliance	6,669	4,591
Auburn	3,068	2,863
Beatrice	10,297	9,664
Chadron	4,606	4,412
Columbus	6,898	5,410
Fairbury	6,192	5,454
Falls City	5,787	4,980
Fremont	11,407	9,605
Grand Island	18,041	13,947
Hastings	15,490	11,647
Havelock	3,659	3,602
Holdrege	3,263	3,108
Kearney	8,575	7,702
Lincoln	75,933	54,948
McCook	6,688	4,303
Nebraska City	7,230	6,279
Norfolk	10,717	8,634
North Platte	12,061	10,466
Omaha	214,006	191,601
Plattsmouth	3,793	4,190
Scottsbluff	8,465	6,912
Sidney	3,306	2,852
South Sioux City	3,927	2,402
Superior	3,044	2,719
University Place	4,112	4,112
York	5,712	5,388

## NEVADA

Elko	3,217	2,173
Ely	3,045	2,090
Las Vegas	5,165	2,804
McGill *	3,017	2,846
Reno	18,529	12,016
Sparks	4,508	3,238

## NEW HAMPSHIRE

Berlin	20,018	16,104
Claremont *	12,377	9,524
Concord	25,228	22,167
Conway *	3,217	3,102
Derry *	5,131	5,382
Dover	13,573	13,029
Exeter *	4,872	4,604
Franklin	6,576	6,318
Goffstown *	3,839	2,391
Hanover *	3,043	1,551
Haverhill *	3,665	3,406
Keene	13,794	11,210
Laconia	12,471	10,897
Lebanon *	7,073	6,162
Littleton *	4,558	2,808
Manchester	70,834	78,834
Milford *	4,068	3,783
Nashua	31,463	28,379
Newport *	4,659	4,109
Portsmouth	14,495	13,569
Rochester	10,209	9,673
Somersworth	5,680	6,688

## NEW JERSEY

Arlington	12,020	10,000
Asbury Park	14,981	12,400
Atlantic City	66,198	50,707
Audubon	8,904	4,740
Bayonne	88,979	76,754
Belleville	26,974	15,660
Belmar	3,491	1,987
Bergenfield	8,816	8,667
Bernardsville	3,386	1,000
Bloomfield	38,077	22,019
Bogota	7,841	3,906
Bonton	6,866	5,372
Bordentown	4,405	4,371
Bound Brook	7,372	5,906
Bradley Beach	3,306	2,807
Bridgeton	15,699	14,323
Burlington	10,844	9,049
Rutler	3,392	2,886
Caldwell	5,144	3,893
Camden	118,700	116,809
Carlstadt	5,425	4,472

## NEW JERSEY—(Continued)

Place	Pop. 1930	Pop. 1920
Carteret	13,339	4,500
Cedar Grove *	4,793	3,181
Chatham	3,869	2,421
Cliffside	15,267	5,709
Clifton	46,875	26,470
Collingswood	12,728	8,714
Cranford	11,126	6,000
Dover	10,081	9,808
Dumont	5,861	2,537
Dunellen	5,148	3,394
East Orange	68,020	50,710
East Paterson	4,779	2,441
East Rutherford	7,080	5,463
Edgewater	4,089	3,680
Egg Harbor	4,378	2,622
Elizabeth	114,589	95,783
Englewood	17,805	11,627
Ewing *	6,942	3,475
Fairlawn *	5,990	....
Fairview	9,067	4,882
Florence *	7,824	1,800
Fort Lee	8,750	5,761
Franklin	4,176	4,075
Freehold	6,894	4,768
Garfield	29,739	19,381
Garwood	3,344	2,084
Glassboro	4,799	2,100
Glen Ridge	7,365	4,620
Glen Rock	4,369	2,181
Gloucester	13,796	12,162
Guttenberg	6,535	6,726
Hackensack	24,568	17,667
Hackensettown	3,038	2,986
Haddonfield	8,857	5,646
Haddon Heights	5,394	2,950
Haledon	4,812	3,435
Hammononton	7,656	6,417
Harrison	15,601	15,721
Hastbrouck	....	....
Heights	5,658	2,895
Hawthorne	11,868	5,135
Highland Park	8,691	4,866
Hightstown	3,012	2,674
Hoboken	59,261	68,166
Howell *	3,146	2,549
Irvington	56,733	25,480
Jersey City	316,715	298,103
Kearny	40,716	26,724
Keyport	4,940	4,415
Lakewood *	7,869	4,000
Lambertville	4,518	4,660
Landis *	14,047	10,402
Lawrence *	6,293	3,686
Leonia	5,350	2,979
Linden	21,206	1,756
Little Falls *	5,161	3,600
Little Ferry	4,155	2,715
Livingston *	3,476	1,126
Lodi	11,549	8,175
Long Branch	18,399	13,521
Lyndhurst *	17,862	1,350
Madison	7,481	5,523
Manville *	5,441	....
Maywood	3,398	1,618
Merchantville	3,592	2,749
Metuchen	5,748	3,334
Middlesex	3,504	1,852
Middletown *	3,430	2,760
Middletown *	9,209	5,917
Midland Park	3,638	2,243
Millburn *	8,602	3,000
Millville	14,705	14,691
Montclair	42,017	28,810
Moorestown *	7,247	4,000
Morristown	15,197	12,548
Mount Holly *	6,573	4,800
Neptune *	10,625	6,470
Newark	442,337	414,524
New Brunswick	34,555	32,779
New Durham	6,025	4,100
Newton	5,401	4,125
North Arlington	8,263	1,767
North Bergen *	40,714	23,844
North Plainfield	9,760	6,916
Nutley	20,572	9,421
Oaklyn	3,843	1,148
Ocean City	5,525	2,512
Ocean Grove *	3,050	3,100
Orange	35,399	33,268
Palisades Park	7,065	2,633
Palmyra	4,968	2,500
Passaic	62,959	63,841
Paterson	138,513	135,875
Paulsboro	7,121	4,852
Pennagrove	5,895	6,060

## NEW JERSEY—(Continued)

Place	Pop. 1930	Pop. 1920
Pennsauken *	16,915	6,474
Perth Amboy	43,516	41,707
Phillipsburg	19,255	16,923
Piscataway *	5,865	5,385
Pitman	5,411	3,385
Plainfield	34,422	27,700
Pleasantville	11,580	5,887
Pompton Lakes	3,104	2,008
Princeton	6,992	5,917
Prospect Park	5,909	4,292
Rahway	16,011	11,042
Ramsey	3,258	2,090
Raritan	4,751	4,557
Red Bank	11,622	9,251
Ridgefield	4,671	1,560
Ridgefield Park	10,764	8,575
Ridgewood	12,188	7,580
Riverside *	7,061	1,077
Rockaway	3,132	2,655
Roselle	13,021	5,737
Roselle Park	8,969	5,488
Rutherford	14,915	9,497
Salem	8,047	7,485
Sayreville	8,658	7,181
Scotch Plains *	4,186	2,343
Secaucus	8,950	5,423
Somerville	8,255	6,718
South Amboy	8,476	7,897
South Orange	13,630	7,274
South Plainfield	5,047	....
South River	10,759	6,596
Springfield *	3,725	1,715
Summit	14,556	10,174
Teaneck *	16,513	4,192
Tenafly	5,669	5,650
Totowa	4,600	1,864
Trenton	123,356	119,289
Union *	16,472	3,962
Union City *	58,659	....
Ventnor	6,874	2,193
Verona	7,161	3,039
Vineland	7,556	6,799
Wall *	3,540	3,324
Wallington	9,063	5,715
Wanaque	3,119	2,916
Washington	4,410	3,341
Wayne *	4,469	2,302
Weehawken *	14,807	13,488
Westfield	15,801	9,063
West New York	37,107	29,926
West Orange	34,327	15,573
West Paterson	3,101	1,858
Westville	3,462	2,380
Westwood	4,861	2,597
Wharton	3,683	2,877
Wildwood	5,330	2,790
Winslow *	4,744	3,379
Woodbridge *	25,266	4,500
Woodbury	8,172	5,801
Wood Ridge	5,159	1,923
Wyckoff *	3,001	1,671

\* Fairlawn incorporated in 1924.

\* Manville incorporated in 1929.

\* Union Town and West Hoboken incorporated as Union City in 1925.

## NEW MEXICO

Alamogordo	3,096	2,863
Albuquerque	26,570	15,157
Carlsbad	3,708	2,205
Clovis	8,027	4,904
Deming	3,377	3,212
Gallup	5,992	3,920
Las Cruces	5,811	3,869
Las Vegas City	4,719	4,304
Las Vegas Town	4,378	3,902
Mesilla	3,376	1,900
Raton	6,090	5,544
Roswell	11,173	7,038
Santa Fe	11,176	7,236
Santa Rita *	3,889	1,900
Silver City	3,519	2,662
Toadlena *	3,663	....
Tucumcari	4,148	3,117

\* Toadlena, San Juan County, precinct 14, organized from parts of old precinct 11. Since 1920.

## NEW YORK

Albany	127,412	113,344
Albion	4,878	4,683
Amityville	4,487	3,265
Amsterdam	34,817	33,542

## NEW YORK—(Continued)

Place	Pop. 1930	Pop. 1920
Auburn	36,652	36,192
Babylon	4,342	2,528
Baldwin	5,510	3,000
Baldwinsville	3,845	3,685
Ballston Spa	4,591	4,103
Barton *	7,219	6,746
Batavia	17,375	13,541
Bath	4,015	4,795
Bay Shore	4,080	3,400
Beacon	11,938	10,996
Bedford *	8,658	5,905
Binghamton	76,662	66,800
Brighton *	9,065	1,000
Brockport	3,511	2,980
Bronx (part of New York City)	1,265,258	782,016
Bronxville	6,738	3,055
Brooklyn *	28,291	21,847
Brooklyn (part of New York City)	2,560,401	2,018,356
Buffalo	573,076	506,775
Busti *	3,508	1,995
Canandaigua	7,541	7,856
Canastota	4,235	3,995
Carmel *	3,434	2,299
Carthage	4,460	4,320
Catskill	5,082	4,728
Cedarhurst	5,065	2,838
Champion *	3,001	2,854
Cheektowaga *	20,849	11,923
Cicero *	3,684	2,536
Clarence *	3,208	2,660
Claverack *	4,168	3,747
Clay *	3,560	2,468
Coeymans *	4,542	1,000
Cohoes	23,226	22,987
Collins *	4,424	4,061
Concord *	4,453	4,223
Corning	15,777	15,820
Cortland	15,043	13,294
Dannemora	3,948	2,623
Dansville	4,928	4,631
Depew	6,636	5,850
De Witt *	9,636	10,279
Dickinson	4,255	1,975
Dobbs Ferry	5,741	4,401
Dolgeville	3,309	3,448
Dunkirk	17,802	19,336
East Aurora	4,815	3,703
East Greenbush *	3,267	1,558
East Hamburg *	4,234	3,120
East Rochester	6,627	3,901
East Rockaway	4,340	2,005
East Syracuse	4,646	4,106
Ellenville	3,280	3,116
Elmira	47,397	45,393
Elmira Heights	5,061	4,188
Endicott	10,231	9,500
Erwin *	3,518	3,086
Evans *	4,167	3,913
Evans *	3,827	3,468
Fairport	4,604	4,626
Falconer	3,579	2,742
Fallsburgh *	4,716	4,769
Farmingdale	3,373	2,091
Floral Park	10,016	2,097
Fort Edward	3,850	3,871
Frankfort	4,203	4,198
Fredonia	5,814	6,051
Freeport	15,467	8,599
Fulton	12,462	13,043
Garden City	7,180	2,420
Gates *	3,634	1,419
Geddes *	10,210	7,995
Geneva	16,053	14,648
Glen Cove	11,430	8,664
Glen Falls	18,531	16,638
Glenville *	12,069	7,036
Gloversville	23,099	22,075
Gouverneur	4,015	4,143
Gowanda	3,042	2,673
Granville	3,483	3,024
Great Neck *	4,010	...
Greece *	12,113	3,350
Green Island	4,331	4,411
Greenport	3,062	3,122
Groveland *	3,295	2,920
Guilderland *	4,394	3,117
Hamburg	4,781	3,185
Harrison	10,195	1,500
Hastings-on-Hudson	7,097	5,526
Haverstraw	5,621	5,226

## NEW YORK—(Continued)

Place	Pop. 1930	Pop. 1920
Hempstead	12,650	6,882
Herkimer	10,446	10,453
Homer	3,195	2,856
Hoosick Falls	4,755	4,896
Hornell	16,250	15,025
Hudson	12,337	11,745
Hudson Falls	6,449	5,761
Huntington	25,582	5,000
Ilion	9,890	10,169
Irondequoit	18,024	5,123
Irvington	3,067	2,701
Islip	33,194	2,300
Ithaca	20,708	17,004
Jamestown	45,155	38,917
Johnson City	13,567	10,908
Johnstown	10,801	10,908
Kenmore	16,482	3,160
Kingsbury *	8,094	7,336
Kingston	28,088	26,688
Kirkland *	5,059	4,744
Lackawanna	23,948	17,918
Lancaster	7,040	6,059
Larchmont	5,282	2,468
Lawrence	3,041	2,861
Lenox *	5,887	5,588
Le Roy	4,474	4,203
Liberty	3,427	2,459
Lindenhurst	4,040	1,800
Little Falls	11,105	13,029
Lockport	23,160	21,808
Long Beach	5,817	282
Lowville	3,424	3,127
Lynbrook	11,998	4,371
Lyons	3,956	4,253
Lysander *	4,849	4,725
Malone	8,657	7,556
Mamaroneck	11,766	6,571
Manhattan (part of New York City)	1,867,312	2,284,103
Mailboro *	3,627	3,274
Massena	10,637	5,093
Mechanicville	7,924	8,166
Medina	6,071	6,011
Middletown	21,276	18,420
Milo *	6,561	5,817
Minden *	4,232	4,866
Minerva	8,153	3,016
Monticello	3,450	2,330
Moriah *	6,191	1,800
Mount Kisco	5,127	3,944
Mount Morris	3,238	3,312
Mount Pleasant *	20,944	14,004
Mount Vernon	61,499	42,726
Murray *	3,251	3,390
Newark	7,649	6,964
Newburgh	31,275	30,366
Newfane *	4,225	3,515
New Hyde Park	3,314	1,000
New Rochelle	54,000	36,213
New Windsor *	3,126	2,984
New York	6,930,446	5,620,048
Bronx	1,265,258	732,016
Brooklyn	2,560,401	2,018,356
Manhattan	1,867,312	2,284,103
Queens	1,079,129	469,042
Richmond	158,346	116,531
New York Mills	4,006	2,600
Niagara Falls	75,460	50,760
Niskayuna *	4,931	3,149
Northfolk *	3,047	1,600
North Elba *	6,472	4,343
North Pelham	4,890	2,885
North Tarrytown	7,417	5,927
North Tona-wanda	19,019	15,482
Norwich	8,378	8,268
Nyack	5,392	4,444
Ogdensburg	16,915	14,609
Olean	21,790	20,506
Oneida	10,558	10,541
Oneonta	12,536	11,582
Onondaga	5,826	6,620
Ossining	15,241	10,789
Oswego	22,652	23,626
Owego	4,742	4,147
Oyster Bay *	38,869	3,800
Parma *	3,222	2,923
Patchogue	6,860	4,081
Peekskill	17,125	15,868
Pelham Manor	4,908	1,754
Penfield *	3,806	2,087
Penn Yan	5,829	4,517
Perry	4,231	4,717
Pleasantville	4,540	3,590

## NEW YORK—(Continued)

Place	Pop. 1930	Pop. 1920
Port Chester	22,662	16,573
Port Jervis	10,243	10,171
Port Washington	3,000	3,200
Potdam	4,136	4,039
Poughkeepsie	40,288	35,000
Queens (part of New York City)	1,079,129	469,042
Queensbury *	3,169	2,584
Rensselaer	11,223	10,823
Richland *	3,816	3,738
Richmond (part of New York City)	158,346	116,531
Ridgeway *	6,068	5,969
Riverhead *	7,956	2,800
Rochester	328,132	295,750
Rockland *	3,286	3,247
Rockville Center	13,718	6,262
Rome	32,338	26,341
Rotterdam *	9,920	7,853
Royalton *	4,660	4,485
Rye	8,712	5,808
Salamanca	9,577	9,270
Salina	10,117	4,257
Saranac Lake	8,020	5,174
Saratoga *	3,027	3,680
Saratoga Springs	13,169	13,181
Saugerties	4,060	4,013
Sayville	3,930	3,200
Scarsdale	9,690	3,506
Schenectady	95,692	88,723
Scotia	7,437	4,358
Sea Cliff	3,456	2,108
Seneca Falls	6,443	6,389
Shelby *	3,946	3,937
Silver Creek	3,160	3,260
Sloan	3,482	1,791
Smithtown *	11,855	9,114
Solvay	7,986	7,352
Southampton	3,737	2,891
Southold *	11,669	1,600
Southport *	5,421	3,084
Spring Valley	3,948	3,818
Stony Point *	3,458	3,211
Suffern	3,757	3,154
Sullivan *	3,383	3,002
Sweden *	4,613	3,984
Syracuse	209,326	171,717
Tarrytown	6,841	5,807
Ticonderoga	3,680	2,102
Tonawanda	12,681	10,068
Troy	72,763	72,013
Tuckahoe	6,138	3,509
Tupper Lake	5,271	2,508
Union *	42,559	3,303
Utica	101,740	91,156
Valley Stream	11,790	2,800
Verona *	3,192	3,136
Walden	5,483	5,493
Wallkill *	3,835	2,598
Walton	3,496	3,598
Wappingers Falls	3,336	3,235
Warsaw	3,477	3,622
Watertown	4,047	3,809
Watervliet	32,205	31,285
Waverly	16,083	16,073
Wellsville	5,662	5,270
Westfield	5,674	4,996
Whitehall	3,466	3,413
White Plains	5,191	5,258
Whitesboro	35,830	21,031
Whitesboro	3,375	3,038
Williamson *	3,504	8,293
Williamsville	3,119	1,753
Williston Park *	4,427	...
Wilna *	7,322	7,014
Yonkers	134,646	100,176
Yorkville	3,406	1,512

\* Great Neck incorporated since 1920.

\* Williston Park incorporated in 1926.

## NORTH CAROLINA

Place	Pop. 1930	Pop. 1920
Albemarle	3,493	2,691
Asheboro	5,021	2,559
Asheville	50,193	28,504
Banner *	4,173	3,579
Belmont	4,121	2,941
Bessemer City	3,789	2,176
Brinkleyville *	5,870	5,234
Burlington	9,787	5,952
Canton	5,117	2,584

## NORTH CAROLINA—(Continued)

Place	Pop. 1980	Pop. 1990
Cedar Creek *	4,166	3,718
Cedar Grove *	3,216	2,875
Charlotte	82,675	46,338
Oheoah *	3,527	2,446
Chocowinity *	4,353	3,641
Concord	11,820	9,908
Double Shoals *	4,629	3,582
Dunn	4,558	2,805
Durham	52,037	21,719
Edenton	3,563	2,777
Elizabeth City	10,087	8,925
Fayetteville	13,049	8,877
Forest City	4,069	2,312
Gastonia	17,093	12,871
Goldsmo	14,985	11,296
Greensboro	53,569	19,861
Greenville	9,194	5,772
Hamlet	4,801	3,808
Henderson	6,345	5,222
Hendersonville	5,070	3,720
Hickory	7,863	5,076
High Point	36,745	14,802
High Shoal *	7,926	7,839
Icard *	4,005	2,983
Jamestown *	3,063	1,934
Kings Mountain	5,632	2,800
Kingston	5,632	9,771
Lake Landing *	3,190	3,290
Laurel Hill *	3,398	3,182
Laurinburg	3,312	2,643
Leicester *	4,424	8,410
Lenoir	6,532	8,718
Lexington	9,652	5,254
Lincolnton	3,781	3,390
Linville *	3,160	2,458
Lumberton	4,140	2,691
Manchester *	3,884	1,322
Monroe	6,100	4,084
Mooreville	5,619	4,315
Morehead City	3,483	2,958
Morgantown	6,001	2,867
Mount Airy	6,045	4,752
New Bern	11,981	12,193
Newton	4,394	3,021
North Wilkesboro	3,668	2,363
Oldtown *	3,446	3,162
Oxford	4,101	3,606
Paw Creek *	3,865	2,510
Raleigh	37,379	24,418
Reidsville	6,851	5,333
Roanoke Rapids	3,404	3,369
Rocky Mount	21,412	12,742
Roxboro	3,657	1,651
Ruffin *	4,602	3,831
Saint John *	3,654	3,791
Salisbury	16,951	13,884
Sanford	4,253	2,977
Shelby	10,789	3,609
Smiths *	3,039	3,112
Spencer	3,128	2,510
Spindale *	3,066	..
Spray	6,020	1,250
Statesville	10,490	7,895
Swannanoa *	5,092	3,372
Tarboro	6,379	4,568
Thomasville	10,090	5,676
Town Creek *	3,373	3,274
Wadesboro	3,124	2,648
Washington	7,035	6,314
Wentworth *	3,594	2,907
White Oak *	3,684	3,615
Wilmington	32,270	33,372
Wilson	12,613	10,612
Winston-Salem	75,274	48,395

\* Spindale incorporated in 1923.

## NORTH DAKOTA

Bismarck	11,090	7,122
Devils Lake	5,451	5,140
Dickinson	5,025	4,122
Fargo	28,619	21,961
Grafton	3,136	2,512
Grand Forks	17,112	14,010
Jamestown	8,187	6,627
Mandan	5,037	4,386
Minot	16,099	10,476
Valley City	5,268	4,681
Wahpeton	3,176	3,069
Williston	5,106	4,178

## OHIO

Akron	255,040	208,485
Alliance	28,047	21,603
Ashland	11,141	9,249

## OHIO—(Continued)

Place	Pop. 1980	Pop. 1990
Ashtabula	23,301	22,082
Athens	7,252	6,418
Austintown *	4,309	1,989
Barberton	23,984	18,811
Barnesville	4,602	4,865
Bardonia	6,814	2,677
Bellaire	13,327	15,061
Bellefontaine	9,543	9,336
Bellevue	6,256	5,776
Berea	5,697	2,959
Bexley	7,396	1,842
Bloom *	3,022	2,597
Boardman *	5,456	2,836
Bowling Green	6,088	5,788
Bridgeport	4,655	3,977
Brookfield *	6,084	4,553
Bryan	4,689	4,262
Bucyrus	10,027	10,425
Cambridge	14,613	13,104
Campbell	14,673	11,287
Canton	104,906	87,091
Celina	4,664	4,226
Cheviot	8,046	4,108
Chillicothe	18,340	15,831
Cincinnati	451,160	401,245
Circleville	7,369	7,049
Cleveland	900,429	796,841
Cleveland Heights	50,945	15,236
Clyde	3,159	3,099
Cotterville *	16,695	18,738
Colerain *	5,299	6,280
Columbus	290,564	237,031
Conneaut	9,691	9,343
Coshocton	10,908	10,847
Crawford *	3,707	3,404
Crestline	4,425	4,313
Crooksville	3,251	3,311
Cuyahoga Falls	19,797	10,200
Dayton	200,982	152,559
Defiance	8,818	8,876
Delaware	8,675	8,756
Delphos	5,672	5,745
Dennison	4,529	5,524
Dover	9,716	8,101
East Cleveland	39,687	27,292
East Liverpool	23,329	21,411
East Palestine	5,215	5,750
Eaton	3,347	3,210
Elmwood Place	4,562	3,991
Elyria	25,633	20,474
Euclid	12,751	3,368
Fairport Harbor	4,972	4,211
Findlay	19,363	17,021
Fostoria	12,790	9,987
Franklin	4,491	3,071
Fremont	13,422	12,468
Galion	7,674	7,374
Gallipolis	7,106	6,070
Garfield Heights	15,589	2,550
Geneva	3,791	3,081
Girard	9,859	6,556
Grandview	..	..
Heights	6,358	1,185
Green Creek *	5,032	4,966
Greenfield	3,871	4,844
Greenville	7,038	7,104
Hamilton	52,176	39,675
Hillsboro	4,040	4,856
Hubbard	4,080	3,820
Ironton	16,621	14,007
Jackson	5,922	5,842
Kent	8,375	7,070
Kenton	7,069	7,690
Lakewood	70,509	41,732
Lancaster	18,716	14,706
Lohanon	3,222	3,396
Lima	42,287	41,326
Lisbon	3,405	3,183
Lockland	5,703	4,007
Logan	6,080	5,493
London	4,141	4,080
Lorain	44,512	37,295
Loudon *	9,911	8,314
Louisville	3,130	2,008
Mansfield	33,525	27,824
Maple Heights	5,950	1,732
Marietta	14,285	15,140
Marion	31,084	27,891
Martins Ferry	14,524	11,634
Marysville	3,639	3,635
Massillon	26,400	17,428
Maumee	4,588	3,195
Medina	4,071	3,430
Miamisburg	5,518	4,888
Middleport	3,505	3,772

## OHIO—(Continued)

Place	Pop. 1980	Pop. 1990
Middletown	29,992	23,594
Millin *	6,013	3,844
Mingo Junction	5,030	4,616
Montpelier	8,677	3,052
Mount Healthy	3,530	2,255
Mount Vernon	9,370	9,237
Napoleon	4,545	4,148
Nelsonville	5,322	6,440
Newark	30,596	26,718
New Boston	5,931	4,817
Newburgh Heights	4,152	2,957
New Comerstown	4,265	3,889
New Haven *	5,645	4,614
New Lexington	3,901	3,159
New Philadelphia	12,365	10,718
Newton Falls	3,458	1,100
Niles	16,314	13,080
North College	..	..
Hill	4,139	1,104
Norwalk	7,776	7,879
Norwood	33,411	24,966
Orrville	4,292	4,286
Orrville	4,427	4,207
Painesville	10,944	7,872
Paris *	3,224	2,689
Parma *	13,899	..
Ferrysburg	3,182	2,429
Piqua	16,009	15,044
Pleasant Ridge	4,500	1,769
Pomeroy	3,563	4,294
Port Clinton	4,408	3,928
Portsmouth	42,560	33,011
Pulaski *	5,767	5,402
Ravenna	8,019	7,219
Reading	5,723	4,540
Rocky River	5,632	1,861
Rossford *	6,017	4,183
St. Bernard	7,487	6,312
St. Marys	5,433	5,679
Salem	10,622	10,805
Sandusky	24,622	22,897
Sebring	3,949	3,541
Shadyside	4,098	3,084
Shaker Heights	17,783	1,616
Shelby	6,198	5,578
Sidney	9,301	8,590
South Euclid	4,899	1,605
Springfield	68,743	60,840
Springfield Center *	6,568	7,509
Steubenville	35,422	28,508
Stow *	4,071	1,739
Struthers	11,249	5,847
Tallmadge *	6,437	5,207
Tiffin	16,428	14,375
Toledo	290,718	248,154
Toronto	7,044	4,684
Troy	8,675	7,260
Truro *	3,718	2,457
Turtle Creek *	5,602	5,698
Uhrichsville	6,437	6,428
Unity *	7,801	7,813
Upper Arlington	3,059	820
Upper Sandusky	3,889	3,708
Urbana	7,742	7,621
Van Wert	8,472	8,100
Wadsworth	5,930	4,742
Wapakoneta	5,378	5,295
Warren	41,062	27,050
Washington C. H.	8,426	7,962
Wellston	5,319	6,687
Wellsville	7,956	8,849
Willard	4,514	3,889
Willoughby	4,252	2,656
Wilmington	5,332	5,087
Wooster	10,742	8,204
Wyoming	3,767	3,328
Xenia	10,507	9,110
Youngstown	170,002	182,858
Zanesville	36,440	29,569

\* Parma Township taken to form Parma Village 1925.

## OKLAHOMA

Ada	11,261	8,012
Altus	8,439	4,522
Alva	5,121	3,913
Anadarko	5,036	3,116
Ardmore	15,741	14,181
Bartlesville	14,763	14,417
Bigheart *	3,365	2,520
Blackwell	9,521	7,174
Brady *	3,789	5,462
Bristow	6,619	3,460
Burney *	3,311	3,598

## OKLAHOMA—(Continued)

Place	Pop. 1930	Pop. 1920
Chickasha	14,099	10,179
Claremore	3,720	3,435
Clinton	7,512	2,596
Cookson *	3,091	3,743
Council Grove *	3,125	1,390
Cushing	9,801	6,826
Dow *	5,541	5,760
Drumright	4,972	6,460
Duncan	8,363	3,463
Durant	7,463	7,840
Edmond	3,576	2,452
Elk City	5,666	2,814
El Reno	9,384	7,737
Enid	26,399	16,576
Frederick	4,668	3,822
Guthrie	9,582	11,757
Hartshorne	3,587	3,480
Henryetta	7,694	5,889
Hewitt *	6,938	7,002
Hobart	4,982	2,986
Holdenville	7,268	2,932
Hominy	3,485	2,875
Hugo	5,272	6,368
Lawton	12,121	8,930
McAlester	11,804	12,095
Mangum	4,806	3,405
Marlow	3,084	2,276
Miami	8,064	6,802
Muskogee	32,026	30,277
Norman	9,603	5,004
Nowata	8,531	4,435
Okemah	4,002	2,162
Oklahoma City	185,389	91,295
Okmulgee	17,095	17,430
Paula Valley	4,235	3,694
Pawhuska	5,931	6,414
Perry	4,206	3,154
Picher	7,773	9,671
Ponca City	16,136	7,051
Poteau	3,169	2,679
Sand Springs	6,674	4,076
Sapulpa	10,533	11,694
Sayre	3,157	1,703
Schulter *	4,573	3,185
Seminole	11,459	854
Stillwater	7,016	4,701
Sulphur	4,242	3,667
Tonkawa	3,311	1,448
Tulsa	141,258	72,075
Verdigris *	3,263	2,727
Vinita	4,263	5,010
Wekiva *	3,559	2,987
Wewoka	10,401	1,520
Woodward	5,056	3,849

## OREGON

Albany	5,325	4,840
Ashland	4,544	4,283
Astoria	10,349	14,027
Baker	7,758	7,729
Bend	8,848	5,415
Corvallis	7,585	5,752
Eugene	18,901	10,593
Grants Pass	4,666	3,151
Hillsboro	3,039	2,468
Klamath Falls	16,093	4,801
La Grande	8,050	6,913
Marshfield	5,287	4,034
Medford	11,007	5,756
North Bend	4,012	3,268
Oregon City	5,761	5,686
Pendleton	6,621	7,887
Portland	301,615	258,288
Roseburg	4,362	4,881
St. Helens	3,994	2,220
Salem	26,266	17,679
The Dalles	5,883	5,807

## PENNSYLVANIA

Abington *	18,648	8,684
Adams *	5,667	3,450
Aliquippa	27,116	2,931
Allentown	92,563	73,502
Altoona	82,054	60,831
Ambler	3,944	3,094
Ambridge	20,227	12,730
Anita	5,025	2,750
Antis *	3,104	2,638
Apollo	3,406	3,227
Archbald	9,587	8,603
Ardmore	10,075	8,700
Arnold	10,575	6,120
Ashland	7,164	6,666
Ashley	7,093	6,520

## PENNSYLVANIA—(Continued)

Aspinwall	4,263	3,170
Athens	4,372	4,864
Avalon	5,940	5,277
Avoca	4,943	4,960
Baldwin *	6,371	4,928
Bangor	5,824	5,403
Barnesboro	3,506	4,183
Beaver	5,665	4,135
Beaver Falls	17,147	12,802
Beccaria *	3,335	3,633
Bellefonte	4,804	3,996
Bellvue	10,252	8,198
Bellvue *	5,645	2,912
Bendleyville	3,609	3,679
Berwick	12,660	12,181
Bethel *	5,482	2,406
Bethlehem	57,892	50,858
Birdsboro	3,542	3,299
Blairsville	5,296	4,391
Blakely	8,260	6,564
Bloomsburg	9,093	7,819
Boyetown	3,943	3,189
Brackenridge	6,250	4,987
Bradock	19,329	20,879
Bradford	19,306	15,525
Brentwood	5,381	1,895
Bridgeport	5,595	4,680
Bridgeville	9,939	8,092
Bristol	11,799	10,273
Brookville	4,387	3,272
Bryn Mawr	3,056	2,800
Burnham	3,089	2,765
Butler	23,568	23,778
Camp Hill	3,111	1,636
Canonsburg	12,558	10,632
Carbondale	20,061	18,640
Carnegie	12,497	11,516
Castle Shannon	3,810	2,353
Catasauqua	4,851	4,714
Cecil *	8,046	1,500
Centerville	6,467	4,793
Chambersburg	13,788	13,171
Charleroi	11,260	11,516
Cheltenham *	15,731	11,015
Chester	59,163	58,030
Clairton	15,291	6,264
Clarion	3,201	2,793
Clearfield	9,221	8,529
Clifton Heights	5,057	3,496
Coaldale	6,921	14,515
Coatesville	14,582	14,515
Collingdale	7,857	3,834
Columbia	11,349	10,836
Connellsville	13,290	13,804
Conshohocken	10,815	8,481
Coplay	8,279	2,845
Coraopolis	10,724	6,162
Corry	7,152	7,228
Cowanshannoc *	5,819	5,974
Crafton	7,004	5,954
Cranberry *	3,929	2,971
Curwensville	3,140	2,973
Dale	3,364	3,115
Danville	7,185	6,952
Darby	9,899	7,922
Decatur *	3,121	3,729
Derry	3,046	2,889
Dickson City	12,395	11,049
Donora	13,905	14,181
Dormont	13,190	6,455
Downington	4,548	4,024
Doylestown	4,577	3,837
Du Bois	11,595	13,681
Dunkard *	3,506	1,226
Dunmore	22,627	20,250
Dupont	5,161	4,576
Duquesne	21,396	19,011
Duryea	8,508	7,776
East Conemaugh	4,979	5,256
East Downingtown	3,018	2,000
East Landsdowne	3,168	1,561
East Mauch Chunk	8,739	3,868
Easton	34,468	33,813
East Pittsburgh	6,214	6,527
East Stroudsburg	6,099	4,855
Ebensburg	3,063	2,179
Edgewood	4,821	3,161
Edwardsville	8,847	9,037
Elizabethtown	3,940	3,319
Ellwood City	12,323	8,958
Emaus	6,419	4,370
Ephrata	4,988	3,785
Epton *	4,396	2,889
Erie	115,967	93,372
Etna	7,493	6,341

## PENNSYLVANIA—(Continued)

Exeter	5,724	4,176
Fallowfield *	3,247	2,468
Farrell	14,359	15,586
Fell *	5,710	5,243
Ford City	6,127	5,605
Forest City	5,209	6,004
Forest Hills *	4,549	....
Forty Fort	6,224	3,389
Fountain Hill	4,568	2,339
Frackville	8,034	5,590
Franklin	10,254	9,970
Freedom	3,227	3,452
Friesland	7,098	6,666
Gallitzin	3,458	3,580
Gettysburg	5,584	4,227
Gilberton	4,227	4,766
Girardville	4,891	4,432
Glassport	8,890	6,659
Glenolden	4,482	1,944
Granville *	5,128	2,217
Greensburg	16,508	15,033
Greenville	8,628	8,101
Grove City	6,156	4,944
Guilford *	3,719	3,498
Hamburg	3,637	2,764
Hampton *	3,333	1,720
Hanover	11,805	8,664
Harrisburg	80,339	75,917
Hazleton	36,765	32,277
Hegins *	3,489	2,802
Hellertown	3,851	3,008
Hempfield *	19,947	18,598
Holidaysburg	5,969	4,071
Homestead	20,141	20,452
Honesdale	5,490	2,756
Hummelstown	3,036	2,654
Huntingdon	7,558	7,051
Indiana	9,569	7,043
Ingram	3,866	2,900
Irwin	3,443	3,235
Jenkens *	5,464	5,722
Jennette	15,126	10,627
Jenney *	5,560	5,795
Jermyn	3,519	3,326
Jersey Shore	5,781	6,103
Jessup	4,600	3,500
Johnsonburg	4,737	5,400
Johnstown	66,993	67,324
Kane	6,232	7,283
Kennett Square	3,091	2,398
Kingston	21,600	8,952
Kittanning	7,801	7,153
Kulpmont	6,120	4,695
Lancaster	59,949	53,150
Lansdale	9,379	4,728
Landsdowne	9,542	4,797
Lansford	9,632	9,625
Larksville	9,322	9,438
Lattrobe	10,644	9,484
Lawrence Park *	3,241	....
Lebanon	25,561	24,643
Leechburg	4,489	3,991
Leighton	6,490	6,102
Lemoine	4,171	1,939
Lewisburg	3,308	3,204
Lewistown	13,857	9,849
Litz	4,368	3,680
Lock Haven	9,668	8,557
Lower Providence *	3,189	2,221
Luzerne *	10,662	8,790
Luzerne	6,950	5,998
Lykens *	3,033	2,880
Lyndora	3,057	1,500
McAdoo	5,239	4,674
McDonald	3,281	2,751
McKeesport	54,632	46,781
McKees Rocks	18,116	16,713
Mahanoy City	14,784	15,599
Manheim	3,520	2,712
Marques Hook	4,867	5,324
Masontown	3,873	1,525
Mauch Chunk	3,206	3,666
Mayfield	3,774	3,832
Meadville	16,698	14,568
Mechanicsburg	5,647	4,688
Media	5,372	4,109
Meyersdale	3,065	3,716
Middletown	6,085	5,020
Midland	6,007	5,452
Millvale	8,166	8,081
Milton	8,552	8,638
Miners Mills	4,365	4,365
Minersville	9,392	7,845
Monaca	4,641	8,838
Monessen	20,268	18,179

## PENNSYLVANIA—(Continued)

Place	Pop. 1980	Pop. 1990
Monongahela	8,675	8,688
Moosic	4,557	4,964
Morgan	3,035	1,500
Morrisville	5,868	8,639
Mount Carmel	17,987	17,469
Mount Oliver	7,071	5,575
Mount Penn	3,017	1,370
Mount Pleasant	5,869	5,862
Mount Union	4,892	4,744
Muhlenburg *	7,557	5,220
Munhall	12,995	6,418
Nantcoke	26,043	22,614
Nanty-Glo	5,598	5,028
Narberth	4,869	8,704
Natrona	5,869	4,000
Nazareth	5,505	4,288
New Brighton	9,950	9,361
New Castle	48,674	44,938
New Cumberland	4,283	1,577
New Kensington	16,762	11,987
Newport *	12,087	1,972
Norristown	35,853	32,319
Northampton	9,839	9,349
Northampton Heights	3,791	3,791
North Bellevernon	3,072	2,705
North Braddock	16,782	14,928
North East	3,670	3,481
Northumberland	4,483	4,061
North Versailles *	5,688	4,844
Norwood	3,878	2,353
Oakmont	6,027	4,512
Oil City	22,075	21,274
Old Forge	12,661	12,237
Olyphant	10,743	10,236
Palmerton	7,678	7,168
Palmyra	4,377	3,646
Parnassus	6,240	3,816
Parsons	5,628	5,628
Patton	4,687	3,628
Pen Argyl	4,210	4,096
Penbrook	3,567	2,072
Perkasie	3,463	3,150
Philadelphia	1,950,961	1,823,779
Phillipsburg	3,600	3,000
Phoenixville	12,029	10,484
Pitcairn	6,317	5,738
Pittsburgh	669,817	588,343
Pittston	18,246	18,497
Plains *	16,044	1,175
Plymouth	16,543	16,500
Polk	3,337	2,762
Portage	4,432	4,804
Port Carbon	3,225	2,882
Port Vue	3,510	2,538
Pottstown	19,431	17,431
Pottsville	24,300	21,876
Prospect Park	4,623	2,536
Punxsutawney	9,266	10,311
Quakertown	4,883	4,391
Radnor *	12,263	8,181
Rankin	7,956	7,301
Reading	111,171	107,784
Red Lion	4,757	3,198
Renovo	3,947	5,877
Reynoldsville	8,480	4,116
Ridgway	6,818	6,087
Ridley *	8,826	5,842
Ridley Park	8,856	2,818
Robinson *	3,970	8,453
Rochester	7,726	6,957
Royersford	3,719	3,278
St. Clair	7,296	6,585
St. Marys	7,433	6,967
Salisbury *	3,303	3,402
Sayre	7,902	8,078
Schuylkill Haven	6,513	5,437
Scott *	6,203	4,927
Scottdale	6,714	5,768
Seranton	143,433	137,783
Sewickley	5,599	4,955
Shaler *	9,573	6,806
Shamokin	20,274	21,204
Sharon	25,908	21,747
Sharon Hill	3,825	1,780
Sharpsburg	8,642	8,921
Sharpville	5,194	4,674
Shenfield *	3,772	1,525
Shenandoah	21,782	24,726
Shenango *	4,370	8,451
Shillington	4,901	2,175
Shippensburg	4,345	4,372
Slatingsburg	4,134	4,014
Somerset	4,895	8,121
Souderton	3,857	8,125

## PENNSYLVANIA—(Continued)

Place	Pop. 1980	Pop. 1990
South Brownsville	5,314	4,675
South Fork	3,227	4,239
Southwest Greensburg	8,105	2,538
South Williamsport	6,058	4,341
South Whitehall *	3,732	2,971
Springdale	4,781	2,929
Springfield *	4,589	1,298
Star Junction	3,055	1,500
State College	4,450	2,405
Steelton	13,291	13,428
Stowe *	13,868	10,665
Stroudsburg	5,961	5,278
Sugar Creek *	5,288	4,390
Summit Hill	5,567	5,499
Sunbury	15,626	15,721
Susquehanna		
Depot	3,203	3,764
Swarthmore	3,405	2,350
Swatara *	6,333	5,847
Swissvale	16,029	10,908
Swoyersville	9,133	6,876
Tamaqua	12,936	12,863
Tarentum	9,551	8,925
Taylor	10,428	9,876
Throop	8,027	6,672
Titusville	8,055	8,432
Towanda	4,104	4,269
Trafford	4,187	2,895
Tredyffrin *	5,458	4,470
Treveskyn	3,556	2,500
Turtle Creek	10,690	8,138
Tyrone	9,042	9,084
Union City	3,788	3,850
Uniontown	19,544	15,692
Upper Darby *	46,626	8,956
Vandergrift	11,479	9,531
Verona	4,376	3,938
Warren	14,863	14,272
Washington	24,545	21,480
Waynesboro	10,167	9,720
Waynesburg	4,915	3,332
Wellshoro	3,643	3,452
West Chester	12,325	11,717
West Hazleton	7,310	5,854
West Homestead	3,552	3,435
Westmont	3,388	1,976
West Pittston	7,940	6,968
West Reading	4,908	2,921
West View	6,028	2,797
West York	5,381	3,320
Whitemarsh *	4,286	3,436
Wickboro	3,072	2,775
Wilkes-Barre	86,626	73,833
Wilksburg	29,639	24,403
Williamsport	45,729	36,198
Wilmerding	6,291	6,441
Wilson	3,243	3,243
Wilson	8,265	5,106
Windber	9,205	9,462
Winton	8,508	7,582
Wyoming	4,648	3,582
Wyomissing	3,111	2,062
Yeadon	5,430	1,308
York	55,254	47,512

\* Forest Hills borough incorporated from parts of Braddock and Wilkins townships since 1920.

\* Part of Millcreek Township taken to form Lawrence Park in 1926.

## RHODE ISLAND

Place	Pop. 1980	Pop. 1990
Arlington	3,260	2,500
Auburn	5,880	970
Barrington *	5,162	8,897
Bristol *	11,953	11,375
Burrillville *	7,677	8,606
Centerville	3,830	3,000
Central Falls	25,898	24,174
Coventry *	6,430	5,670
Cranton	42,911	29,407
Cumberland *	10,304	10,077
East Greenwich *	3,666	3,290
East Providence *	29,995	21,793
Fiskeville	3,025	900
Johnston *	9,357	6,855
Lincoln *	10,421	9,543
Lonsdale	4,830	4,000
Manville	4,590	4,700
Natick	5,488	2,400
Newport	27,612	30,255
North Kingston *	4,279	3,397

## RHODE ISLAND—(Continued)

Place	Pop. 1980	Pop. 1990
North Providence *	11,104	7,697
Pascoag	3,680	3,000
Pawtucket	77,149	64,248
Phenix	3,325	3,000
Providence	252,981	237,595
River Point	4,600	3,500
Smithfield *	3,967	3,199
South Kingstown *	6,010	5,181
Tiverton *	4,578	8,894
Valley Falls	5,542	5,000
Warren *	7,974	7,341
Warwick *	23,196	13,481
Westerly *	10,997	9,952
West Warwick *	17,696	15,461
Woonsocket	49,376	43,496

## SOUTH CAROLINA

Place	Pop. 1980	Pop. 1990
Abbeville	4,414	4,570
Aiken	6,033	4,103
Anderson	14,383	10,570
Bates *	4,042	2,642
Bayboro *	3,207	2,567
Beaufortville	3,667	3,197
Betha *	4,365	4,432
Bordeaux *	3,082	4,041
Camden	5,183	3,930
Catawba *	14,012	14,375
Charleston	62,265	67,957
Cheraw	3,573	3,150
Cherokee *	7,809	6,687
Chester	5,528	5,557
Chick Springs *	9,742	7,005
Clinton	5,643	3,787
Clover	3,111	1,608
Columbia	51,581	37,524
Conway	3,011	1,969
Coosawhatchie *	3,498	3,619
Cromer *	4,648	3,935
Cross Anchor *	3,303	3,798
Darlington	5,556	4,669
De Kalb *	14,977	12,081
Dorchester *	5,826	5,431
Easley	4,586	3,568
Fairview *	5,200	4,270
Florence	14,774	10,968
Gaffney	6,827	5,065
Galivants Ferry *	3,135	2,755
Georgetown	5,082	4,579
Green Sea *	3,562	2,627
Greenville	29,154	23,127
Greenwood	11,020	8,703
Hartsville	5,067	3,624
James Island *	3,058	2,595
Johns Island *	3,264	3,952
Keowee *	3,487	3,813
Lancaster	3,545	3,032
Langley *	4,746	1,400
Laurens	5,443	4,629
Limestone *	15,911	11,237
Marion	4,921	3,892
Mullins	3,156	2,379
Newberry	7,298	5,894
Orangeburg	8,776	7,290
Peoples *	6,491	8,294
Pelzer	6,675	5,500
Piedmont	3,690	4,000
Pineknay *	5,604	4,777
Pleasant Hill *	4,622	5,805
Privateer *	3,293	3,690
Providence *	4,541	4,849
Rock Hill	11,822	8,809
St. Andrews *	3,699	5,868
St. Helena *	4,626	5,157
Sheldon *	3,129	3,521
Spartanburg	28,723	22,638
Statesburg *	3,149	3,191
Sumter	11,780	9,508
Union	7,419	6,141
Woodruff	3,175	2,396

## SOUTH DAKOTA

Place	Pop. 1980	Pop. 1990
Aberdeen	16,465	14,537
Brookings	4,376	3,924
Huron	10,946	8,802
Lead	5,733	5,013
Madison	4,289	4,144
Mitchell	10,942	8,478
Mobridge	3,464	3,517
Pierre	3,659	3,209
Rapid City	10,404	5,777
Sioux Falls	33,362	25,202
Watertown	10,214	9,400
Yankton	6,072	5,024



## TENNESSEE

Place	Pop. 1930	Pop. 1930
Alcoa	5,255	3,358
Athens	5,385	2,580
Bristol	12,005	8,047
Brownsville	8,204	3,062
Chattanooga	119,798	57,895
Clarksville	9,242	8,110
Cleveland	9,186	6,522
Columbia	7,882	5,526
Cookeville	3,738	2,895
Covington	3,897	3,410
Dyersburg	8,733	6,444
Elizabethton	8,093	2,749
Erwin	3,623	2,965
Etowah	4,209	2,516
Fayetteville	3,822	3,629
Franklin	3,377	3,123
Gallatin	3,050	2,757
Gallatin	5,544	3,775
Greenville	4,588	4,019
Harriman	4,613	3,913
Humboldt	4,212	18,860
Jackson	22,172	12,442
Johnson City	25,080	5,692
Kingsport	11,914	77,818
Knoxville	105,802	2,461
Lawrenceburg	3,102	4,084
Lebanon	4,656	4,210
Lenoir City	4,470	2,711
Lewisburg	3,112	2,814
McMinnville	3,914	2,837
Martin	3,800	3,739
Maryville	4,958	162,351
Memphis	253,143	2,057
Milan	3,155	5,875
Morristown	7,305	5,867
Murfreesboro	7,993	118,842
Nashville	153,866	4,730
Paris	8,164	2,780
Pulaski	3,367	4,652
Rockwood	3,898	3,243
St. Clair *	3,289	2,912
Shelbyville	5,010	3,860
Springfield	5,577	3,479
Tullahoma	4,023	5,865
Union City	5,865	4,412

## TEXAS

Abilene	23,175	10,274
Alamo Heights *	8,874	....
Alice	4,239	1,880
Alpine	3,495	931
Amarillo	43,132	15,494
Arlington	3,661	3,031
Athens	4,842	8,178
Austin	53,120	34,876
Ballinger	4,187	2,787
Bay City	4,070	3,454
Beaumont	57,732	40,422
Beeville	4,806	3,063
Belton	3,779	5,098
Big Spring	13,735	4,273
Bonham	5,655	6,008
Borger *	6,532	....
Bowie	3,131	3,179
Brady	3,983	2,197
Breckenridge	7,569	1,846
Bronham	5,974	5,066
Brownsville	22,021	11,791
Brownwood	12,789	8,223
Bryan	7,814	6,307
Burkburnett	3,281	5,300
Cameron	4,565	4,298
Childress	7,163	5,003
Cisco	6,027	7,422
Cleburne	11,539	12,820
Coleman	6,078	2,868
Colorado	4,671	1,766
Commerce	4,267	3,842
Corpus Christi	27,741	10,522
Corsicana	15,202	11,856
Cottulla	3,175	1,058
Crockett	4,441	3,061
Crystal City *	6,809	....
Cuero	4,672	3,671
Dalhart	4,691	2,676
Dallas	260,475	158,976
Del Rio	11,693	10,589
Denison	13,850	17,065
Denton	9,587	7,626
Donna	4,103	1,579
Eagle Pass	5,059	5,765
Eastland	4,648	9,868
Edinburg	4,821	1,406
Electra	6,712	4,744
El Paso	102,421	77,560
Ennis	7,069	7,224

## TEXAS—(Continued)

Fort Worth	163,447	106,482
Freeport	3,162	1,798
Gainesville	8,915	8,648
Galveston	52,938	44,255
Georgetown	8,588	2,871
Gonzales	8,859	3,128
Goose Creek *	5,208	....
Graham	4,981	2,544
Greenville	12,407	12,384
Harlingen	12,124	1,784
Highland Park	8,422	2,321
Hillsboro	7,823	6,952
Houston	292,352	138,276
Humble	3,527	3,000
Huntsville	5,028	4,689
Jacksonville	6,748	3,723
Jasper *	3,393	....
Kerrville	4,546	2,353
Kingville	6,815	4,770
Lamesa	8,528	1,188
Laredo	32,618	22,710
Littlefield *	3,218	....
Lockhart	4,367	3,731
Longview	5,036	5,713
Lubbock	20,520	4,051
Lufkin	7,311	4,873
Luling	5,970	1,502
McAllen	9,074	5,331
McCombs *	3,446	6,677
McKinney	7,307	4,080
Magnolia	4,080	3,553
Marfa	3,909	5,338
Marlin	5,338	4,310
Marshall	16,203	14,271
Mercedes	4,267	2,839
Mexia	6,608	3,414
Midland	6,579	3,482
Mineola	5,484	1,795
Mineral Wells	3,804	2,299
Missal	5,986	7,890
Mount Pleasant	5,120	3,847
Nacogdoches	3,541	4,099
Navasota	5,687	3,546
New Braunfels	5,128	5,060
Olney	6,242	3,590
Orange	4,138	1,164
Palestine	7,913	9,212
Pampa City	11,445	11,039
Panola	10,470	987
Pecos	15,649	15,040
Pelly *	3,304	1,445
Perry *	3,452	....
Pharr	3,225	1,565
Pharrview	8,834	9,889
Port Arthur	50,902	22,251
Quana	4,464	3,691
Ranger	4,208	16,205
Robstown	4,183	948
Rusk	3,859	2,348
San Angelo	25,208	10,050
San Antonio	231,542	161,379
San Benito	10,753	5,070
San Marcus	5,134	4,527
Seguin	5,225	3,631
Shamrock	3,780	1,227
Sherman	15,713	15,031
Slaton	3,876	1,525
Smithville	3,296	3,204
Snyder	3,008	2,179
Sourlake	3,082	3,032
Stamford	4,095	3,704
Stephenville	3,944	3,891
Sulphur Springs	5,417	5,558
Sweetwater	10,848	4,307
Taylor	7,463	5,965
Teague	3,509	3,306
Temple	15,345	11,038
Terrell	8,795	8,349
Texarkana	27,365	11,480
(Tex. and Ark.)	27,365	11,480
Texas City	3,534	2,509
Thurber	6,017	4,500
Tyler	17,113	12,085
University Park *	4,200	....
Uvalde	5,286	8,885
Vernon	9,137	5,142
Victoria	7,421	5,957
Waco	52,848	38,500
Waxahachie	8,042	7,958
Weatherford	4,912	6,203
Wellington	3,570	1,968
Weslaco *	4,879	....
Wichita Falls	43,690	40,079
Wink *	3,963	....
Yoakum	5,656	6,184

## TEXAS—(Continued)

* Alamo Heights incorporated as a village in 1926.
* Borger City incorporated in 1926.
* Crystal City not returned separately in 1920.
* Goose Creek City incorporated in 1928.
* Jasper incorporated in 1926.
* Littlefield incorporated in 1925.
* McCamey incorporated in 1926.
* Pelly incorporated in 1920.
* University Park incorporated in 1924.
* Weslaco incorporated in 1921.
* Wink incorporated in 1928.

## UTAH

Place	Pop. 1930	Pop. 1930
American Fork	3,047	2,763
Bingham Canyon	8,248	2,676
Brigham	5,093	5,232
Cedar City	3,615	2,462
Eureka	3,041	3,608
Logan	9,979	9,439
Murray	5,172	4,584
Ogden	40,272	32,804
Park City	4,281	3,393
Payson	3,045	3,031
Price	4,084	2,364
Provo	14,766	10,303
Richfield	3,067	3,262
Salt Lake City	140,267	118,110
Spanish Fork	3,727	4,036
Springville	3,748	3,010
Tooele	5,135	3,602

## VERMONT

Barre	11,307	10,008
Bellows Falls	3,930	4,860
Bennington	7,390	7,230
Brattleboro	8,709	7,324
Burlington	24,789	22,779
Harford *	4,888	4,739
Lyndon *	3,285	3,558
Montpelier	7,337	7,125
Newport	5,094	4,976
Rockingham *	5,302	6,231
Rutland	17,315	14,954
St. Albans	8,020	7,588
St. Johnsbury	7,920	7,164
Springfield	4,943	5,283
West Rutland *	3,421	3,391
Windsor	3,689	3,061
Winoski	5,308	4,932

## VIRGINIA

Alexandria	24,149	18,060
Alleghany *	3,605	3,796
Amsterdam *	6,191	5,878
Appalachia *	3,595	2,036
Atlantic *	7,476	6,774
Beaverdam *	5,071	5,821
Bedford	3,713	3,243
Belfield *	4,650	3,918
Bermuda *	3,875	3,379
Big Stone Gap	3,908	3,009
Birch Creek *	4,328	4,787
Bluefield	3,906	2,752
Bristol	8,840	6,729
Buena Vista	4,002	3,911
Callands *	4,785	5,170
Capeville *	7,823	7,323
Castlewood *	7,766	8,140
Catalpa *	4,641	3,624
Cave Spring *	4,996	4,017
Charlottesville	15,245	10,688
Chuckatuck *	5,109	4,534
Clifton Forge	6,839	6,164
Covington	6,538	5,623
Cypress *	4,005	5,899
Dan River *	8,891	8,597
Danville	22,247	21,539
Darville *	3,091	3,596
Deep Creek *	6,856	6,938
Dranesville *	3,725	3,885
East Falls Church	3,425	3,500
East Radford	3,100	2,100
Elk Creek *	2,895	5,190
Elon *	8,051	7,101
Fancy Gap *	3,017	3,017
Farmville	3,133	2,586
Forest *	3,718	3,762
Franktown *	5,485	5,109
Fredericksburg	6,819	5,882
Hampton	6,382	6,138

## VIRGINIA—(Continued)

Place	Pop. 1930	Pop. 1920
Harrisonburg	7,232	5,875
Holston *	5,268	5,564
Kempville *	5,509	5,053
Laurel Fork *	4,798	5,047
Lexington	3,752	2,870
Linville *	3,527	3,807
Lipps *	9,478	11,134
Locustdale *	3,249	3,458
Lovington *	6,289	6,869
Lynchburg	40,661	30,070
Lynchhaven *	5,252	...
Madison Run *	4,864	4,785
Madisonville *	3,460	3,628
Manchester *	7,274	4,251
Marion	4,156	3,253
Marksville *	3,472	3,803
Marshall *	4,188	4,299
Martinsville	7,705	4,075
Massies Mill	4,052	4,804
Matocsa *	8,484	6,381
Meadville *	3,010	3,058
Metomkin *	6,394	6,487
Mount Galead *	3,999	4,116
Mount Vernon *	5,079	3,826
National Soldiers Home	3,875	3,800
Natural Bridge *	4,206	4,171
Newport News	34,417	35,596
Newsoms *	3,914	3,794
Newtown *	3,069	3,533
Norfolk	129,710	115,777
Norton	3,077	3,068
Oldtown *	5,087	6,788
Opequon *	3,719	3,373
Otter River *	5,379	4,688
Pedlar Mills *	3,870	4,396
Pembroke *	3,052	3,033
Petersburg	28,564	31,012
Pipers Gap *	5,222	4,344
Popquoson *	3,348	3,144
Portsmouth	45,704	54,387
Pulaski	7,168	5,282
Pongoteague *	8,226	8,209
Radford	6,227	4,627
Richmond	182,929	171,667
Rich Valley *	9,153	7,894
Roanoke	69,206	50,842
Rose Hill *	4,840	4,548
Rowanta *	4,296	4,265
Rustberg *	4,829	4,785
St Clair Bottom *	4,372	4,310
Salem	4,833	4,159
Schuyler *	3,362	3,335
Seneca *	3,267	3,462
South Boston	4,841	4,338
South Norfolk	7,857	7,724
South River *	4,101	4,526
Staunton	11,990	10,623
Stonewall *	3,010	3,046
Suffolk	10,271	9,123
Tanners Creek *	5,057	24,331
Taylor *	3,264	3,895
Union Hall *	3,387	3,982
Varina *	4,847	3,926
Vinton	3,610	2,779
Ware Neck *	3,163	3,511
Waynesboro	6,226	1,594
Whaleyville *	3,153	...
White Stone *	4,592	5,022
Williamsburg	3,778	2,462
Winchester	10,855	6,883
Wytheville	3,327	2,947

\* Lynchaven organized from part of Seaboard in 1922.

## WASHINGTON

Aberdeen	21,723	15,337
American Lake *	3,429	2,636
Anacortes	6,564	5,284
Auburn	3,906	3,168
Bellingham	30,823	25,585
Bremerton	10,170	8,918
Camas	4,239	1,843
Centralia	8,058	7,549
Charleston	3,388	3,838
Chelalis	4,907	4,558
Ellensburg	4,621	3,967
Everett	30,567	27,644
Hillyard	3,924	3,942

## WASHINGTON—(Continued)

Place	Pop. 1930	Pop. 1920
Hoquiam	12,766	10,058
Kelso	6,260	2,228
Longview	10,652	...
Mount Vernon	3,690	3,341
Olympia	11,733	7,795
Opportunity *	5,280	3,278
Pasco	3,496	3,362
Port Angeles	10,188	5,851
Port Townsend	3,979	2,847
Pullman	3,322	2,440
Puyallup	7,094	6,323
Raymond	3,828	4,260
Renton	4,062	3,301
Seattle	365,583	315,812
Shelton	3,091	984
Spokane	115,514	104,437
Tacoma	106,817	96,965
Vancouver	15,766	12,637
Walla Walla	15,976	15,503
Wenatchee	11,627	6,324

## WEST VIRGINIA

Place	Pop. 1930	Pop. 1920
Beaver *	9,124	8,751
Beckley	9,357	4,149
Bluewood	3,950	4,773
Bluefield	19,339	15,282
Blue Sulphur Springs *	3,339	3,371
Brownmont *	7,592	7,437
Buckhannon	4,374	3,785
Cabincreek *	30,116	27,620
Charleston	60,408	39,608
Chester	3,701	3,283
Clarksburg	28,866	27,869
Dunbar *	4,189	...
Edray *	5,151	4,016
Elkins	7,345	6,788
Fairmont	23,159	17,851
Fetterman *	3,492	3,283
Follansbee	4,841	3,135
Fort Spring *	3,720	3,585
Grafton	7,737	8,517
Greenbank *	5,314	6,048
Greenbrier Springs *	7,984	6,998
Green Sulphur Springs *	3,577	3,579
Hinton	6,654	3,912
Hollidays Cove	4,480	1,213
Holly *	5,704	5,321
Huntington	75,572	50,177
Jumping Branch *	3,003	2,774
Kenova	3,680	2,162
Keyser	6,248	6,003
Leadville *	10,093	9,588
Logan	4,396	2,998
Lubeck *	3,342	2,898
McMechen	3,710	3,356
Malden *	9,110	5,362
Mannington	3,261	3,673
Martinsburg	14,857	12,515
Meadow Bluff *	11,540	3,928
Morgantown	16,186	12,127
Moundsville	14,411	10,669
Mountain Cove *	4,554	4,284
Newcreek *	8,018	7,484
Nuttall *	4,442	3,589
Parkersburg	20,623	20,050
Poca *	3,365	3,735
Point Pleasant	3,301	3,059
Princeton	6,955	6,224
Princeton *	5,944	5,926
Richwood	5,720	4,331
Rock *	20,433	16,325
St. Albans	3,254	2,825
Shady Spring *	8,376	5,976
Stersterville	3,072	3,238
Slab Fork *	15,073	8,667
South Charleston	5,904	3,650
Talcott *	3,218	2,541
Weirton	8,572	5,500
Welch	5,876	3,232
Wellsburg	6,898	4,918
Westmoreland *	3,941	...
Weston	8,646	5,701
Wheeling	61,659	56,208
Williamson	9,410	6,819

\* Dunbar incorporated in 1921.  
\* Part of Ceredo taken to form Westmoreland in 1924.

## WISCONSIN

Place	Pop. 1930	Pop. 1920
Antigo	8,610	8,451
Appleton	25,267	19,561
Ashland	10,622	11,334
Baraboo	5,545	5,538
Beaver Dam	9,867	7,992
Beloit	23,611	21,284
Berlin	4,106	4,400
Burlington	4,114	8,626
Caledonia *	3,081	3,479
Chippewa Falls	9,539	9,130
Clintonville	3,572	3,275
Cudahy	10,631	6,725
Delavan	3,301	3,016
De Pere	5,521	5,165
Eau Claire	26,287	20,906
Fond du Lac	26,449	23,427
Fort Atkinson	5,793	4,915
Granville *	8,020	2,875
Green Bay	27,415	31,017
Hartford	3,754	4,515
Hurley	3,264	3,188
Janesville	21,628	18,293
Kukauna	6,581	5,951
Kenosha	50,262	40,472
La Crosse	39,614	30,421
Ladysmith	3,493	3,581
Lake	10,548	8,876
Lake Geneva	3,073	2,632
Madison	57,899	38,378
Manitowoc	22,963	17,563
Marinette	13,734	13,610
Marshfield	8,778	7,394
Menasha	9,062	7,214
Menomonie	5,595	5,104
Merrill	8,458	8,068
Milwaukee	578,349	457,147
Monroe	5,015	4,788
Mt. Pleasant *	5,379	4,070
Neenah	9,151	7,171
New London	4,661	4,667
Oconomowoc	4,190	3,801
Oconto	5,030	4,920
Oshkosh	40,108	33,162
Park Falls	3,036	2,676
Platteville	4,047	4,853
Pleasant Prairie *	3,457	2,030
Plymouth	3,882	3,415
Portage	6,308	5,582
Port Washington	3,693	3,340
Prairie du Chien	3,943	3,537
Preble *	4,074	2,864
Racine	67,542	58,959
Rhinelander	8,019	6,654
Rice Lake	5,177	4,457
Richland Center	3,632	3,409
Ripon	3,984	3,929
Shawano	4,188	3,544
Sheboygan	39,251	30,955
Shorewood	13,479	2,650
Somers *	3,046	2,084
South Milwaukee	10,706	7,598
Sparta	4,949	4,466
Stevens Point	13,623	11,371
Stoughton	4,497	5,101
Sturgeon Bay	4,983	4,553
Superior	36,113	39,671
Tomah	3,354	3,257
Two Rivers	10,083	7,805
Watertown	10,613	9,299
Waukesha	17,176	12,558
Waupaca	3,131	2,839
Waupun	5,768	4,440
Wausau	23,758	18,951
Wauwatosa	21,194	5,818
West Allis	34,671	13,745
West Bend	4,760	3,878
West Milwaukee	4,168	2,101
Whitefish Bay	5,362	882
Whitewater	3,465	3,215
Wisconsin Rapids	8,726	7,243

## WYOMING

Place	Pop. 1930	Pop. 1920
Casper	16,619	11,447
Cheyenne	17,361	13,829
Evanson	8,075	3,226
Laramie	8,609	6,301
Rawlins	4,868	3,969
Rock Springs	8,440	6,456
Sheridan	8,536	9,175

**CENTRAL AMERICA.** The term generally applied to the southern portion of the North American continent lying to the north of the

Panama Canal and south of the Isthmus of Tehuantepec in southern Mexico and consisting of the five states, Costa Rica, Guatemala, Hon-

duras, Nicaragua, and Salvador, and the British crown colony of British Honduras. See the articles on these respective countries; also EXPLORATION; ANTHROPOLOGY.

**CENTRAL ASIA.** See SOVIET CENTRAL ASIA.

**CENTRAL AUSTRALIA.** See NORTHERN TERRITORY.

**CENTRAL STATIONS.** See BOILERS; DYNAMO ELECTRIC MACHINERY; POWER PLANTS, STEAM.

**CEREALS.** See BARLEY; OATS; RYE; WHEAT; ZOOLOGY.

**CERMAK, ANTON J., MAYOR OF CHICAGO.** See ILLINOIS.

**CEYLON, sé-lôn'.** An island crown colony of Great Britain off the southern tip of India, occupied in turn by the Portuguese and Dutch previous to its annexation by the British in 1796. Capital, Colombo.

**AREA AND POPULATION.** With an area of 25,332 square miles, Ceylon had a census population of 4,497,854 in 1921 and an estimated total of 5,479,000 on Jan. 1, 1930. Registered births in 1929 numbered 198,007; deaths, 135,277; marriages, 28,916 (exclusive of Moslem marriages). In 1921, there were 8099 Europeans; 29,403 burghers, or Dutch descendants, and other Eurasians; and the remainder of the population comprised Sinhalese, Tamils, Moors, Malays, Veddas, and others. Buddhism is the religion of the majority. The estimated population of the chief cities in 1929 was: Colombo, 267,700; Jaffna, 44,160; Galle, 39,800; Kandy, 34,910. Education is free in the vernacular schools; attendance in primary schools in 1929 was 562,550.

**PRODUCTION.** Ceylon is primarily agricultural, with about 3,200,000 acres devoted to the cultivation of rubber, tea, rice, cacao, tobacco, coconuts, spices, areca nuts, and sugar cane. About half of the population's rice needs is imported. Livestock in 1929 included 1,650,000 cattle, 57,000 sheep, 45,000 swine, 1000 tamed elephants, and 2000 horses. A total of 81 plumbago mines were in operation in 1929 and some monazite and small-pem deposits are exploited. Manufacturing is confined to the production of such agricultural commodities as coconut oil, cacao, rubber, etc.

**COMMERCE.** Foreign trade experienced a marked decline in 1930. General imports were valued at 302,130,000 rupees (about \$108,760,000), as against 403,000,000 rupees (\$147,096,000) in 1929. Domestic exports totaled 292,030,000 rupees (about \$106,811,000), compared with 379,564,000 rupees (\$138,541,000) in the previous year. Imports are principally from Great Britain and India and exports go chiefly to Great Britain and to the United States, the latter country taking about one-fifth of the total. The United Kingdom in 1930 took £13,517,734 of the exports and furnished £8,998,702 of the imports.

**FINANCE.** After showing a steady increase from 1920-21 to 1927-28, Government revenue and expenditure declined sharply in 1928-29. Exclusive of railway earnings and expenses, revenue in 1928-29 totaled £7,187,885 and expenditure £8,393,069, compared with £8,942,330 and £10,140,480, respectively, in 1927-28 (one pound sterling equals 15 rupees). The net public debt on Sept. 30, 1928, was £12,644,193 and 3,000,000 rupees, or a total of about \$62,532,000. The unit of currency is the silver rupee of British India, with a par value of \$0.3649.

**COMMUNICATIONS.** Ceylon had 951 miles of railway in 1929 and (in 1930) a total of 15,911

miles of highways, of which 4909 miles were macadam. Shipping entered and cleared in 1929 totaled 24,466,389 tons (22,725,000 tons in 1928).

**GOVERNMENT.** The administration of the island is in the hands of a governor, assisted by an executive council of nine ex-officio and nominated members, and a legislative council of 61 members, of whom 50 are elected. The colony is divided into nine Provinces, each administered by a Government Agent. A new Constitution, increasing the powers of the Legislative Council, was adopted in 1930 and in June, 1931, was held the first general election in which universal adult suffrage was substituted for the former property and educational suffrage tests. Sir Graeme Thomson, the Governor, assumed office Mar. 1, 1931.

**MALDIV ARCHIPELAGO.** The Maldiv Archipelago consists of 13 coral islets, 400 miles southwest of Ceylon. Inhabited by 70,000 Moslems (1921 census), they are ruled by a native sultan and pay an annual tribute to the Ceylon government. Millet, fruits, and edible nuts are the chief products.

**CHACO DISPUTE.** See BOLIVIA under *History*.

**CHAD.** See FRENCH EQUATORIAL AFRICA.

**CHADBOURNE AGREEMENT.** See SUGAR.

**CHADWICK, GEORGE WHITEFIELD.** An American composer, died in Boston, Mass., Apr. 4, 1931. He was born in Lowell, Mass., Nov. 13, 1854, and studied under Jadassohn and Reinecke in Leipzig and under Rheinberger in Munich. In 1880 he became organist in the South Congregational Church, Boston, and instructor in harmony, composition, and instrumentation in the New England Conservatory of Music. In 1897 he was made director of the conservatory, which position he held until his retirement in 1931. For several seasons he also was conductor of the Springfield and Worcester festivals. He was a member of the American Academy of Arts and Letters, receiving in 1928 the gold medal awarded annually by the National Institute of Arts and Letters "for the most distinguished contribution to music during the year." Compositions, which were distinguished for their treatment of thematic material, include for orchestra—three symphonies in C major, B flat, and F; six overtures, *Rip van Winkle*, *Thalia*, *The Miller's Daughter*, *Metempsychosis*, *Adonax*, *Euterpe*; Serenade in F; Suite in A; Sinfonietta; for chorus with orchestra—*The Viking's Last Voyage*, *The Pilgrim's Hymn*, *Lovely Rosabelle*, *Phoenix Epirians*, *The Lily-Nymph*, and *Dedication Ode for the World's Columbian Exposition*; chamber music—six string quartets, a piano quintet, and a string trio. His most ambitious work was the lyric drama, *Judith*, which was performed in Worcester in 1900. He also composed two comic operas, *Tabasco* and *The Quiet Lodging*, and in 1911 wrote the incidental music for the morality play *Everywoman*. In addition, he wrote upwards of 50 songs and compositions for the piano and organ.

**CHAMBER OF COMMERCE OF THE UNITED STATES.** A national federation of more than 1500 business organizations, established in 1912 primarily as a vehicle for the expression of national business opinion on important economic questions.

The members of the chamber are trade associations and local or regional chambers of commerce,

these groups being represented on a board of directors, composed of 34 members chosen from geographical districts or specific fields of business and elected for a term of two years. The membership in 1931 consisted of 1515 business organizations, 5713 individual members, and 4351 associate members. The policies of the organization are formulated only by resolutions adopted at its meetings or by direct referendum, in order that they may reflect as accurately as possible the opinion of all classes of business represented in the constituent membership. Among the questions to which the chamber is currently directing its attention are: Agriculture and agricultural credit; banking; commercial policies in foreign relations; distribution efficiency; government competition; government expenditures and taxation—Federal, State, and local; natural resource industries; stabilization of business and employment; trade and commercial organization; trade relations; transportation; immigration; realty financing; Federal reserve system; special insurance taxes; fire prevention; employees' retirement annuities; public and private employment exchanges; water power policies; and commercial forestry.

For the convenience of its members the chamber maintains at its national headquarters 12 service departments, covering the main divisions of business activity. The agricultural department aids local chambers of commerce in the solution of agricultural problems and the enhancement of trade-area prosperity. The civic development department aids business men to approve not only local municipal and civic development but also matters of general national importance. The commercial organization department assists member chambers in strengthening their organization and extending their usefulness to the communities which they serve. The department of manufacture assists local chambers with their problems of industrial extension. The domestic distribution department promotes better methods of distribution. The finance department studies methods of Federal, State, and local taxation and problems of corporation and international finance. The foreign commerce department deals with tariff policies and import and export problems. The insurance department works to secure a more enlightened public attitude toward the insurance institution. The natural resources production department deals with the problems of water power, oil, coal, forest, and other natural resources. The trade association department serves as a clearing house as to the activities which a trade association can carry out most effectively. The transportation and communication department studies problems of rail, highway, waterway, and air transportation and of postal service and electrical communications. The research department covers the general field of economic research. The chamber also publishes a monthly magazine, *The Nation's Business*, and issues from time to time carefully compiled reports on economic subjects for the use of its members.

The nineteenth annual meeting of the chamber was held in Atlantic City, N. J., April 28 to May 1, 1931. The officers elected for 1931-32 were: President, Silas H. Strawn, Chicago; chairman of the board, Julius H. Barnes, New York City; honorary vice president, Seymour Parker Gilbert, New York City; honorary life vice president, John Joy Edson, Washington; vice

presidents, A. J. Brosseau, New York City, W. Rufus Abbott, Chicago, Junius P. Fishburn, Roanoke, Va., John G. Lonsdale, St. Louis, Karl DeLaittre, Minneapolis, Paul Shoup, San Francisco; treasurer, Oscar Wells, Birmingham; secretary, D. A. Skinner, Washington. National headquarters are in Washington, with divisional headquarters in New York City, Atlanta, Chicago, Minneapolis, Dallas, and San Francisco. See **UNEMPLOYMENT**.

**CHAMBER MUSIC.** See **MUSIC**.

**CHAMPIONSHIPS.** See **ATHLETICS**; **BOXING**, **ETC.**

**CHANDERNAGOR.** See **FRENCH INDIA**.

**CHANNING, EDWARD.** An American educator and historian, died in Cambridge, Mass., Jan. 7, 1931. He was born in Dorchester, Mass., June 15, 1856, and was graduated from Harvard University, receiving the A.B. degree in 1878 and the Ph.D. degree in 1880. He became instructor in history at Harvard in 1883, assistant professor in 1887, professor in 1897, and McLean professor of ancient and modern history in 1913. In 1929 he retired as professor emeritus. He wrote *Town and County Government in the English Colonies of North America* (1884); *The Narragansett Planters* (1886); *The United States of America* (in the Cambridge History Series, 1896); *Student's History of the United States* (1898); and *First Lessons in United States History* (1903). He also collaborated with Justin Winsor in vols. ii, vi, and vii of the *Narrative and Critical History of America* (1886-88), with Thomas Wentworth Higginson in *English History for Americans* (1893), and with A. B. Hart in the *Guide to the Study of American History* (1896). His magnum opus was a comprehensive history of the United States in eight volumes, of which six had been published at the time of his death. These included *The Planting of a Nation in the New World, 1000-1660* (1905); *A Century of Colonial History, 1660-1760* (1908); *The American Revolution, 1761-1789* (1912); *Federalists and Republicans, 1789-1815* (1917); *The Period of Transition, 1815-1848* (1921); and *The War for Southern Independence* (1925). To the latter volume was awarded the 1925 Pulitzer Prize as the best book of the year on American history.

**CHARLES, THE VEN. ROBERT HENRY.** A British theologian and author, died in London, Jan. 30, 1931. He was born in County Tyrone, Ireland, Aug. 6, 1855, and was educated at Queen's College, Belfast; Trinity College, Dublin; and Queen's University. On ordination in 1883 in the Church of England, he became curate of St. Mark's, Whitechapel, being called to St. Philip's, Kensington, in 1885 and to St. Mark's, Kennington, in 1886. In 1898 he became professor of Biblical Greek at Trinity College, Dublin, and from 1905 to 1911 was Grinfield lecturer on the Septuagint at Oxford and from 1910 to 1914, Speaker's lecturer in Biblical Studies. He was made a canon of Westminster Abbey in 1913, and the same year was appointed lecturer in advanced theology at London University.

In 1919 he became archdeacon of Westminster, and from that date was Warburton lecturer in Lincoln's Inn Chapel. He received the first award of the British Academy's Medal for Biblical Studies. His special field was the Apocrypha, in which he was recognized as a master not only of the languages but of the spirit that domi-

nated the Apocryphal age. His important works are *Book of Enoch* (trans. from the Ethiopic, 1893, 2d ed., 1912); *Apocalypse of Baruch* (trans. from the Syriac, 1896); *The Doctrine of a Future Life* (Jowett Lectures, 1898-99); *The Testaments of the XII Patriarchs* (trans. from the Greek, 1908); *The Zadokite Fragments* (trans. from the Hebrew, 1912); *Studies in the Apocalypse* (1913); *Religious Development Between the Old and the New Testament* (1914); *The Chronicle of John of Nikiu* (trans. from the Ethiopic, 1916); *The Apocalypse* (edited with text, translation, and commentary, 2 vols., 1920); *Lectures on the Apocalypse* (Schweich Lectures, 1919, 1922); *The Decalogue* (Warburton Lectures, 1924); and *Critical Commentary on the Book of Daniel* (1929). He was also general editor of and contributor to the Oxford edition of the *Apocrypha and Pseudepigrapha* (2 vols., 1913).

**CHARTERS, CITY.** See MUNICIPAL GOVERNMENT.

**CHAUTAUQUA INSTITUTION.** An educational movement established in Chautauqua, N. Y., in 1874 by Lewis Miller and the Rev. Dr. John H. Vincent, both prominent in the Methodist Episcopal Church. Its original idea was that of an assembly for Sunday-school teachers, but it was gradually developed into an institution affording during the months of June, July, and August a series of correlated lectures and entertainments. The three general fields of activity are the general assembly, consisting of an educational and popular series of lectures and addresses, concerts, operas, dramatic entertainments, and so forth; the summer schools, offering credit courses under the direction of New York University; and a home-reading circle, in which five outstanding books are designated for reading during the year, in addition to a news narrative appearing in a monthly review.

The attendance at the annual session in 1931 was within 7 per cent of the estimated attendance of 45,000 in 1930. On the platform at the general assembly were: Rear Admiral Richard E. Byrd, U. S. N.; Toyohiko Kagawa, Japanese author and philanthropist; Henry Goddard Leach, American editor; the Rev. Charles Stelzle, American author and sociologist; John Philip Sousa, band master and composer; and Ernest Hutcheson, American pianist. Ten performances of five operas were given in English under the direction of Albert Stoessel and others prominent in the Juilliard Graduate School of Music. There were also ten performances of five plays given by the Repertory Theatre, made up of members of the Cleveland Play House company. The summer school included 18 departments, with 100 instructors and approximately 1500 students. The officers in 1931 were: George E. Vincent, honorary president; Arthur E. Bestor, president; William L. Ransom, chairman of trustees; Shailer Mathews, chairman of the executive board; Charles E. Peirce, secretary; and Jessie M. Leslie, treasurer.

**CHEESE.** See DAIRYING.

**CHEMICAL INDUSTRY, SOCIETY OF.** See CHEMISTRY, INDUSTRIAL.

**CHEMICAL SOCIETY, AMERICAN.** See CHEMISTRY, INDUSTRIAL.

**CHEMISTRY.** The announcement from two different American sources of the discovery of the missing element 87, sometimes called Ekace-

sium, is of the highest importance, for if confirmed, it leaves No. 85 in the Mendeleff classification as the only remaining undiscovered element. The results of further investigations in the constitution of the atom are of the greatest interest. Also worthy of high regard is the persistent study of the constitution and the properties of the gland fluids of animals, which more and more are adding to our knowledge of the beginnings of life from a chemical point of view.

The results of other valuable researches are also given in the paragraphs that follow.

**NEW ELEMENTS.** According to an Associated Press dispatch from Washington, dated January 29, proof of the identity of "rhenium," one of the "missing" elements of which science suspected the existence, had been discovered and checked at the U. S. Bureau of Standards. Dr. W. F. Meggers, a specialist in optical work, brought out the proof of the presence of the element by application of the X-ray and the analysis of the special light it reflects. The substance had been provisionally set down as "rhenium 75" on the list of ninety-two basic elements making up the universe, though its discovery had only been predicted from the results of certain experiments.

An Associated Press dispatch from Auburn, Ala., dated May 9, related that Dr. Fred Allison, professor of physics in Alabama Polytechnic Institute, announced the discovery of evidence indicating that element "85," last of the 92 recognized elements undiscovered, exists in sea water, fluorite, apatite, monazite sand (Brazilian), kainite, potassium bromide, hydrofluoric acid, and hydrochromic acid. Dr. Allison's announcement followed after a year of research in which he was assisted by Edgar J. Murphy, a former assistant instructor in physics, and Dr. Anna L. Sommer, and Edna R. Bishop, chemists for the agricultural experiment station of the college. Through the magneto-optic method, Dr. Allison said he had been able to detect one part of a substance in one hundred billion. He said element "85" appeared to exist in exceedingly minute traces, about one part in one billion being the greatest concentration found in any of the substances he studied. Dr. Allison said that traces he obtained constitute "a high order of probability" that the last of the elements had been found.

Also a further Associated Press dispatch from New York announced on October 16, that a new substance, the missing element No. 87, had been found. Positive identification of this substance in samarskite, a lustrous black mineral, was announced by Cornell University. The discovery was made by Jacob Papish, professor of spectroscopy. He obtained from the samarskite, a sulphate which is a mixture, and in this identified by the aid of the spectroscope the number 87. The small amount of 87-bearing material in his laboratory is believed to be priceless, with a theoretical value exceeding radium. The new element had not been isolated. If it were separated with present facilities it probably would burn up. Prof. Louis M. Dennis, head of the department of chemistry at Cornell, said of Papish's work: "The finding of element 87 is one of the greatest scientific discoveries of our time."

On October 28 came a dispatch from Cheyenne, Wyo., saying that Hugo Reinhold, a Los Angeles mineralogist, announced the discovery in South-eastern Wyoming of deposits of samarskite con-

taining "missing element No. 87," the identification of which had been made public at Cornell University.

At a meeting of the Third International Radiology Congress held in the Sorbonne in Paris in June, Jules Stoklasa, director of the State Experimental Station in Prague, said: "Protactinium had been recently isolated by a Russian scientist, Aristid Grosse, from the residue of products used in obtaining uranium and radium. The effects of alpha, beta, and gamma rays from protactinium, were considerably more intense than those from radium. He asserted the new element would prove more effective than radium in the treatment of diseases, and that protactinium also could be used to increase farm crops."

**ATOMIC WEIGHTS.** Work on the redetermination of these important factors continued, notably by the eminent German chemist O. Hönigschmidt and his pupils. Very early in the year the suggestion by A. von Grosse was published (*Zeit. Phys. Chem.*, vol. 10, p. 395) that helium should be employed as the basis of the atomic weight system. The importance of the helium nucleus in atomic structure, and the fact that the difference between the atomic weights of atoms containing an integral number of alpha particles with the next integer represents the energy of formation of the atom from alpha particles, were adduced in favor of the proposal. Among the redeterminations of atomic weights since last year may be mentioned that of potassium, which according to O. Lowry (*Journ. Amer. Chem. Soc.*, vol. 52, p. 4332) as made from cotton ash and wheat flour ash yielded  $39.111 \pm 0.013$  and  $39.091 \pm 0.016$ , which is in good accordance with the accepted value. According to O. Hönigschmidt and H. Striebel (*Zeit. Anorg. Chem.*, vol. 194, p. 293) analysis of thallous bromide by precipitation of silver bromide yielded for the atomic weight of thallium  $204.390 \pm 0.008$ . P. Hartert and H. Striebel reported the atomic weight of bromine, obtained by fractionally subliming bromine in a current of hydrogen at  $-18.5^\circ$ — $-25^\circ$  and  $-30^\circ$ , yielded a result of  $79.916 \pm 0.001$ .

According to G. P. Baxter and A. D. Bliss (*Jour. Amer. Chem. Soc.*, vol. 52, p. 4851) the atomic weight of lead from uranite is found to be 206.195. The same authors (*Jour. Amer. Chem. Soc.*, vol. 52, p. 4848) reported the atomic weight of uranium lead extracted from Swedish Kolm as 206.01. The atomic weight of sulphur according to O. Hönigschmidt and R. Sachtleber (*Zeit. Anorg. Chem.*, vol. 195, p. 207) is 32.0664, obtained by the direct combination of silver and sulphur vapor at  $250^\circ$ . O. Hönigschmidt and K. Kempter (*Zeit. Anorg. Chem.*, vol. 195, p. 1) reported the value of  $40.085 \pm 0.00060$  as the atomic weight of calcium.

In their study for the determination of the ratio of ammonia to silver G. P. Baxter and C. H. Greene (*Jour. Amer. Chem. Soc.*, vol. 53, p. 604) found that the ratio  $\text{Ag}:\text{NH}_3$  was 0.33420, hence the ratio  $\text{NO}_3:\text{NH}_3$  is 3.64083 and the atomic weights of nitrogen and silver are 14.0078 and 107.879 respectively. According to the results obtained by F. W. Ashton (*Nature*, vol. 127, p. 813) the atomic weight of cesium should be  $132.91 \pm 0.02$ .

**ANALYTICAL CHEMISTRY.** Chemistry is only analysis and synthesis, for without a knowledge of the composition of a substance it is impossible

to build up a new compound having desired properties. It is therefore that new methods of analysis and new forms of apparatus are constantly reported.

It was found by J. V. Tamechyna that molybdic acid gives a violet coloration with potassium cetyl-xanthate when diluted not exceeding 1:4,000,000. The presence of excess of tungsten does not interfere with this reaction which, however, can not be applied in the presence of copper, iron, nickel, or bismuth. It was found by L. Rosenthaler (*Apoth. Zeit.* vol. 45, p. 638) that for limiting concentrations in micro-precipitation of alkaloids, sodium alizarinsulphonate is useful, and is specially suitable for the detection of atropine. For the rapid determination of iron A. M. Malkor (*Journ. Chem. Ind. Moscow*, vol. 8, p. 70) finds that when 40cc of Fehling solution are boiled with 20cc of 1 per cent dextrose solution, and the precipitate of cuprous oxide is dissolved in a solution of the iron containing substance under analysis in concentrated sulphuric acid, the ferrous sulphate content of the solution is then determined by titration with standard permanganate.

In working out a new method for the rapid determination of solid saturated fatty acids T. P. Hilditch and J. Priestman (*Analyst*, vol. 56, p. 354) modified Bertram's method by oxidizing the soap with alkaline  $\text{KMnO}_4$  at  $35$ – $50^\circ\text{C}$  or oxidizing free fats with  $\text{COMn}$  with anhydrous  $\text{KMnO}_4$ . For rapid work these authors recommend the use of a parallel determination by an improved form of the Twitchell process, which by itself, however, may give misleading results. A modification of the Engler distillation flask is described by W. Swientoslowski (*Rocz. Chem.*, vol. 11, p. 453) as follows: The vapors from the distillation flask enter the middle part of the condenser, instead of at the bottom; in this manner partial evaporation of the condensate by the hot vapors is avoided. T. Ruemele (*Zeit. Anal. Chem.*, vol. 84, p. 81) is the author of a critical study of the methods for a colorimetric determination of tryptophan. Accurate results he found were obtained by adherence to standardized conditions. Not more than 2 drops of a 2 per cent  $\text{CH}_3\text{O}$  should be used and 45 minutes should elapse after this has been added before comparison of the colors is made.

**BIOLOGICAL CHEMISTRY.** Again, analysis and synthesis. Without diagnosis, a knowledge of symptoms of conditions, it would be impossible to prescribe a cure. The value of insulin in diabetic conditions might not have become known unless the fact that the need of such a combination was essential, had been previously determined. An interesting item of progress appeared as a press dispatch in the *New York Times* of September 11. It stated that: "Much hope for the development of powerful poisons which will kill disease organisms in the human body without injury to the patient has been reported by three staff members of the University of California Hooper Foundation for Medical Research. The three workers, Prof. Ernest L. Walker, Dr. Marion A. Sweeney, and Dr. Benjamin L. Freeland, report that they have found it possible to so manipulate a chemical molecule built up from the benzene ring of carbon and hydrogen, that its toxicity to mice steadily decreases and its lethal effect on bacteria steadily increases. They have successfully saved mice suffering from various strepto-



cocci, pneumococci, and gram-negative bacilli. The results, the investigators say, show definitely that it is hopeless to seek for any one chemical which will prove effective against all disease germs, and that future work should be concentrated on the development of specific chemical poisons for each important bacterium."

An interesting contribution on the distribution of sugar in the blood of fishes is made by J. E. Gray and F. G. Hall (*Journ. Elisha Mitchell Sci. Soc.*, vol. 45, p. 142). They find that the whole blood of normal fishes contains about 75 mg. of sugar in each 100cc. The average ratio of plasma to corpuscle-sugar is: menhaden 2.12; pickerel 1.75; scup 1.47; silver hake 3.60; shad 3.80, and dogfish 1-1.03. It is found by E. A. Hewett (*Journ. Amer. Vet. Med. Ass'n*, vol. 77, p. 362) that the blood sugar of heifers and non-lactating cows is higher than that of lactating cows. A high value may be correlated with oestrus in heifers. The variations found by the author in pathogenic conditions are also recorded. It was found by W. L. Brown (*Georgia Agric. Exp. Stat. Bull.* No. 160) that the addition of pimento to poultry rations increases the pigmentation of the shanks, comb, and wattles, the effect being more pronounced in cockerels than in pullets. Pimento pigment appears in chickens five to six days after hatching. A. Rowinska (*Acta. Biol. Exp. Moscow*, vol. 6, p. 37) found that hemolyzed human blood or avian blood destroys uric acid. The velocity of decomposition is retarded by diminution of oxygen supply. Unhemolyzed blood does not catalyze the oxidation of uric acid. According to several authors (*Biochem. Zeit.*, vol. 231, p. 1) the male sexual hormone possesses basic properties and can be separated from the female hormone (menformone) by adding water to a concentrated benzene extract of male urine, the extract having first been mixed with alcoholic sodium hydroxide. This group of investigators described how the liquid separates into two layers, the male hormone passing into the benzene layer. Since the male hormone distills in a high vacuum at 90°, separation by distillation is also possible.

A. Leszler (*Chem. Zeit.*, 1930, p. 1092) describes the effect of intravenous injection of tetraiodophenolphthalein, trypanflavine and indigo-carmin to patients suffering from different diseases. His result shows that these injections result in a diminution in blood cholesterol. In a study of photosynthesis in various vine species, H. Schanderl (*Pflanzenbau*, vol. 3, p. 529) found that assimilation takes place with *Vitis riparia* in diffused light but with *Vitis vinifera* only in direct sunlight.

Methods of determination of carbon dioxide assimilation, and the significance of the results in German vine culture are discussed. According to L. Baldauf and L. Pincussin (*Klin. Woch.*, vol. 9, p. 1503) the bromine content of blood is practically 100 times that of iodine, which in normal metabolism averages  $10.9 \times 10^{-6}$  grams per 100cc; in syphilis it is about 50 per cent greater. Two children with nephritis showed an iodine content of  $31.7 - 32.9 \times 10^{-6}$  per 100cc. of blood. An interesting study by F. Müller, G. Cronheim, and M. Müller-Munk on the oxygen consumption of blood at high altitudes shows (*Biochem. Zeit.*, vol. 234, p. 302) that in rats under reduced pressure substances are present both in whole blood and plasma that consume oxygen. For man after living in high altitudes,

the presence of such substances may be demonstrated by addition of reduced glutathione to the blood sample.

F. W. Marshall (*Quant. Journ. Med.*, vol. 24, p. 287) finds that five types of dextrose-tolerance are distinguished in elderly people. The renal threshold in healthy old age is about 0.200 per cent. Pantocaine, a new local anæsthetic of the novocaine series is described by R. Fussgönger and O. Schaumann (*Arch. Exp. Path. Pharm.*, vol. 160, p. 53) as being nearly three times as toxic as cocaine and possessing 10 times the anæsthetic action of cocaine, when applied to a rabbit's cornea. O. Jervell (*Biochem. Zeit.*, vol. 235, p. 101) reports that the  $K_2Cr_2O_7$  method of Hansen for the determination of lactic acid in pure solutions should be somewhat modified and applied to its determination in blood filtrates.

It is interesting to note that H. D. Powers (*Science*, vol. 73, p. 316) in his studies on biochemistry in relation to intelligence finds that in idiots blood calcium is normal but that blood phosphorus is high. F. Rinne (*Kolloid. Zeit.*, vol. 56, p. 71) reports that sepia spermatozoa are gel-like, para-crystalline, living organisms, which constitute a transition between artificial liquid crystal and organized matter. In a study on the colloid chemistry of insanity W. D. Bancroft and G. H. Richter (*Journ. Phys. Chem.*, vol. 35, p. 1606) discuss the effects of different reagents on the nervous system and they seem to think that mental disorders are of two types; one resulting from increased and the other from decreased dispersion of the colloids of the nervous system. They reached the conclusion that in some form of insanity a coagulation of brain and nerve protein occurs, while in others a dispersion of protein takes place. In dementia præcox, paranoid, manic depression, and epilepsy a slight coagulation of protein has taken place in the brain, or parts of it, therefore a chemical agent which has the opposite or dispersing effect on proteins should work toward a cure. They believe narcotic addiction may be cured by judicious use of sodium thiocyanate, and that developments may come soon in its use as a treatment for hay fever.

GENERAL CHEMISTRY. Here are included a few notes of investigations that are of general interest but are not quite specific enough to place under physical chemistry.

It was found by Z. Bay. W. Finkenburg and W. Steiner (*Zeit. Phys. Chem.*, vol. 11, p. 351) that when a condensed discharge having a mean current strength of 50-100 amperes is passed through hydrogen at pressures between 0.5 and 5 mm, a group of fine lines of great intensity appears between  $\lambda$  5836 and 5761 Å, accompanied by other lines distributed over the whole spectrum whilst the remaining complex line spectrum almost disappears. R. S. Bradford shows (*Philos. Mag.*, vol. 11, p. 690) that the temperature variation of the constants in Langmuir's equation is desired theoretically for the absorption of gases on charcoal and the results are found to be in accord with those of Zeise. The fourth in a series of papers on "Dynamic Azeotropy" by Mlle. G. Schoule (*Bull. Acad. Roy. Belg.*, vol. 17, p. 191) points out that the generalized Duhem-Margules equation is applied first to binary systems and then to the more general case of systems with several constituents. P. C. Mahanti (*Nature*, vol. 127, p. 557) reports that a six-headed band system has been found in the

region 2000–2200Å. The bands are double-headed and the structure consists of six main branches and three satellites.

C. C. Kiess and H. K. Kiess (*Bur. Stand. Journ. Res.*, vol. 6, p. 621) in measuring the arc-spectrum of zirconium, report that nearly 1600 lines have been measured between 2085 and 9300Å. At least 80 per cent have been classified as combinations between terms of the singlet, triplet, and quintuplet systems. The terms, without exception are those required by Hund's theory and many have been confirmed by Zeeman effect. The ionization potential of the potential zirconium atom is 6.92 volts. Mlle. C. Chamie and L. Goldstein (*Journ. Chem. Phys.*, vol. 50, p. 228) find that the formation of groups of radioactive atoms is probably due to ionization of traces of gas in the emanation tube, forming centres for condensation of radio active atoms.

**MINERALOGICAL CHEMISTRY.** The discovery of new minerals is growing less each year. New localities sometimes furnish new minerals but the older sources have been pretty well studied. A few notes pertaining to the origin of certain minerals are included.

A new organic mineral called curtisite with the probable formula  $C_{24}H_{18}$  is reported by F. E. Wright and E. T. Allen (*Amer. Min.*, vol. 15, p. 160). It crystallizes in the orthorhombic system and is yellow to yellowish-green in color. S. Yimori, T. Yoshimura and S. Hata (*Sci. Pacro. Inst. Phys. Chem. Res. Toyko*, vol. 15, p. 83) report a new radioactive mineral similar to allanite that has been found in the Byozan Range. They have found its composition to be  $4 CaFeO_3 \cdot 3 (Ce, La, Y, Al, Fe Th) O_2 \cdot 6 (Si O_2 P_2 O_5) \cdot 2 H_2 O$ . The name of nagetelite is proposed. According to M. Berek (*Zett. Krist.*, vol. 76, p. 396) the intensity of the light reflected by anisotropic materials is calculated for both perpendicular and oblique incidence. Methods for determining the amount of the various materials in a section depend on measurement of either the degree of polarization or the intensity of the reflected light. A new mineral found in Bolivia with tetrahedrite and tin pyrites in a silver-tin vein consists of prismatic, lance-shaped crystals up to 2 cm. long. It is blackish-gray with hardness 2 and d4–18. According to F. Ahlfeld (*Zentr. Min. Geol.* for 1930, p. 365) its composition is  $Ag_2 \cdot 3 PbS \cdot 3 Sb_2 S_3$  and for it the name Ramdohrite is proposed. According to F. Stober (*Chem. Erde*, vol. 6, p. 440), in Moissan's experiment for the production of diamonds in 1893, the temperature was about 3000°, the pressure very high, and the time very short, whereas in those of Friedlander (1898) and of Hasslinger and Wolf (1903) the temperature was much lower, being about 1400°, the pressure normal, and the time long. There thus appears to be a contradiction which Stöber attempts to explain by his theory of crystallization. See also MINERALOGY.

**ORGANIC CHEMISTRY.** This branch of chemistry still persists in being a favorite one for research, especially in the laboratories of universities in Europe. New products are discovered and more and more efforts are being made to link up synthetic compounds with natural substances.

A new product was obtained by R. Charonnat and R. Delaby (*Bull. Sci. Pharm.*, vol. 37, p. 7) who described the preparation of dioxyphyramidone and its solubility relationship with pyrimidine and antipyrine; and also the color reactions for distinguishing the substances are given.

Dioxyphyramidone is found to be stable towards oxidizing agents, halogens, acid dyes, tannin, mercury and silver compounds, alkaloid salts, and phenols. According to R. Labes (*Arch. Exp. Path. Pharm.*, vol. 158, p. 42) the constant of the reaction in which sodium salicylate and caffeine combine to form a complex is found, by a partition coefficient method, to be between 30 and 40. In his study of the olive, G. Sani (*Atti. R. Acad. Lincei*, vol. 12, p. 238) finds a new hydrocarbon to which he gives the name oleastene. It has the composition of  $(C_7H_{12})_n$ , and the boiling point of 300° (low pressure). It was obtained during the separation of the cholesterol of the olive and forms an ozonide  $C_{21}H_{32}O_8$ . G. Klein and F. Schusta (*Oesterr. Bot. Zeit.*, vol. 79, p. 231), in their studies of the microchemical detection of alkaloids in plants, report numerous results of sensitive and characteristic reactions with various idiosalts in the determination of echinopsine in the various species of *Echinops*. According to W. T. Astbury and H. J. Woods (*Nature*, vol. 127, p. 663) the sequence of the numbers 1, 2, 3, and 6 as multiples of Svedberg's value of 34.500 for the molecular weight of proteins is presented in terms of the ordinary peptide chain,  $CO.NH.CHR.CO.NH.CHR$  and possibly crystallographic combinations are outlined. The observed constant value of 34.500 is considered to be due to the vibrational instability of peptide chains of length greater than a certain limit. The disruptive action of high-energy quanta in the length and cohesion of peptide chains is shown by experiments on unstretched wool, which after exposure for many hours to the full beam of Shearer X-ray tube, shows many of the properties characteristic of wool which has been exposed under tension to the action of steam. From an examination of the cellulose obtained from different varieties of wood, E. Schmidt, K. Meinel, and W. Jandeleuer (*Naturwiss.*, vol. 18, p. 376) conclude that the least equivalent weight of cellulose corresponds with  $(C_6H_{10}O_5)_{98}$ . H. Staudinger (*Ber. Deut. Chem. Ges.*, vol. 64, p. 1407) presents his thirty-third paper on isoprene and caoutchouc and reports that the determination of the molecular weight by the behavior of terminal groups is not possible in the case of caoutchouc in which they form only an insignificant part of the molecule.

**PHYSICAL CHEMISTRY.** Much interest has been manifested during the year in the study of the composition and properties of the atom. Whether we are on the eve of greater discoveries concerning the power that brings about chemical composition may soon be known.

At an important international congress of physicists held in Rome, Italy, during October Prof. Robert A. Millikan of the California Institute of Technology, announced the discovery of an instrument consisting of an X-ray microscope, which he termed a multiple crystal spectrometer which is composed of fifty spectroscopes arranged in an arc, along which sweeps an X-ray. He showed photographs illustrating the activities of two electrons in beryllium. The electron is approximately 1700 times smaller than the atom, yet the invention caught it in action. The nuclei, the movements of which were demonstrated, are conceived for the sake of convenience as miniature suns, immensely heavy, about which revolve a cloud of electrons, the whole forming an atom. Also at this meeting Prof. Niels Bohr, author of the solar system conception of atoms, showed

how he approached the study of the protons, that is, the nuclei, of atoms by observing the action of electrons outside the nucleus.

Later in October an Associated Press dispatch from Berkeley, Calif., announced the installation of a huge electro-magnet at the University of California by which a method of breaking down the component parts of atoms was expected and possibly a procedure to make gold out of less precious metals. The experimenters claimed to have succeeded in isolating and collecting the protons, or nuclei, of hydrogen atoms and would apply these protons under electrical force as projectiles with which to break up the atoms of other elements. By using the hydrogen protons as "bullets" propelled by electrical force the scientists expected to "shoot" the protons or nuclei out of atoms of other substances, much as an ordinary rifle bullet would knock the bulls'-eye out of a target. Thus robbed of its nucleus, the atom of the baser substance would be broken up, causing it to change its nature. "By using 10,000 volts over and over again, the hydrogen protons already have been 'stepped up' to energies of 1,000,000-volt electrons. Nothing like this ever has been achieved before in any laboratory. It seems that these protons are traveling at the rate of 8000 miles a second. The most important conclusion of all is that the energy which may be imparted to these protons is limited only by the strength of the magnet which keeps them going in circles. With protons from a machine built around this magnet it should be possible to blast the nucleus of any atom on earth."

From Princeton came the announcement in November that a simple and inexpensive method of building generators capable of developing 15,000,000 to 20,000,000 volts, which experts regard as finally opening the way toward the realization of the age-old alchemists' dream of transmutation of the elements, had been perfected at the Palmer Physical Laboratory, Princeton University, by Dr. Robert J. Van de Graaff. The new generator was expected to supply science with a new tool with which to bombard and smash up the atom. This was being done on a small scale by employing the Alpha particles from radium as the "cannon." But as the supply of Alpha particles from radium is small and extremely costly the new generators are expected to supply Alpha particles cheaply and in much larger amounts.

Adsorptive power as explained by a new theory based on London's conception of molecular forces is discussed by F. London and U. Polanyi (*Naturwiss.*, vol. 18, p. 1079). It was found by J. Warner (*Zeit. Phys.*, vol. 67, p. 207) that metals and salts show in a high vacuum an increase in the photo-electric emission with time, which is independent of the radiation. The cause of this increased sensitivity, shown by the unsaturated emission, is the removal or discontinuance of the layer of gas absorbed on the metal or salt. It is reported (*Zeit. Physik.*, vol. 69, p. 111) by I. Ameiser that experiments on silver, gold, and copper indicate that electron emission diminishes and surface potential remains unchanged as the metal passes to the liquid phase.

NECROLOGY. Among the American chemists who died during the year, the following are noteworthy: John Edgar Teeple, born in Kempton, Ill., on May 14, 1874; died in New York City, on March 23; leader in the development of the American potash industry; and Perkin medalist

in 1927. Samuel Wilson Parr, born in Granville, Ill., on Jan. 21, 1857; died in Urbana, Ill., on May 16; emeritus professor of applied chemistry, University of Illinois; Chandler medalist, and president of the American Chemical Society. Frank Wigglesworth Clarke, born in Boston, Mass., on Mar. 19, 1847; died in Chevy Chase, Md., on May 23; professor of Chemistry in University of Cincinnati; chief chemist of U. S. Geological Survey; world authority on atomic weights; and author of *Constants of Nature* and *Data of Geochemistry*. Edward Hart, born in Doylestown, Pa., on Nov. 18, 1854; died in Easton, Pa., on June 6; emeritus professor of chemistry in Lafayette College; long editor of the *Journal of the American Chemical Society*; and founder of the Baker and Adamson Chemical Company, and of the Chemical Publishing Company. Stephen Moulton Babcock, born in Bridgewater, N. Y., on Oct. 22, 1843; died in Madison, Wis., on July 2; emeritus professor of agricultural chemistry in the University of Wisconsin and discoverer of a method to determine the butter fat contents of milk for which he received the Capper award (medal and \$5000) in 1930 for "The contribution of greatest importance to American agriculture." Edward Goodrich Acheson, born in Washington, Pa., on Mar. 9, 1856; died in New York City on July 6; chemical inventor and manufacturer. The abrasive carborundum was his most important invention and gained for him the Perkin medal, and other recognitions. Lucius Lincoln Van Slyke, born in Centerville, N. Y., on Jan. 6, 1859; died in Geneva, N. Y., on October 1; chemist in the New York State Agricultural Experiment Station in Geneva and professor of dairy chemistry in Cornell University. Joseph Merritt Matthews, born in Philadelphia, Pa., on June 9, 1874; died in San Diego, Calif., on October 12; author of books on industrial chemistry and noted as a consulting chemist and expert in textile chemistry and dye-stuff. Edward Hopkins Jenkins; born in Falmouth, Mass., on May 31, 1850; died in New Haven, Conn., on November 7, chemist and organizer and director during 1900-23 of the Connecticut Agricultural Experiment Station, the first of the kind in the world; author of many chemical papers, including "Connecticut Agriculture" in *History of Connecticut*. There are elsewhere appropriate obituary sketches of these chemists.

BIBLIOGRAPHY. Among the new books published during the year are the following: Chittenden, *The Development of Physiological Chemistry in the United States* (Monograph no. 54, American Chemical Society); Friend, editor, *A Textbook of Inorganic Chemistry* (vol. vii, pt. 2, "Sulphur, Selenium, and Tellurium"); Mellor, *A Comprehensive Treatise on Inorganic and Theoretical Chemistry* (vol. ii, "Tellurium, Chromium, Molybdenum and Tungsten"); Mitchell, *Recent Advances in Analytical Chemistry* (vol. i, "Organic Chemistry"; vol. ii, "Inorganic Chemistry"); Peters, *Quantitative Clinical Chemistry* (vol. i); Smyth, *Dielectric Constant and Molecular Structure* (Monograph no. 55 of the American Chemical Society); *Chemistry at the Centenary Meeting of the British Association for the Advancement of Science*, a collection of important papers; also the following new editions: Association of Official Agricultural Chemists, *Methods of Analysis* (3d ed.); Berntsen, *A Textbook of Organic Chemistry* (New edition revised to

date); Porter, *The Carbon Compounds* (2d ed.); Sherman, *The Vitamins* (2d ed.); Taylor, *A Treatise on Physical Chemistry*, (2d ed.) 2 vols.

**CHEMISTRY, INDUSTRIAL.** In this field steady progress is reported. Naturally Germany, Great Britain, France, and Italy, as well as the United States, felt the effect of the general world economic depression in lessened production, decline in prices, and foreign-trade reductions. It may be said, however, that the chemical industries were affected less than business in general. Notwithstanding the tendency to reduce expenses, research was continued.

**AMERICAN CHEMICAL SOCIETY.** The 81st meeting of this Society was held in Indianapolis, Ind., during March 30 to April 3, at which 1873 persons were registered and 402 papers read before 16 divisions. A special feature of the meeting was the dedication of the Indiana University Chemistry building with appropriate addresses.

Three important symposiums featured the proceedings. One, on "Contemporary Developments in the Chemistry of Physiologically Active Substances," was held under the auspices of the Divisions of Biological, Medicinal, and Organic Chemistry, with Prof. James B. Conant of Harvard University as chairman. The Division of Chemical Education, of which Dr. John N. Swan of Tuckahoe, N. Y., was chairman, sponsored a second symposium on "Cooperation between Industry and Chemical Education." A third, on "Mathematics in the Service of Chemistry," was given by the Division of Physical and Inorganic Chemistry, headed by Prof. Farrington Daniels of the University of Wisconsin. Among the papers presented was one by Dr. H. A. Shonle on drugs producing hypnotic sleep as a substitute for anesthetics in operations. According to Dr. Shonle: "It is possible to predict the effectiveness and the duration of hypnotics which have not yet been synthesized. New advances in anesthesia seem possible through the use of the amyl-ethyl-barbituric acids and nitrous oxide, nausea is eliminated, greater comfort is afforded the patient, and far less mental distress is observed." There seems to be hope of finding a hypnotic drug producing a sleep in which no anesthetic will be needed.

Dr. R. N. Harger of the Medical School of the University of Indiana described a new scientific method for detecting the presence of alcohol which registers any degree of drunkenness, merely by catching some of the drinker's breath, and is so sensitive that it detects alcohol even when all odor is expurgated from the breath. The suspected breath is blown into an ordinary toy balloon. From there it is bubbled through a red liquid, which speedily turns almost white if there is alcohol. This red fluid is a combination of potassium permanganate, which gives the red color, and of a certain critical amount of sulphuric acid. It shows how much alcohol the blood carries. One part of alcohol in 1000 of blood, by weight, is the beginning of intoxication. Five parts means dead drunk, six parts almost certain death. It is estimated that it takes about three ounces of whisky in a 150-pound man to produce the beginnings of drunkenness.

Dr. W. C. Rose of the University of Illinois contended that a new element in diet, a compound hitherto unrecognized in proteins, was on the verge of being discovered. "This ma-

terial is certainly an indispensable constituent of the diet. If we succeed in its isolation, as we anticipate, we shall then be able to determine with comprehensive ease which of the remaining amino acids are required for normal nutrition. The nutritive importance of the amino acids is in itself a vast field which must be thoroughly explored. Of the twenty known components of proteins, the indispensable nature of only four have been absolutely established."

Discovery of a synthetic champagne-colored oil excelling nature's product was disclosed in a paper by F. W. Sullivan, V. Voorhees, A. W. Neely, and P. V. Shankland of the Indiana Standard Oil Company. It is made from waste paraffin wax, an element in natural lubricating oil so undesirable that millions of dollars have been spent in eliminating it from oil. It is claimed that the new oil stands heat with less thinning and extreme cold with less thickening "better than any known natural oil." It is "expensive," but has found a market "well suited for many uses where requirements are unusually severe. For airplane engines, shock absorbers, automobile's gear shifts, and other places where stability is very important the new oil has been found to surpass all previous oils and is hailed as a decided forward step in the art of lubrication."

Civilized men are eating a surprising quantity of lead, according to Dr. Robert A. Kehoe of the University of Cincinnati. He reported recent experiments showing that the body protects itself from any sudden influx of extra lead by excreting it as fast as it is taken in. He reported that lead was found in milk, bread, bran, crackers, frankfurters, sausages, meat, potatoes, candy, ice cream, and many fruits. He attributed the lead in bread, bran, and crackers to absorption of this element by growing grain. It passes into milk through the cow's feed. Candy and ice cream contain a fairly high amount because of methods of commercial production. The lead in fruits is credited to sprays and canning.

Prof. W. H. Eddy of Teachers College at Columbia University found the presence of adequate amounts of vitamins A, B, C, and G for health needs in forty-nine different canned foods. Dr. Eddy declared that present-day housekeepers might rely freely on canned foods, such as milk, meats and fowl, sixteen common vegetables, various fruits, and desserts; and even on canned brown bread. The tests were made on rats and guinea pigs. The rat experiments extended over a year, which was equivalent to about twenty-five years of human life. All the animals were found to average better in weight than those fed on a stock diet.

According to Harold Levine of the South Carolina Food Research Commission, Prof. Roe E. Remington of the Medical College of South Carolina and F. B. Culp of the South Carolina Food Commission, there is sufficient iron, copper, and manganese in oysters taken off South Carolina to retard development of nutritional anemia. Dr. Frederick R. Greenbaum of Chicago, Ill., described a cure of anemic dysentery now made in the United States, which is called chiniofon and is an almost forgotten German chemical compound first produced fifty years ago. Forty per cent of the Chinese are said to suffer from the disease and it is said that one out of ten of the inhabitants residing in the Southern States in the United States is similarly afflicted.

Prof. J. P. Montgomery of the University of Alabama told of the recent discovery of a process by the university's chemical staff for the production of highly satisfactory varnishes from table sugar. These are made by producing resins from the combinations of certain sugars with aniline and dissolving the resin in acetone. They have been made from four varieties of sugar, but xylose was the most promising, as it was a cheap sugar which is produced in large quantities from waste cottonseed hulls and had few other uses. "If it is desired to make a varnish out of ordinary table sugar, the sugar is first inverted by acid, producing glucose and fructose, and a resin made by the addition of aniline. The resin when dissolved in acetone gives a varnish similar to that described."

The Buffalo meeting was held during August 31-September 4 and about 390 papers were read before 19 divisions and sections. The registration showed 2057 persons present. Among the papers presented and discussed at this meeting were the following:

Wallace H. Carothers and Julian W. Hill of the experimental station of E. I. du Pont de Nemours and Co., of Wilmington, Del., reported a new process for making silk-resembling material, saying that their results "clearly demonstrate the possibility of obtaining useful fibres from strictly synthetic material." The new product is shown to resemble cellulose and silk in the general plan of their molecular structure. Hitherto the various artificial silks, such as rayon, could not be made out of "strictly synthetic material." Rayon is pure cellulose, a complicated organic product. This cellulose is turned into rayon by substituting a machine for the silk worm. The new process makes it possible for the first time to begin with simple organic substances and build up from them to the more complex ones with molecular weights several times greater than had been possible hitherto to create artificially. "The fibres so produced are of good strength, pliability, and high lustre. The elastic properties are remarkable. Both the rate and the extent of recovery from stretch are greatly superior to viscose rayon and at least as good as silk. The lustre is very brilliant and the fibres can be tied into small tight knots without breaking."

The New Magnetic Eye, developed by Prof. Frederick Allison of Alabama Polytechnic Institute, is a new method of chemical analysis and was said by him to constitute "a major scientific advance." It is known as the magnetoptic method, a combination of light and magnetism. The light is practically extinguished in the magnetized liquid by the elements therein. But each element takes a different fraction of time to do the snuffing out and so reveals its presence.

In a mixture of several substances each one retains its own reaction-time unaffected by the presence of the others, and each substance retains its power to manifest its individual reaction-time even after the solution is diluted until the substance is present in only one part in a hundred billion. The magnetoptic method enables one to find out just how much of the substance is present. It is possible, for example, to detect in our foods very minute quantities of metals which, until recently, were not known to be a content of foods and the importance of which to health has been a question of much concern to research workers in the field of biochemistry.

The new eye has given traces of the two missing elements that no one yet has found on earth,

although scientists are certain they exist. They are known simply as elements 85 and 87. Chemists predict that 87, when found, will be radioactive, jet black, of metallic lustre, probably insoluble in water and will melt at about 450° Fahrenheit.

Long-time vegetarians are found to produce heat—or energy—at a lower rate than meat eaters, according to a paper by Glen Wakeham and Louis O. Hansen of the University of Colorado. The difference in energy production showed in measurements of the "basal-metabolic" rate. Five lifetime vegetarians were 13.6 per cent below normal. Ten vegetarians of five years or more duration were 1.8 per cent under normal, and near vegetarians who ate meat only occasionally were 13.4 below. But this lower energy rate made no difference in health.

Antiurease, the world's first antienzyme, discovered by Dr. James B. Sumner and J. Stanley Kirk of Cornell University, was described. An "antienzyme" is something that neutralizes an enzyme and prevents it from functioning. Enzymes are chemical substances secreted by living things and so essential that without them death is a matter of a few hours. The popular appeal in antiurease is the light it gives on the existence of unidentified substances, probably chemicals, which exercise in the body the balance between health and illness, life and death, or normality and abnormality. Such a balance is the unidentified thing that keeps one's hands from growing too big, or determines the size of the heart and all other organs. The famous chicken hearts of Rockefeller Institute show what happens when the balance is missing. They grow so continuously that if there were sufficient food they could become as big as the earth ultimately. Some of the medical sera and vaccines are well-known examples of this principle already in practical use.

Discovery of an "inhibitor" in chicken cancer by Dr. James B. Murphy of Rockefeller Institute is also a recent medical example. The cancer contains something which Dr. Murphy extracts to "inhibit" growth of the same kind of cancer. He announced a further discovery that this chicken inhibitor shows some control over mouse cancer. It reduces the number of "takes" when cancer is transplanted into mice, and it slows down the cancer development to a "significant percentage." What this inhibitor substance may be has not been determined. In his latest scientific article Dr. Murphy suggests that an "incidental enzyme" in the chicken cancer extract may be the substance attacking the mouse cancer cells. The best known enzyme is pepsin, digestive aid which breaks down proteins in the food into the amino acids which the body can assimilate.

Two enzymes have recently been isolated in pure form and proved to be minute crystals. Dr. Sumner is credited as the first scientist to isolate an enzyme, urease. Urease, for which he had found the inhibitor, antiurease, is an enzyme of vegetable origin. The discovery indicates that one of the reasons why the all-important enzymes do not ordinarily run wild and produce so freely as to destroy health, is the presence of a safety device locked in each one. His work does not show that this safety factor exists full fledged, but that its germ lies somehow within the enzyme. When the enzyme urease was injected into the ear vein of a rabbit, it caused convulsions within five minutes and death within an hour. By starting with very small doses and

increasing them gradually, Dr. Sumner developed immune rabbits. They withstood seventy-five times the amount of a lethal dose without even a sign of disturbance or a rise in blood pressure. In the blood serum of these rabbits, Dr. Sumner found the immunizing substance, measured its volume and named it antiurease.

Dr. Alexander O. Gettler, chief New York toxicologist of Bellevue Hospital, and Drs. Joseph B. Niederl and A. A. Benedetti-Pichler of the chemical department, Washington Square College, New York University, described an alcohol isolated from the tissues of the human brain, liver, and blood, that is exactly the same substance as used in alcoholic beverages and is present normally in the tissues during life. "The facts which prove this are that many of the tissues used were analyzed within fifteen minutes after death. The human blood samples were taken from living individuals and analysis started right after the taking of the blood. Analysis of the same sample or tissue of blood after standing twenty-four hours in the refrigerator, gave the same alcohol content." The average alcohol found in the human brain was .0004 per cent; liver, .00256 per cent, and blood, .004 per cent. The content in dogs was: Brain, .0003 per cent; liver, .0007 per cent; blood, .0013 per cent. The pig brain contained .00007 per cent, showing that the higher the animal the greater the alcohol content. Before the tests were made it was made certain that no alcohol of any kind had been taken by the subjects whose blood and brain were tested. The finding of a small amount of acetone present in normal human beings was also noted. Acetone has been found previously in bodies of diabetic patients, and heretofore considered a sign of ill-health.

The discovery was reported by Drs. Gladys E. Woodward and Edith G. Fry, working under the direction of Dr. Ellice McDonald, of the University of Pennsylvania Cancer Research Laboratories, that sugar aids the growth of cancer. In their paper they said that

The essential difference between cancer tissue and normal tissue is the ability of the cancer to digest the animal sugar in a different and more expeditious way from normal. A study of the blood of 223 cancer patients showed that they had, in general, 20 per cent more sugar in their blood than normal people. It was concluded that even a slight increase in the amount of blood sugar was of great importance in the treatment of cancer. The greater the amount of sugar there is in the blood of cancer patients the shorter is the expectation of their lives. There is a greater growth of the cancer when there is a large amount of sugar in the blood, the tumor grows faster and there are a greater number of dividing or growing cells in the cancerous tumor. Cancer patients with a low blood sugar respond well to treatment and have a better chance of survival, with slow growth of the tumor.

Successful production of synthetic textile fibres from sugar, by means of the vinegar plant, was reported by Harold Hibbert and J. Barsha of McGill University, Montreal, the results leading the experimenters to express a hope for the ultimate production of synthetic textiles from carbon dioxide and water. Prof. James R. Bailey of the University of Texas told of the progress of "some research of unusual interest" conducted by Miss Ivy Parker, who is engaged in experiments on the constituent bases of cotton-seed, with the object of ascertaining whether it may be possible to produce synthetic gasoline from it. Other papers included "Some Clinical Aspects of Endocrine Therapy," by Dr. William Engelbach of New York City, former professor of

clinical medicine at University of St. Louis, who told about the "growth hormone"; Drs. R. G. Hiskins of Harvard Medical School and F. H. Sleeper of Worcester (Mass.) State Hospital, who told of the insanity hormone, and Dr. I. M. Rabinowitch of Montreal General Hospital, who reported on the etiology (cause) of diabetes.

Other events of importance that took place at this meeting were: The celebration of the tenth anniversary of the founding of the division of chemical education by the late Dr. Edgar Fahs Smith, for many years provost of the University of Pennsylvania. More than a score of educators discussed plans to improve chemistry teaching and methods to bring about greater public understanding of the science. Also a symposium was held with the division of the history of chemistry on the "History of Chemical Education in America." The Langmuir prize of \$1000 from the American Chemical Society awarded for the first time and founded by a brother of Dr. Irving Langmuir of the General Electric Company, is bestowed "in recognition of the accomplishment, in America, of outstanding chemical research by a young man or woman preferably working in a college or university." It was awarded to Dr. Linus B. Pauling of the California Institute of Technology. His researches have dealt with crystal structure, the quantum theory of the dielectric constant of gases, atomic and molecular structure, and determination of the nature of chemical bonds.

Prof. Moses Gomberg of the University of Michigan became president in Jan. 1, 1931, for the term of one year, and was to be succeeded in 1932 by Dr. L. V. Redman, vice president and director of research of the Bakelite Corporation, Bloomfield, N. J. The total membership of the Society was 19,053.

**SOCIETY OF CHEMICAL INDUSTRY.** This organization held its 50th annual or Jubilee meeting in London, England, during July 13-19, under the presidency of Sir Harry McGowan who was chosen to succeed Lord Melchett, who died on December 27, 1930. A special feature of the Jubilee meeting was the opening of the Chemical Plant and Research Instruments Exhibition, which was continued during the week, and one day was given over to a Jubilee Fuel Conference similar to those held annually in various cities in Great Britain. In honor of the Jubilee *A History of the British Chemical Industry* was compiled by Dr. Stephen Miall and published by the Society, as well as a Jubilee Souvenir Number of the *Journal* containing a portrait and short biography of each of the seventy-five remaining Original Members to whom a Jubilee plaque in silver, specially designed for the event by Mrs. Ernest Gillick, was presented at a meeting held in the Guildhall. The two surviving original members in the United States were Dr. Marcus Benjamin and Dr. K. F. Stahl.

At the business meeting, the Secretary reported the membership to be 4541 as against 4506 in 1930. The Society's medal was presented to Dr. Herbert Levinstein, who delivered an address on "From Within the Dyestuff Industry." Ten honorary memberships were conferred, of which the one in the United States was given to Dr. Charles L. Parsons of Washington, D. C. The elections resulted in the choice of Prof. Gilbert T. Morgan of the Chemical Research Laboratory for president, while the other officers remained unchanged. Nottingham was chosen for the meet-



ing place in 1932. Generous invitations to manufacturing plants, delightful entertainments, and pleasant excursions were conspicuous features of the Jubilee meeting.

**EXPOSITION OF CHEMICAL INDUSTRIES.** This event for the 13th time was held in the Grand Central Palace, New York City, during May 4-9. More than 450 exhibits, representing the latest discoveries and researches in the chemical and allied industries, were displayed on three floors. The exhibits ranged from new dyes, alloys, and plastics to precision instruments measuring infinitesimal particles, and from new substitutes for glass and china, which are practically unbreakable, to huge, intricate machinery which, directly or indirectly, affects the daily life of every person. Among the exhibits to attract attention was a small bottle of the new metal rhenium, or element No. 75, which was discovered in Berlin in 1925 by means of an X-ray spectrograph. It is the first time that this rare metal has been displayed in the United States. Gallium, a metal which melts at blood temperature, was also shown. Another exhibit to attract attention was a specimen of synthetic rubber manufactured from a by-product of petroleum, a hydrocarbon known as butadiene, obtained from cracked petroleum gas. The new process holds out promise for manufacture on a commercial scale. Many visitors were attracted by the demonstration of the mixing of oil and water, as a result of which better polishes, cleansers, cosmetic creams, lotion liniments, lubricants, flavors, and other objects in common use are now made. More than 500 students, representing 18 colleges and universities, attended the students' course of lectures held in conjunction with the exposition, under the direction of Dr. W. T. Read, Dean of Chemistry, Rutgers University. Over 100,000 visitors were said to have viewed the exhibits and "from every viewpoint the exposition (was said to be) an outstanding success."

**MEDALS.** The Perkin medal of the American Chemical Society was on January 9 presented to Arthur D. Little. His achievements include important work in the fields of artificial silk and petroleum. He was chemical engineer and superintendent of the first mill in the United States to manufacture sulphate wood pulp. The William H. Nichols Medal of the American Chemical Society was on March 13 awarded to John Arthur Wilson "for outstanding achievement in colloid chemistry, applied particularly to leather and sanitation." The American Institute of Chemists on May 9 conferred on Andrew W. Mellon and his brother Richard B. Mellon the medal of the Institute for their "noteworthy and outstanding service to the science of chemistry and the profession of chemist in America." The Willard Gibbs medal of the Chicago section of the American Chemical Society was awarded on May 22 to Phocbus A. Levene "as the outstanding American worker in the application of organic chemistry to biological problems."

The medal of the Society of Chemical Industry was awarded on July 15 to Dr. Herbert Levinstein for his "conspicuous services to applied chemistry by research, discovery, invention, or improvement." This medal is awarded every two years. The Jacob F. Schoellkopf medal of the American Chemical Society was on September 2 presented to Frank J. Tone. The Grasselli medal of the American Section of the Society of Chemical Industry was on November 6 presented to

Lawrence V. Redman for his paper on the "Cost of Research and its Apportionment," presented on December 9, 1927. The Electrochemical Society awarded its Edward Goodrich Acheson medal on September 3 to Dr. Edward Fitch Northrup for his studies on the development of high frequency furnaces used for the melting of metals and alloys. On March 26 Dr. Claude S. Hudson, professor of chemistry at the National Institute of Health of the Public Health Service, received the Hillebrand prize of the Chemical Society of Washington. The prize was awarded to Dr. Hudson for his work on the ring structure of sugars, highly technical but of fundamental importance in chemistry and biology.

**RHENIUM.** According to a press dispatch from Berlin, Germany, dated July 16, Dr. Walter Noddack has found a new source of the recently discovered metal rhenium and it contains up to 1 per cent of the element. The metal, dark gray in color, is heavier than gold and has a melting point of 3440° Centigrade, which is higher than tungsten. When quantity production is achieved, rhenium may prove useful in the radio industry and for television apparatus. It was first exhibited in the United States at the Exposition of Chemical Industries held in New York City on May 5.

**LIQUEFACTION OF HELIUM.** Liquid helium was produced on April 3 for the first time in the United States at the Bureau of Standards in Washington, D. C. Helium, the gas first discovered in the sun and of immense practical value in filling airships, because it is non-combustible, is the most difficult substance on earth to liquefy and freeze. The first step in making liquid helium is to produce liquid hydrogen, which is accomplished by subjecting the gas to a pressure of 2000 lbs. to the square inch, after which it is cooled by liquid air to a temperature of 310 degrees below zero. Then a supply of helium as pure as can be obtained by refining processes is compressed to a pressure of 200 lbs. to the square inch, after which the compressed gas is cooled with liquid air and liquid hydrogen to the temperature of the latter, 423 degrees below zero. The helium is a gas even at this low temperature. The next step is to allow it to expand, thereby producing additional refrigeration and lowering the temperature of the helium to 456 degrees, at which it liquefies. In making liquid helium it is first necessary to insure a plentiful supply of liquid hydrogen. Liquefaction of this rare gas, next to hydrogen the lightest of all the elements, was accomplished in the low temperature laboratory of the Bureau of Standards at a temperature of 456° Fahrenheit. This is only three points below the hypothetical absolute zero at which all movement of gases stops. The liquid was produced by boiling helium at low pressure. The boiling point was 450° Fahrenheit and once this was reached the point of liquefaction was found only 6 degrees lower.

**VALUABLE ALLOY.** Hipernik is a recently discovered refined iron-nickel alloy. It is annealed in an atmosphere of hydrogen at a temperature ranging from 1000° to 1300° for many hours. This process removes small impurities, chiefly oxygen, said to exist in the ordinary 40-60 per cent alloy. Such impurities in an alloy, even if they amount to only a few hundredths of 1 per cent, produce differences in the magnetic properties of several hundred per cent. Hence

chemists have been seeking a method of removing the last traces of impurities. They have succeeded in hipernik, which is the nearest approach to an ideal magnetic alloy ever developed. This alloy is noted for its high permeability, negligible hysteresis loss, ductility, non-corrosive quality and its comparatively low cost of production.

If the 10,000,000 transformers that furnish power and light to the United States were placed side by side they would form a solid fence along the National Pike from Baltimore to Los Angeles. In operation they dissipate about ten billion kilowatt hours of energy in heat. This waste costs many millions of dollars annually, one-half of which could be saved by the use of hipernik in those transformers.

In the research work observations were made by passing X-rays through thin films of different materials. It was known that the atoms of many materials were arranged in cubic symmetry with iron atoms at the corners and centres of the cubes and nickel atoms at the corners and centres of the faces of the cubes. Millions of these cubes form what are known as space lattices. Then it was discovered that the magnetic properties of iron depended upon the regularity of the arrangement of the atoms in the space lattices. A mere trace of impurity served as a tiny wedge, distorted the symmetry and disturbed the magnetic properties.

**SPARK PLUG ALLOY.** Experience had established a belief that nickel wire was the best material for spark plug points. A study by Prof. O. S. Duffendack and Dr. R. A. Wolfe of the University of Michigan Department of Engineering Research shows that very pure nickel produced a much poorer spark plug than the commercial nickel. Investigation revealed that the superior sparking of the commercial metal lay in an impurity of small portions of magnesium, which originally was added to remove sulphur while the nickel was molten and which was supposed to evaporate completely before cooling. This magnesium greatly facilitated the spark, but it also was used up faster than the nickel, with the result that when the magnesium impurity was gone the spark plug deteriorated. The magnesium could not be distributed evenly, and so the Michigan scientists began a search for a substitute, which they found in barium. In the heat of the spark, they find barium evaporates away at the same rate as the nickel, producing a generally long-lived plug, with a strong spark from relatively low voltage.

**SYNTHETIC RUBBER.** At last the production of this long sought for product was announced. According to the daily newspapers on November 2, at a meeting of the Rubber division of the American Chemical Society held in Akron, Ohio, the announcement was made in a series of technical papers by F. B. Downing, W. H. Carothers, and Ira Williams, each speaking for a group of chemists who participated in the research work.

The new rubber is made by the controlled polymerization of chloroprene, chloroprene being made by the catalytic polymerization of acetylene to monovinylacetylene which is then treated with hydrogen chloride to produce chloroprene, according to the reaction developed by Dr. J. A. Nieuwland of Notre Dame University.

This chemical result led to the selection of the trade name, "duprene." It was claimed for "duprene" that it was much more resistant than natural rubber to the swelling action of gasoline, kerosene, and other solvents that are harmful to

rubber. It was also more resistant to oxygen, ozone, and ether, chemicals that attack rubber.

An interesting feature of the substance is that it can be vulcanized by the application of heat alone, whereas to vulcanize natural rubber it is necessary to add sulphur.

An artificial latex can be made from chloroprene. This artificial latex is a milk-like liquid consisting of particles of fully vulcanized synthetic rubber suspended in water which, upon drying, gives a sheet of fully vulcanized rubber. The "duprene" latex differs radically from natural latex because of its increased penetrating power, so that it becomes possible to impregnate many porous materials that cannot be impregnated with natural rubber latex. Another property of the new rubber is that its X-ray diagram is reported as similar to that of natural rubber, indicating that it has the same type of molecular structure. Synthetic rubbers have been produced before by many scientists, but none of these products, so far as known, has given the same type of X-ray diagram as natural rubber.

**NEW ANÆSTHETIC.** A study reported in February by Drs. J. F. Fulton, E. G. T. Liddell, and B. M. Riech in the *Journal of Physiology* of London, England, and financed by the Medical Research Council of Great Britain reveals remarkable properties of a new anæsthetic which is a liquid preparation of diallyl-barbituric acid, and administered by injection. It acts on the lower brain centers—the thalamus, mid-brain and upper part of the medulla oblongata. It lowers blood pressure without impairing heart action or respiration. It produces profound anæsthesia without interfering with the spinal cord reflexes, such as the knee jerk. But its most valuable property is that of stricting the innumerable small blood vessels of the brain which hitherto have been a great obstacle to the brain surgeon. Working with monkeys, the experimenters found that they could perform such major operations as removal of the cerebellum or the cerebral hemispheres almost bloodlessly without the necessity of closing off any of the great arteries of the region. They were able to perform three successive operations on the same animal—removal of the cerebellum and of the right and left hemispheres—at three-week intervals. The animals used in the experiments remained quiet from 12 to 36 hours.

**NEW DENATURANT.** According to orders issued by the U. S. Bureau of Industrial Alcohol a new denaturant with the following formula came into use on Jan. 1, 1931. "To every 100 parts by volume of ethyl alcohol of not less than 160 degrees proof add one part by volume of the compound, or one similar thereto, known as aldehyol, grade A, or 1.25 parts by volume of the compound, or one similar thereto, known as alcotatate." Aldehyol is an oxidized kerosene devised by Prof. J. H. James of the Carnegie Institute of Pittsburgh, while alcotatate is a by-product of California gasoline which has been described "as a more or less complex compound of aldehydes, sulphur mixtures, and a large array of other organic substances." These compounds "have a horrible smell and taste," according to the experts of the Bureau.

**MENACE OF METHANOL.** In a report of progress of experiments on animals published in August by the American Chemical Society, Dr. Carey P. McCord of the Industrial Health Conservancy Laboratories, Cincinnati, Ohio, said that the death of 208 persons from drinking methanol

(methyl alcohol) reported during the year, had overshadowed other dangers. Skin absorption and inhalation of methanol vapors were revealed as portals of entry fully as dangerous as oral intake. The tests would seem to disprove the theory held by medical authorities that the poisonous effect of methanol is due to the formation of formaldehyde caused by oxidation. In his experiments, Dr. McCord used 265 animals, of which 31 were monkeys, 58 rabbits, and 176 rats. The materials for test purposes included crude, 95 per cent, and highly purified methyl alcohols, and also synthetic methyl alcohols derived from three sources of manufacture. Dr. Harrison E. Howe, editor of *Industrial and Engineering Chemistry*, the journal of the American Chemical Society, urged that industries should unite to protect the "moronic minority." He suggested that the coloring of methanol used for anti-freeze in automobile radiators be continued; that some distinctly deterrent material be added as an additional warning, and that poison labels be put prominently on all packages containing the poisonous fluid.

**SYNTHETIC COTTON.** From Moscow, Soviet Republic, an Associated Press dispatch of July 18 announced the publication by the Institute for experimental Research of a machine that "cottonizes" rough bast fibres, converting them into manufacturable textiles. The new machine, called a "decorticator," utilizes flax, hemp, "mandyr," and ramie, fibres that grow extensively in many sections of the Soviet Union and are far harder than cotton, which requires certain climatic conditions. With it, only 30 minutes are required for the "cottonization" process, which consists of separating the fibre from the plant stem and breaking the long fibres into short, fluffy "cotton" after a series of baths which removes the pectines. The expensive, time-consuming "retting" process is eliminated in the conversion of such fibres, which formerly required 30 days and therefore was considered economically impracticable. This announcement followed closely a publication of Russia's plan to increase its output of actual cotton to the point where imports will be unnecessary by 1932. Development of the cotton substitute would provide cheaper textiles to augment the production of cotton goods, vast quantities of which are needed by the population.

**NEW WAY TO CLARIFY CIDER.** A method for clarifying apple cider cheaply and quickly, so that a beautiful crystal clear beverage can be obtained, was announced in April at the N. Y. State Agricultural Experiment Station in Geneva, N. Y. The principle involved in the new process is the introduction of an enzyme which decomposes the soluble pectin in cider without affecting the starches or protein. During the decomposition of the pectin insoluble substances are formed which are easily removed by filtering, together with other substances responsible for the cloudiness of the cider. The use of this enzyme has the advantage over other methods of clarifying cider that it can be added to the cider immediately after it is pressed and that the action of the enzyme is complete within ten or fifteen hours, depending upon its strength.

See VITAMINS.

**CHEQUERS CONVERSATIONS.** Conversations between British Government officials and Chancellor Brüning and Foreign Minister Curtius of Germany held in June, 1931, at Chequers, the

official residence of the British Prime Minister. See GREAT BRITAIN and GERMANY under *History*.

**CHESS.** Although another year went by without a return match for the world's chess championship between Dr. Alexander Alekhine of Paris and José Capablanca of Havana, whom Alekhine defeated in 1927 at Buenos Aires, the chess experts of the world were very active in 1931. The victory of the United States team in the fourth team tournament of the International Chess Federation at Prague in the summer was the leading achievement of the year. The Americans captured the gold cup donated by F. G. Hamilton-Russell of London, which they won in a field of nineteen countries. The United States, represented by Frank J. Marshall, J. Kashdan, L. Horowitz, Arthur W. Dake, and Herman Steiner, outranked the Polish team by one point.

Kashdan, Manhattan Chess Club champion, strengthened his claim as a master, by his work in the tournament at Bled, Yugoslavia. There he finished in a quadruple tie for fourth place although he was second to Alekhine, the winner, at the end of the first half, E. D. Bogoljubow, of Germany, was second, and Aron Nimzowitsch, of Denmark, third. A match for the American championship between Kashdan, whose fame grew constantly in 1930 and 1931, and Marshall was discussed frequently but did not materialize.

In cable matches London won the Insull Trophy from Philadelphia and the Manhattan Chess Club defeated the British Chess Club of Paris. Samuel Reschefskey, of the University of Chicago, won the Western Chess Association tournament held at Tulsa, Oklahoma, and the New York State Chess Association tournament was captured by Fred Reinfeld, of the City College of New York. Harvard retained the H.Y.P.D. College Chess League championship, with Yale second, Princeton third and Dartmouth fourth. The interclub series of the Metropolitan Chess League, New York City, was captured by the Marshall Chess Club.

**CHESTNUT BLIGHT.** See FORESTRY under *Insects and Discase*.

**CHICAGO.** See ILLINOIS.

**CHICAGO.** THE UNIVERSITY OF. An institution of higher education and research situated in Chicago, Ill.; founded in 1890. The university is privately endowed, coeducational, and non-sectarian, although one-third of its 30 trustees must be Baptists. John D. Rockefeller founded the university, and his personal gifts amounted to a total of \$35,000,000 over a 20-year period.

The educational reorganization, announced in November, 1930, was put in effect for the entering freshman class in October, 1931. The new educational programme abolishes the traditional graduate schools and undergraduate college, substituting a divisional organization, consisting of the college, four upper divisions in arts and sciences, and the professional schools. The college is a new entity, corresponding roughly to what has been called the junior college. The four upper divisions, which have been formed by grouping of departments, are the biological sciences, the physical sciences, the social sciences, and the humanities. For details, see the NEW INTERNATIONAL YEAR BOOK for 1930. The following appointments were made from the faculty to meet administrative requirements of the reorganization: George A. Works, as dean of students and university examiner; Gordon J.

Laing, as dean of the humanities division; Henry G. Gale, as dean of the physical sciences division; Frank R. Lillie, as dean of the division of biological sciences; C. S. Boucher, as dean of the college division. Beardsley Ruml, appointed in 1930 as dean of the social sciences division, assumed that position during the current year.

During the summer quarter of 1931, a total of 4957 different students were enrolled; during the autumn quarter of 1931, the enrollment was 7013. The total enrollment for 1930-31 was 13,646 individuals. These figures do not include the enrollment in the home study or correspondence department, which has an average of 7000 students at any one time. The members of the several faculties, exclusive of assistants, numbered 1095 (including 192 in the university college) on Nov. 1, 1931. In all departments and in all grades of service, the university employed approximately 3000 persons. Important additions to the faculties during the year included the following: Alfred R. Radcliffe-Brown, as professor in the department of anthropology; Carl Bricken, as assistant professor in the new department of music; Pierce Butler, as professor of library science and acting dean in the graduate library school; and Thornton Wilder, as professorial lecturer in English.

The assets of the university as of June 30, 1931, were \$108,779,459, an increase of \$5,029,725 over the figure for the same date in 1930. These assets were divided as follows: Endowment, \$59,929,899; plan, \$36,691,009; current assets, \$3,115,041; other assets, \$9,043,506. The total income under the university's combined budget for the fiscal year 1930-31 was \$7,868,423, while expenditures amounted to \$7,841,117. Student fees provided 32 per cent of the university budget income, and endowment funds provided 42 per cent. The salary cost of instruction and research constituted 39 per cent of the budget expenditures, or \$2,115,327. The total amount of gifts paid in was \$8,020,540.

Completion of five structures during 1931 brought the number of buildings operated by the university for educational purposes to 87, including the Yerkes Observatory at Williams Bay, Wis.; the buildings of the Rush Medical College of the west side of Chicago; and the expedition headquarters of the Oriental Institute at Luxor, Egypt; Armageddon, Palestine; and Khorsabad, Iraq. These new buildings were the affiliated Chicago Lyng-In Hospital; the new residence halls for men, the graduate education building, Oriental Institute, and the field house. The new International House of Chicago, which is to be a centre for all foreign students in the Chicago metropolitan region, was under construction.

The University of Chicago Press published 107 books during 1931. This number does not include material published for the National Advisory Council on Radio in Education, nor that published for the Committee on the Costs of Medical Care. The Press also issued some 30 maps and scales. The majority of the publications were the product of original research and scholarship. Sixteen scholarly journals are also published by the Press. Accessions to the university libraries increased the number of bound volumes to 906,195, and number of periodicals regularly received to 5317. The President in 1931 was Robert Maynard Hutchins, A.M., LL.D.

**CHICAGO ART INSTITUTE.** See ART MUSEUMS.

**CHICAGO EXPOSITION.** See EXPOSITIONS.

**CHICAGO REGIONAL PLANNING COMMISSION.** See CITY AND REGIONAL PLANNING COMMISSION.

**CHICKENS AND CHICKEN DISEASES.** See VETERINARY MEDICINE.

**CHILD HEALTH.** See FOOD AND NUTRITION.

**CHILD LABOR.** It was apparent to social workers in the United States that children seeking employment were feeling with equal severity the industrial depression of the year. As one social worker reported, "Every employment office has for months now been crowded daily with children for whom it seems practically impossible to find work. They are children too who come, often without breakfast or carfare, and who tell an almost unvarying story of serious unemployment among older members of the family and plead for work which in many instances simply seems unattainable." Thus, in the office of Junior Placement of the New York State Department of Labor, during November, 1930, there were 3 applicants for every job available for 17-year-old boys and girls, 4 applicants for every job open to 16-year-olds, and 5 applicants for every job open to children under 16 years. It was apparent that emergency measures were needed in the case of children, too. In order to make possible the return of such young workers to the schools there was necessary the creation of emergency funds to clothe them and to keep them in shoes. Social workers were stressing the need for more and better training for children and for curriculum adjustments in the schools themselves to prevent innumerable boys and girls from suffering from lifelong handicaps as a result of the present serious emergency.

**MINIMUM STANDARDS.** In 1931, the National Child Labor Committee adopted the following minimum standards to protect children "against premature or otherwise injurious employment and at the same time leave them free for adequate education, physical development, and preparation for occupational life."

As regards children employed in non-agricultural occupations:

1. No child under 16 should be employed, except that children 14 to 16 years may work outside of school hours in light occupations. School attendance should be compulsory for the entire term for a child under 16, unless he has completed the course of study.
2. No person under 18 should be employed for longer than a 6-hour day or 44-hour week; for children between 14 and 16 years the combined hours of school attendance and employment should not exceed 8 hours a day.
3. No person under 18 years should be employed at night between the hours of 7 p. m. and 6 a. m., except that boys 16 to 18 years may work until 10 p. m. in suitable occupations.
4. No person under 18 years should be employed without a work permit based on proof of age, employer's promise of work, and certificate of physical fitness.
5. No person under 18 years should be employed in dangerous occupations.
6. Adult earning capacity should be considered as the basis for compensation in the case of minors permanently disabled; at least double compensation should be assessed against the employer of an injured minor illegally employed.

As regards children working in agricultural pursuits:

7. No child was to be employed during the hours when compulsory attendance laws required his presence in school. School attendance should be compulsory for the entire term for a child under 16 years unless he has completed the course of study available.
8. No child under 14 should be employed at any time away from the home farm.

9. No child under 16 should be employed away from the home farm for more than 8 hours in a single day; the combined hours for school attendance and such employment are not to exceed 8 hours in a single day.

10. No person under 18 should be employed in dangerous or injurious agricultural work; minors employed in agriculture should be included in the workmen's compensation law.

**LEGISLATIVE PROGRESS.** The National Child Labor Committee reported that in the 44 State legislatures meeting in 1931, no serious effort was made by any of the jurisdictions to place greater obstacles in the way of child labor as one of the means of coping with the continued unemployment situation. So, not a single State during the year raised its compulsory school attendance law or the minimum age for general employment. It is interesting to note that in Massachusetts a bill aiming at the raising of the educational requirement for work permits from the sixth to the seventh grades failed to receive a single vote in its favor. In other respects progress, however, was indicated. Notably in Alabama and North Carolina significant measures bearing on child labor were enacted. In Alabama, a law was passed raising the educational requirement for the issuance of work permits for children between 14 and 16 years to the seventh grade in September, 1932, to the eighth grade in September, 1934. An amendment to the Alabama workmen's compensation law gave injured minors illegally employed double compensation.

In North Carolina, amendments to the child labor laws provided that the 8-hour day and 48-hour week was to apply to all children under 16 with the exception of boys over 14 supporting themselves or widowed mothers. Further prohibition was ordered against the employment of children under 16 in certain specified dangerous occupations. Girls between 16 and 18 were prohibited from working in industrial plants after 9 p. m. and before 6 a. m. In Texas, the workmen's compensation law was amended to include all employed minors whether illegally employed or not and to make compensation based on future earnings.

Delaware raised the minimum age of employment in canneries from 12 to 14 years. New Jersey raised the educational requirement for work permits for children of 14 years from the sixth to the eighth grade. Pennsylvania, in company with Alabama, was added to the States granting extra compensation to injured minors illegally employed, making a total of 9 carrying such laws. In New York, a 48-hour law for women over 16 years in mercantile establishments was improved by reducing the amount of overtime allowed. However, all proposals to establish a minimum wage board for minors and women were defeated and the bill requiring at least 20 hours a week school attendance during unemployment was so weakened by amendment that the governor vetoed it.

In the New England States the National Child Labor Committee reported little child labor legislation of significance. The Federal Child Labor Amendment was introduced for ratification in the legislatures of Colorado, New York, Ohio, Oregon, Pennsylvania, Washington, West Virginia, and Wyoming, and succeeded in being adopted only in Colorado. This made the sixth State to ratify the amendment.

**CHILDREN IN HAZARDOUS EMPLOYMENTS.** The report of a sub-committee of the White House

Conference on Child Health and Protection held in 1930 presented the most complete material yet issued on the problem of children involved in industrial accidents. According to statistics available for 16 States, employing together approximately two-thirds of all the minors in the United States engaged in non-agricultural pursuits, there were occurring annually 100,000 injuries to minors under 21, from 20,000 to 25,000 injuries to minors under 18, and between 5000 and 4000 injuries to children under 16. Fully 1000 minors under 18 were each year suffering permanent disabilities and 100 were being fatally injured. In addition, a large number of children were in all probability being affected by harmful dusts, fumes, intense cold or heat with dampness, cramped postures and other fatigue. The report declared that machinery and vehicles were the principal causes of injuries to minors. Vehicular injuries accounted for a larger proportion among children under 16 years than among minors between 16 and 17 years or among older children; while machinery caused a larger proportion of injuries to young persons 16 and 17 years of age than to children under 16.

It was found that legislative prohibitions against hazardous employment, particularly as regards work on or about machines, were much less adequate for 16- and 17-year-olds than for those under 16. In all States for which information was available, it was ascertained that accidents to minors injured while illegally employed were more serious than those occurring to other minors. In some States approximately one-half of the injuries occurring to minors illegally employed at the time of injury resulted in permanent disability or death.

The earliest laws attacking the employment of minors in hazardous occupations were written on the statute books of Illinois, Massachusetts, New York, Wisconsin, and Ohio, and for the most part covered work on certain dangerous machines in the manufacture of paints, the use of dangerous acids, and the operation of elevators. It is interesting to note that in recent years slight consideration has been given to the development of new industrial conditions so that hazardous employments of late appearance are not adequately provided for. However, State departments of labor have been exercising themselves in this matter. Some 26 jurisdictions vest such powers in these offices. In 10, they are used more or less extensively. Thus, in California, a ruling prohibits the delivery of goods via motor vehicles by minors under 16; in New York, minors between 16 and 18 are not permitted to work on hazardous machines not properly guarded at the point of operation; in Pennsylvania, there is a prohibition against the work of minors in spray painting.

With reference to the question of the status of minors under compensation laws, the *American Child* in its March issue points out that more than a dozen States exclude children altogether from the benefits of the workmen's compensation law if they are injured during illegal employment, the thought being that damages for such injuries can be obtained through court action on a much more satisfactory basis than if a workmen's compensation law based on an inadequate, injured child's wage were the rule. However, more frequently than not, the injured child seems to be the sufferer as a result of such

a policy. Thus, it was found in Indiana that that was considerable ignorance on the part of the injured minors of their rights under the law. Out of 80 minors interviewed by a research assistant for the White House Conference, only seven had instituted civil suits and five others had employed lawyers who effected a compromise agreement; 62 received some indemnity, but 54 of these received no more than they would have been entitled to under the compensation act. On the other hand, 18 received no redress for their injuries. In 20 States, no distinction existed between legally and illegally employed minors suffering accidents. All such received regular compensation awards.

In view of the fact that compensation awards based on regular earnings, in the cases of children, are very small, a number of States seek to compensate injured children, particularly in cases of permanent disability, by requiring awards on the basis of probable future earnings or on the prevailing adult wage rate. Still a third practice in the treatment of injured minors is the award of additional compensation in the case of illegal employment. This is the rule in seven States, the payment varying from 50 per cent additional, to treble the regular compensation award. Says the *American Child*, in commenting on this situation:

Among these several contradictory treatments of the minor injured in industry, and particularly of the minor illegally employed, where is the greatest measure of justice to be found? To find the most effective means of preventing accidents is the only satisfactory goal. But whenever prevention fails and a child is hurt—a child who is working either under the conditions allowed by law or in violation of them—it is incumbent on the State to make sure that such a child receives whatever redress financial compensation can afford. Compensation based on the child's future earning capacity with extra compensation to the child injured during illegal employment seems to be the most effective method yet tried out.

**ILLEGALLY EMPLOYED MINORS.** The Pennsylvania workmen's compensation law makes provision only for legally employed minors in the State, compensation not being compulsory in the case of minors illegally employed. The redress to the child in such cases is through court action. A study made of all such cases occurring in 1929 indicated that 5458 minors under 17 years of age suffered injury. In the case of 502 children, illegal employment seemed to be indicated or there were evidences of preventable accident. It was ascertained that 289 of these injured minors were actually illegally employed. With respect to 198 cases, the loss of time through injury exceeded seven days. In 179 cases, compensation was paid by the insurance company, leaving 19 cases in which compensation was refused. Five of these children suffered permanent injury; 6 of the 19 obtained more than they would have received under workmen's compensation; 7 received only medical expenses; 6 received no redress. In the opinion of the State Bureau of Women and Children the exclusion of illegally employed children from the benefits of the compensation law brought them no advantage and in some cases real hardship was suffered. The Bureau urged the adoption of legislation calling for the payment of extra compensation to illegally employed children injured during work.

The Illinois law allows the granting of 50 per cent additional compensation to minors under 16 illegally employed and injured during occupation. Between July 1, 1929 and June 30,

1930, 78 such cases occurred which represented 67 per cent of the total number of compensable accidents to children under 16. It is interesting to note that the additional compensation paid was \$2344.

**EMPLOYMENT CERTIFICATES.** The Children's Bureau, on the basis of reports received from 23 States, the District of Columbia and 40 cities of 50,000 population and over in 11 other States, reported that the year 1930 showed the issuance of more than 103,000 work certificates to children 14 and 15 years old. These 103,000 children entered employment when their jobs might have been filled by older persons had the children remained in school. As compared with 1929, there was a decrease of one-third in the number of 14 and 15 year olds leaving school for work; yet in a few localities there was actually a slight increase in the number of children receiving regular employment certificates in 1930 as compared with 1929. In one large city in which about 1000 children in the two age groups received their first regular work certificates, the report officially gave the unemployment of adult members of families as the chief reason for the children in question quitting school. How serious this termination of school work was in order to enter the industrial round was indicated by the fact that in five States and 30 cities in other States less than 60 per cent of children had completed the eighth grade; while in four States and 11 cities from 30 per cent to 71 per cent had completed no grade higher than the sixth. Fully 42 per cent of the 30,000 children 14 and 15 years old, for whom the type of work was reported, entered manufacturing and mechanical industries, and 24 per cent entered mercantile occupations.

For those States and cities for which comparable information was obtainable for the two years 1929 and 1930, the number of 14 and 15 year olds entering work for the first time in 1930 showed a decrease of 34 per cent as compared with the previous year. In New York State, the decrease was 23 per cent, in Vermont, 55 per cent, in Wisconsin, 55 per cent. In six States, the District of Columbia, and 21 cities in other States requiring the reporting of issuance of work certificates to 16 and 17 year olds, it was indicated that the figures for 1930 showed a decrease of 27 per cent over 1929. In commenting on this situation the Federal Children's Bureau declared:

Comparatively few of the children whose school ties are once broken go back to school. Reduction of child labor, with its corollary, extended taxes, is urged, not merely as an aid to the unemployment situation, but because of the advantages to boys and girls themselves in enriched lives and more productive vocational training. The younger and more untrained the applicant for work, the fewer his opportunities for obtaining worthwhile employment at any time.

**INTERSTATE MIGRATIONS.** The Interstate Conference on Migratory Child Labor, held in Baltimore in February and attended by officials from the States of Delaware, Maryland, New Jersey, and Pennsylvania, adopted a report containing the following recommendations: All children under 16 working in canneries should be placed under the full protection of the State's child labor laws; all children working in industrial agriculture should be placed under the protection of laws for the purpose of safeguarding them from exploitation through excessive hours and unhealthy working conditions; double compen-



sation should apply to all injured children illegally employed; the States represented at the conference should adopt a reciprocal plan of co-operation in furnishing and recognizing data necessary for the issuance of employment certificates; States in which migratory children are employed should assume responsibility for the education of such children; the States in which children are employed should concern themselves with regulation of labor camps and canneries, particularly as regards housing and sanitation.

**MASSACHUSETTS.** The Children's Commission of Massachusetts, set up in 1929, after many hearings, prepared a report which was submitted to the 1931 legislature and which included some 40 major recommendations for revision or addition of the State's present statutes. The proposals made to the legislature with regard to child labor were the following: The centralization of the administration of health certificates in the school system, omitting the option of family physicians and placing supervision more completely in the hands of the school authorities. A recommendation to the effect that the superintendent of schools satisfy himself as to the mental fitness and ability of a mentally retarded child to perform the work indicated before the issuance of an employment certificate. A recommendation that there be furnished better proof of age as well as mandatory parental consent before the issuance of a work certificate. With regard to the work of children in agriculture, concerning whom the child labor law of the State made no specific provision, the Commission recommended the prohibition of the employment of children under 14 years in industrialized agriculture and also called for a maximum 8-hour day and 48-hour week for minors between 14 and 16 years. The Commission furnished this definition of industrialized agricultural establishments:

An agricultural enterprise conducted primarily for commercial purposes and employing more than 10 persons other than members of the family of the operator.

On this important matter the Commission went on to say:

It is submitted that there is no economic or social justification for the existence of any business which is dependent for its success upon the labor of children under 14 years of age. Also that children between 14 and 16 years should not be compelled to work as laborers in industrialized agriculture for longer hours than are legally permitted in factory employment. Children need freedom for growth and development, and should not be weighed down and their health and physical welfare seriously endangered, by employment causing excessive fatigue and overstrain.

As a result of the inquiry made by the Commission into educational requirements, there was also submitted to the legislature a bill calling for the following changes in the State's law: Raising the age of compulsory full-time school attendance from 14 to 15 years; raising the educational requirement for work permits from the sixth to the seventh grades; prohibition of the employment of minors under 15 years in all occupations covered by the child labor law; a requirement that employed minors under 17 years, instead of under 16 years, be made to attend continuation school.

**AUSTRIA.** During the last 12 years, more than 100,000 working boys and girls under 16 years of age in this country had been given vacations in country homes at the expense of their

employers. The government and the Association of Sickness Insurance Funds maintained a number of country vacation homes where vacations were spent either at no cost or for a nominal charge.

**MEXICO.** On Aug. 27, 1931, the Mexican Congress inaugurated the first federal labor law to apply to the whole country. The provisions of the new law covered all manual and mental workers and fixed the legal minimum for employment at 12 years. Children under 16 could not be employed more than 6 hours a day. Children under 16 and women were not to work overtime nor between 8 p. m. and 6 a. m., nor in employments which were unhealthful or dangerous. A list of prohibitive occupations was included in the law. Children under 16 might not be employed in places where intoxicating drinks were served nor in houses of prostitution. Schools were to be established by employers for workers' children in rural localities. Vacations with pay were required for all workers. The statute also provided for the creation of a corps of federal and local factory inspectors to enforce the law and it also fixed penalties for violations.

**EGYPT.** An investigation made by Dame Adelaide Anderson indicated that in the Egyptian cotton-ginning factories young workers were largely employed. In a large number of such plants, fully one-half of the workers were under 15 years and many were under 9 years. Hours were longer and rest periods were unregulated; wages were low; sanitary conditions were poor; and dangerous machinery was unguarded. At the heart of the child labor problem in Egypt, according to this investigation, was the lack of full provision for elementary education.

**SWEDEN.** At the beginning of the year, new legislation prohibiting the employment of workers under 18 years in certain dangerous occupations went into effect. Some 20 such occupations were listed, among which were certain processes in electric power plants, printing plants, quarries, factories manufacturing or handling explosives and poisonous substances, plants making jute, horsehair, hemp and flax, and the sorting of rags.

**JAPAN.** On Sept. 1, 1931, the provisions of the Japanese Factory Act came into full effect, and from that date the employment of young persons under 16 years of age and of women in the factories coming under the act is limited to 11 hours a day, including 1 hour's rest. Exemption had been granted certain mills permitting the continuance of the 12-hour day to that date.

A survey made in Japan in August, 1930, covering nearly 2,000,000 children who had completed the compulsory school course of six years, the results of which were made public in 1931, showed that one-half were admitted to the non-compulsory higher courses, 42 per cent were working, and 56,600 children had been unable to find work. Of the employed children, more than 390,000 were in agriculture and forestry, 122,000 in commerce, and 116,000 in factories and mines, and the rest in transportation and construction, fisheries, domestic employment, and miscellaneous occupations.

**RUSSIA.** Beginning with 1931, a decree promulgated provided for compulsory education in Russia for the first time in its history. All children between the ages of 8 and 15 were to be required to attend schools, and 60,000 additional teachers were being engaged for their instruction.

**CHILDREN'S BUREAU, UNITED STATES.**  
See CHILD WELFARE.

**CHILD WELFARE.** THE CHILDREN'S CONFERENCE. Miss Grace Abbott, Chief of the United States Children's Bureau, in reviewing the achievements of the 1930 White House Conference, and in comparing the status of child welfare in that year with the situation in 1909 and again in 1919 (when earlier such conferences were held), found much commendable progress. It was plain that there had been achieved notable advances in safeguarding the health of children (witness the declining infant mortality rate), in handling child delinquency (witness the growth of the juvenile court movement and the increasing frequency of habit clinics), in higher social work standards for the care of dependent and neglected children (witness the spread of the idea of home or foster home care), and in a greater concern being shown by public agencies in child welfare and in the maintenance of the home where the chief breadwinner had been eliminated (witness the spread of mothers' pension schemes). But Miss Abbott interposed a salutary word of caution. She said as reported in *Current History* (March, 1931):

... we must remember that a general change is only gradually effected. Many children suffer from preventable physical and emotional handicaps. Conditions which create delinquency are found in the home, the school and the community. Large numbers of children are still cared for in institutions in which they are unintelligently . . . treated, and children are still placed in fee family homes to become little slaves. . . . But a trend is toward a scientific approach to all these problems and that is the basis for hope of greater progress in the next decade.

The Child Labor Section of the White House Conference urged on the conferees that adequate consideration be given to the problems of adult unemployment, farm economics and a living wage as means of checking child labor. The report of this group in discussing a living wage declared:

Since an income earned by the chief wage earner of the family sufficient to maintain a decent standard of living is basic to a normal solution of the problem of child labor as of other problems of child welfare.

The standards set up by this Child Labor Section called for compulsory school attendance laws for children up to 16 and prohibitions against the employment of boys and girls of 16 to 17 in occupations known to be physically or morally hazardous, a working day longer than 8 hours or a week longer than 44 hours, and the end of night work.

The Child Labor Section also called for the establishment of a national minimum standard on the score that the regulation of child labor by the various States has been slow and uneven and the cause of grave injustice. This portion of the report read:

These inequalities cause injustice to children in States with low standards because they are deprived of equal opportunity with others for health, education and immunity from injurious labor; injustice to employers in States with high standards, since they must compete with employers whose labor costs are low because the labor is child labor; and injustice to all citizens in both groups of States.

The Child Labor Section recommended among other matters the following: expansion of State aid to widows and dependent children in the form of mothers' assistance acts, with grants sufficiently large for the family to maintain an

adequate standard of living; the establishment of a minimum wage scale to avoid the industrial exploitation of children; scholarship funds to keep young persons in schools who would otherwise be obliged to work; changes in school curricula to prevent the discouragement and the growth of a sense of inferiority on the part of educationally retarded children; adequate methods of administration of child labor and compulsory school attendance laws; the prohibition of the manufacture of articles in the home; the establishment of the age 16 as a desirable minimum age for child street vendors; the extension of school attendance requirements for child workers in agriculture; the supervision of labor camps by State agencies and special provisions made for migrant children; the prohibition of the employment of young persons in dangerous occupations; the extension of workmen's compensation to and increased compensation for injured minors with additional compensation for minors illegally employed, such grants to be based on future earning capacity in the case of minors permanently injured.

**THE LAW ENFORCEMENT COMMISSION'S REPORT.** Among investigations made by the so-called Wick-ersham Commission was one concerned with the child offender in the Federal system of justice, under the direction of Dr. Miriam Van Waters. Among the recommendations proposed by the surveyor was the writing of Federal legislation to recognize the status of juvenile delinquency in the case of violations of Federal law to be similar to law established in the States. The report also suggested that the States assume responsibility for court hearings and subsequent treatment. It is interesting to note that the surveyor rejected the erection of a system of juvenile courts under the jurisdiction of the Federal government not merely on the grounds of impracticability but because juvenile delinquency was largely attributable to the failure of community resources. Pending the writing of such legislation, the surveyor suggested the establishment of a service in the Attorney-General's office to furnish the supervision of children under the Federal jurisdiction, which was to include special registration by Federal or local probation officers, the use of juvenile detention homes instead of jails, cooperation with juvenile or other State courts, the extended use of probation for minors where Federal courts were required to act, and the placing on parole of young children now in penal institutions. The report (publication no. 6 of the Commission) includes chapters on the concept of juvenile delinquency, jail detention, administration of the Federal system of justice in relation to child offenders, and penal and correctional institutions to which the child offenders are sent.

**JUVENILE DELINQUENCY.** The National Probation Association, on the invitation of the New Hampshire State Board of Public Welfare, made a study of the juvenile courts and probation in the State and filed the following recommendations: the extension of probation beyond its present limit of 17 years; the establishment of a probation department within the State Board of Public Welfare, the officers attached to this to serve wherever needed throughout the State and the cost of this service to be borne by both the State and the counties involved; the creation of a part time juvenile court for each county to have jurisdiction over cases of dependent and de-

linquent children and adult cases involving children; the extension of juvenile court jurisdiction to 18 with discretionary jurisdiction continuing to 21 years.

A similar study made by the same organization of the treatment of juvenile offenders in Nashville, Tennessee, led to the following recommendations: more and better trained probation officers; reference of all cases of children to the probation department for investigation, with the making of physical and mental examinations whenever necessary; cooperation with State institutions in the supervision of children released under paroles; cooperation with social agencies in the use of their records and facilities.

ILLINOIS. A Committee on Child Welfare Legislation created by the State legislature in April, 1929, filed with the Governor of Illinois an elaborate report, earlier in the year, which covered every phase of child welfare. Incorporated in the recommendations of this Committee were some 30 bills which were presented to the Illinois legislature. The more important recommendations of this Committee follow:

Enlargement of the scope of mothers' aid. Limitation of jurisdiction to a single court in adoption cases, and requirement of 6 months' residence in the adoptive home. Repeal of the 1872 "bastardy" act and substitution of a modified form of the Uniform Illegitimacy Act, requiring the father to continue support until the child is 18 years of age. More effective and widespread supervision of child-caring and child-placing agencies by the department of public welfare. Authorization of the department of public welfare to accept guardianship for dependent children when local resources are not available to meet the need of the individual child. Revision of the juvenile court act to bring the age of boys over whom the court has jurisdiction up to 18. Mandatory appointment of one or more probation officers in each county, the State to reimburse the counties for one-half of the salaries paid. Commitment of delinquents to the department of public welfare instead of to correctional institutions, with authority in the department to provide for treatment in institutions or foster homes as each case may require. Separation of juvenile parole from adult parole. Removal of jurisdiction over juvenile cases from city and municipal courts and from justices of the peace. Creation of unpaid commission to develop policies and coordinate measures for care of physically handicapped children. Empowering school directors and boards of education to establish schools or special classes for physically or mentally handicapped children. Requirement that the department of public welfare be responsible for physical and mental examination of all children prior to commitment to any State institution. Provision for commitment of handicapped children to department of public welfare rather than to specified institutions. Mandatory establishment of an unpaid advisory county board of public welfare. Regulation of medical practice and social procedure of maternity hospitals through license from the department of public health. Licensing of all midwives in department of registration and education. Extension of responsibility of department of public health in promoting health of mothers and children. Appointment of a supervisor of child labor in department of labor to insure better enforcement of child-labor laws. Raising of minimum age for employment from 14 to 16 years with certification and safeguards in industry for all children from 16 to 18. Regulation of children employed in street trades in cities of over 50,000. Appointment of supervisors of school attendance and vocational guidance in department of public instruction. Provision for annual school census. Enforcement of duty of school systems to provide suitable education for all school children between 7 and 18 within their jurisdiction.

MASSACHUSETTS. The Children's Code Commission of this State, created in April, 1929, to investigate the laws relating to dependent, delinquent and neglected children, recommended some 60 changes in the State's law, to the Massachusetts legislature, of which 32 were adopted in the 1931 session. Among the more important enactments passed were the following: an investigation, by the State commissioners of education and of mental diseases, of the care and

supervision of mentally defective and retarded children outside of school hours; the creation of a recess committee to study the operation of the State minimum wage law; mental and physical examinations of children before commitments as delinquents; the regulation of newspaper advertisements of children offered or wanted for adoption; insurance of privacy in juvenile court proceedings and for female witnesses involved in illegitimacy proceedings and in sex crimes; the extension of the Mothers' Assistance Act to apply to all children under the age of 16.

This Massachusetts Commission made an elaborate survey of the child caring field and found that 24,000 children in Massachusetts were cared for away from their own homes in a single year; that more than 9000 delinquents were before the courts last year; that 1075 children were in the 3 State juvenile training schools; that more than 15,000 neglected children were in need of protection during the same year; that each year saw nearly 2000 children born out of wedlock and approximately 1000 adoptions; that more than 60,000 children in the State were mentally defective and retarded and that approximately 6000 were physically handicapped.

PENNSYLVANIA. At the State-wide Child Welfare Congress, held in December, 1930, there was adopted a ten-year programme of child welfare for Pennsylvania. The most important subjects of this programme were the following: The insistence upon the emphasis of the preservation of family life as the basis of child welfare; State appropriations for the Mothers' Assistance Fund sufficient to cover a waiting list (at the end of 1931, including 2500 eligible mothers) not provided for; employment of trained welfare workers and the giving of constructive family service by supervisors of the poor; a larger programme for juvenile court work, including the raising of the juvenile court age to 18 years and the establishment of a State Probation Bureau; the more effective handling of desertion through probation and individual treatment and the strengthening of the domestic relations court; study of laws relating to illegitimacy, education of the public concerning the care of the unmarried mother and her child; and a full programme for the development, education and training of mentally handicapped children.

NOTES. *Illinois.* A State-wide survey, conducted by a public commission, found more than 10,000 physically handicapped children in this State; it was also estimated that there were some 6000 others who had not been specifically located. Fully one-fourth of the physically handicapped children were post-infantile paralysis cases; tuberculosis of the spine accounted for 650 cases; accident accounted for 555 cases. The commission stated that the State required medical and surgical facilities for the rehabilitation of crippled children.

*North Carolina.* The North Carolina legislature in its 1931 session appropriated \$5000 a year for two years to establish a fund to make provision for the care in private homes of children not eligible to orphanages and not suitable for adoption. Another appropriation of \$50,000 for each year for the ensuing two years was made for mothers' aid, the amount to be matched by the counties availing themselves of this help.

*New York City.* The New York City Crime Prevention Bureau, created for the purpose of dealing with juvenile delinquency, was in 1931

made a permanent part of the New York City Police Department. The Bureau was given a staff of 182 persons made up of 60 patrolmen, 34 policewomen, and 26 social workers, among others. Among the functions of this Bureau are the investigation of dance halls, pool rooms and other places of business or amusement that are likely to exert "a destructive influence" on young people. In the same city the Department of Education made provision for the creation of a Bureau of Child Guidance. Plans were laid for the creation of a staff including psychiatrists, psychologists, psychiatric case workers and social case workers. It was planned that the Bureau was to serve as a behavior clinic for pupils of the city schools to work in cooperation with the already existing educational organizations.

**Porto Rico.** This territory, during the year, inaugurated a new vocational guidance programme to be administered by an insular board working in cooperation with the Federal Board of Vocational Education. It was planned that the leading emphasis of the programme was to be placed on agriculture and home economics. In the industrial field, instruction in the beginning was to be limited to the needle trades and the building and service industries.

**W. K. Kellogg Child Welfare Foundation.** A fund to provide for the care of mentally and physically sub-normal children, amounting to \$1,000,000 for immediate use, and with provisions for additions that may reach \$50,000,000 was created by W. K. Kellogg, of Battle Creek, Michigan. The fund was designed to furnish scientific treatment for curable cases and special training for incurables, this work to be done largely in cooperation with schools throughout the United States.

**FRANCE.** In February, 1931, there was celebrated in France the tenth anniversary of the formation of the French Central Committee on Family Allowances. It was pointed out at this meeting that there were in existence 230 compensation funds, that the personnel of the affiliated establishments totaled 1,880,000 and the amount of allowances distributed was \$13,650,000. If establishments not affiliated with compensation funds and public services were included, the annual disbursement would reach \$64,350,000 and the working population affected would approximate 4,260,000 persons. It was further indicated that the compensation funds had instituted a series of provisions for the protection of maternity and childhood, as follows: birth benefits, nursing bonuses, visiting nurses, maternal and infant hygiene services, pre-natal and post-natal consultations, dispensaries, preventoria, sanatoria, rest houses, vacation colonies, social centres, housekeeping courses, and also for the periodic family education.

**GERMANY.** A study made of the work with juvenile delinquents in Germany showed that the juvenile delinquency rate per 100,000 population of the juvenile age group was the same in 1914 (565) as in 1882 (568). Juvenile courts were not established in this country until the opening of the twentieth century; in 1923, a national system of such courts was created. It is significant to note that the post-war years up to 1924 showed a decided increase in the juvenile delinquency rate, going as high as 1137 in 1920 and 1082 in 1923. The national code of 1923 inaugurated a number

of widespread changes, the most important including the raising of the minimum age of court jurisdiction from 12 to 14 years, the termination of prosecution in certain conditions, and the general substitution of educational activities for punishment. In 1924, a further change was incorporated in the exclusion of 12 and 13 year olds from the jurisdiction of the courts. In that year the juvenile delinquency rate dropped to 812 (per 100,000 children of 14 to 17 years inclusive). In 1925, there was a further drop to 469, and for 1926 and 1927 the rate was somewhat similar.

**TURKEY.** A general public health law, enacted in this country for the first time, makes the following provision for child welfare: The establishment of child health centres in large cities; periodic physical examinations and mental tests for school children; supervision over boarded-out children under 7 years of age; protection by the state of children mistreated by their parents or guardians; pecuniary aid to families having 6 or more living children; prohibition against the employment in industry of children under 12 years of age; the forbidding of night work; a maximum working day of 8 hours for children under 16; prohibition against the employment in harmful industries of expectant mothers 3 months before confinement, and for 3 weeks before and 3 weeks after confinement, in all industries.

**CZECHOSLOVAKIA.** A juvenile delinquency law enacted in March provided that all minors from 14 to 18 years of age were to be considered as in the jurisdiction of the juvenile courts; children under 14 and mental defectives between 14 and 18 years were not to be deemed responsible for crimes committed by them, a board of guardians being empowered to take necessary measures for their education and correction. After investigation, the juvenile court was to exercise probationary supervision over the delinquent in his own family, if the home circumstances were deemed favorable. If these, however, were proved to be unsatisfactory, the court might place out the delinquent or confine him in an institution. Physical and psychiatric examinations were provided for and the juvenile court was also charged with the care and supervision of siblings of the delinquent if the facts showed they were in moral danger. The probationary period was to terminate in the twenty-first year. To supervise the law, provision was made for the creation of a juvenile court to be attached to each district court. Each court, too, was to be furnished with a social worker who had experience in child welfare work.

**ITALY.** The new penal code, effective July 1, 1931, contained the following child welfare provisions: the raising of the age of responsibility for juvenile offenders from 9 to 14 years; the commitment to a reformatory or placing on probation of children under 14 years who had committed crimes; the same provision to apply to children between 14 and 18 years if it was proved that the criminal acts were committed by the offenders without their appreciating their significance. This new code also provided for a system of probation for both juveniles and adults.

**GREAT BRITAIN.** On February 18, the British House of Lords rejected the bill raising the school leaving age in England and Wales from 14 to 15 years. The House of Commons bill provided that the measure was not to go into ef-

fect until additional legislation had been enacted for the purpose of furnishing aid to the non-provided (church) schools in meeting its requirements. The House of Lords took its step largely because of the fact that complete provision had not been made for these church schools.

**CHILE**, ché'la, or ch'i'l. A South American republic, occupying the Pacific coastal region from Peru to the southernmost point of the continent. Capital, Santiago.

**AREA AND POPULATION.** With the extreme length of 2628 miles and an average width of 177 miles, Chile had a total area of 290,119 square miles. The population at the census of Jan. 1, 1931, was 4,264,819, compared with 3,742,799 at the 1920 census. With the exception of a small number of nomadic Fuegians in the south, about 100,000 Araucanians, and the Changos of the northern coast region, the people are of European descent. There were 120,436 foreigners in the country in 1920. The chief cities, with their 1931 census populations, are Santiago (538,144) and Valparaíso (191,494). In the same year Viña del Mar had 52,871 inhabitants. Other cities, with the estimated population in 1929, are: Antofagasta, 84,221; Concepción, 70,645; Temuco, 44,000; Talcagüano, 39,770; Valdivia, 39,905; Iquique, 36,547; Talca, 37,033; and Magallanes (Punta Arenas), 32,268. The average annual births from 1926 to 1930 totaled 171,508 and deaths 106,124. In 1930 the birth rate was 40 per 1000 of population and the death rate 24.2.

**EDUCATION.** By a decree of February, 1928, education is free and compulsory for children from 7 to 15 years of age. The education system was drastically reorganized during the years 1928-30; about 600 modern primary schools were constructed, and intensive adult education reduced illiteracy from 60 to 20 per cent. The enrollment in 3629 state primary schools in 1929 was 434,124. In 1928, there were six public normal schools, with 1447 pupils; 151 public and private secondary schools, with 49,291 pupils; and 12 public commercial schools, with 3715 pupils. The State University of Chile (2700 students in 1928), the Catholic University (2000 in 1927), the National Institute of Santiago, and various provincial lyceums and colleges provide advanced and professional instruction.

**PRODUCTION.** Chile is divided into three economic zones, the northern mineral regions, the central agricultural area, and the southern pastoral and lumbering zone. While agriculture and stock raising are the main supports of the population, the mining industry furnishes nearly 90 per cent of all Chilean exports as well as funds for most of the imports. Manufacturing is rapidly increasing in importance in the central and southern areas. Foodstuffs, wearing apparel, leather, chemicals, and textiles are leading manufactured articles.

Farm holdings in Chile in 1930 numbered 210,736, with an average value of 28,800 pesos (about \$3450). Agricultural land (1927) totaled 59,038,055 acres, of which about 6,218,000 acres were under crops, 273,907 acres were devoted to fruits and vines, and 32,557,067 acres were meadow land. Forests and woods covered 11,231,685 acres. Cereals, wine, fruit, vegetables, and tobacco are the principal crops.

Preliminary results of the 1930 livestock census, with the percentage of increase since 1925 given in parentheses, were: Cattle, 2,322,633

(21.1); sheep, 5,855,370 (43); goats, 750,879 (110.3); swine, 327,553 (32.8); horses, 411,461 (27.2); mules, 30,993 (22.9 per cent decrease); asses, 36,444 (33.2). Wool production in 1929 totaled 32,500,000 pounds.

Chile's annual mineral output is valued at two-thirds that of the entire mineral production of the continent. Huge nitrate deposits in the rainless northern provinces, estimated at over 3,000,000,000 tons, constitute the most valuable mineral resource. In 1930 the industry gave employment to 65,000 persons. On July 21, 1930, all nitrate companies operating in Chile, including important American and British interests, were merged in the Chilean Nitrate Company (Cosach). The merger was instituted by the Government primarily for the purpose of restoring the industry's prosperity through the restriction of production. The output in 1929 was 3,237,594 metric tons. In lieu of export duties, the Government was to receive 180,000,000 pesos (about \$22,000,000) in 1931, \$20,000,000 in 1932, and \$17,500,000 in 1933. After this three-year period, the Government was to rely upon its dividends on 15,000,000 ordinary shares of 100-pesos par value stock, or half the total capitalization. Cosach was understood to have been financed by a \$45,000,000 loan floated in New York in the spring of 1931. An effort to establish a cartel between Cosach and the European producers of synthetic nitrogen broke down July 15, 1931, following a meeting at Lucerne, Switzerland. Chile subsequently resumed open-market sales, which had been ended two years earlier through an agreement with synthetic producers. See FERTILIZERS.

The iodine output constitutes about 80 per cent of the world's supply. Production of the principal minerals in 1930, with comparative figures for 1929 in parentheses, was as follows: Nitrate, 2,200,000 metric tons (3,238,000); copper, 597,427,000 pounds (668,402,000); coal, 1,435,000 metric tons (1,508,000). The 1929 output of iron ore was 1,812,000 metric tons; iodine, 3,052,000 pounds; silver, 1,570,000 fine ounces.

In 1927, there were 9093 manufacturing establishments, compared with 7068 in 1925. In the latter year, the gross value of manufactures was 1,493,252,043 pesos (1 peso equals \$0.1217 at par) and 89,278 workmen were employed. The first airplane produced by a Chilean factory was christened Jan. 1, 1931.

**COMMERCE.** The world-wide depression was reflected in Chile by a 30 per cent decline in foreign trade in 1930, as compared with 1929. For the first time since 1919 there was an unfavorable merchandise balance of trade. Imports in 1930 amounted to \$168,833,000 (preliminary figure), or 13 per cent below the 1929 imports of \$193,102,000. Exports, totaling \$160,417,000, were 42 per cent below 1929, when they were valued at \$275,304,000. Nitrate, iodine, and copper comprised 80 per cent of all exports in 1930 and 85 per cent in the previous year. The value of nitrate shipments declined from \$114,876,000 in 1929 to \$71,671,000 (37.6 per cent); of copper ingots, from \$105,488,000 to \$53,658,000 (49.2 per cent); of iodine, from \$9,495,000 to \$2,371,000 (75 per cent); wool, \$7,886,000 to \$3,627,000 (54.1 per cent); copper ore, \$6,065,000 to \$1,899,000 (68.7 per cent).

Although imports from the United States declined 10 per cent, from \$62,775,000 to \$56,609,000, and exports to the United States fell off

42 per cent, from \$70,246,000 to \$40,790,000, the North American republic in 1930 continued to dominate Chile's export and import trade. Germany displaced Great Britain as the second important source of imports. Exports in 1931 totaled 926,400,000 pesos and imports 708,900,000 pesos, according to preliminary returns.

**FINANCE.** The Government reported a deficit of 71,156,094 pesos (about \$8,540,000) in the ordinary budget for 1930, excluding 5,145,101 pesos (about \$617,400) expended in purchasing bonds for the "emergency fund." The nominal accumulated surplus of 77,622,402 pesos carried over from preceding years (it included about 75,119,416 pesos of uncollectible loans and debts), when added to the actual revenue for 1930, left a nominal balance of 1,321,207 pesos (about \$158,500) in excess of all ordinary expenditures. Ordinary revenues were 1,055,189,133 pesos (about \$126,600,000), as compared with the budget estimate of 1,169,650,000 pesos; ordinary expenditures, including emergency fund bond purchases, were 1,131,490,328 pesos (about \$135,720,000), as compared with the 1,159,323,798 pesos authorized in the budget.

Expenditures under the extraordinary budget, public-works programme, and other special laws during 1930 amounted to 535,084,734 pesos, or 46,611,113 pesos less than provided for. Applying 25,020,307 pesos of this amount to cover the overdraft in the same accounts left at the end of 1929, there remained 21,581,806 pesos (about \$2,589,000) of uninvested balance under the extraordinary budget and special laws.

In the budget for 1931, ordinary revenues were estimated at 1,039,617,387 pesos (about \$124,754,000) and ordinary expenditures at 1,039,159,914 pesos (about \$124,699,000). The extraordinary budget for 1931 provided for an expenditure of an additional 275,848,333 pesos (about \$33,096,000).

An official statement by Premier Blanquier July 18, 1931, placed the deficit for the year to that date at 39,000,000 pesos (about \$4,720,000). He estimated the deficit for the entire year at 145,000,000 pesos (about \$17,500,000).

On July 18, 1931, Premier Blanquier announced that the total national debt stood at 4,500,000,000 pesos (about \$547,000,000), and that interest and sinking fund requirements amounted to 311,000,000 pesos (about \$37,800,000). On July 15, 1931, the Government declared a moratorium on the foreign debt, in order to prevent the further depletion of the Central Bank's gold reserves. Interest and sinking fund payments were to be paid into local banks in Chilean currency until conditions improved. On August 19, however, the Cabinet ordered that these payments be also discontinued, making the moratorium complete.

**COMMUNICATIONS.** Railway lines in operation in 1930 totaled 6831 miles, of which nearly 70 per cent were state owned, 22 per cent British owned, and the remainder represented American investment. A railway construction programme inaugurated in 1928 called for the completion of 559 additional miles of track within six years at a cost of \$22,143,000.

In 1931, there were about 24,414 miles of highway, including 20,045 miles of unimproved earth, 3878 miles of improved earth, and 358 miles of macadam roads. A large proportion of the earth roads were impassable during the rainy season. There are also 851 miles of navigable

rivers and 491 miles of navigable lakes. Service on the highly developed air-line network was curtailed in 1931 due to financial stringency. In August, 1931, Pan-American-Grace Airways obtained permission from the Government to extend its passenger service direct from Panama to Santiago, Chile. Formerly it was necessary to transfer passengers at the border to planes of the government-operated lines.

**GOVERNMENT.** Under the Constitution of Oct. 18, 1925, executive power is vested in a president, assisted by a cabinet responsible to him, and legislative power in a national congress, consisting of a senate of 45 members, and a chamber of deputies of 132 members, elected by the departments. By an agreement of political parties, however, the 1930 election to fill half the seats in the Senate and the entire Lower Chamber was waived and the vacant seats were filled through selection by the various parties. The President, who is elected for six years, is ineligible to succeed himself. President at the beginning of 1931, General Carlos Ibañez del Campo, who became virtual dictator in 1926 and assumed the Presidency July 21, 1927. Under his régime the Cabinet was non-political, with the Minister of the Interior as the nominal head. For changes in the government in 1931, see below under *History*.

#### HISTORY

**IBAÑEZ OVERTHROWN.** Aggravated by the increasingly acute economic and financial crisis, political unrest under the virtual dictatorship of President Ibañez reached a climax in July, 1931, and he was forced to resign (July 26) after three days of severe rioting in Santiago. While angry mobs shouted for his detention and trial he fled by special train to Argentina early the following morning. He was the first Chilean President to vacate his office without constitutional sanction.

With his elimination there passed from the political scene, at least temporarily, one of the most capable administrators and statesmen of Latin America. Honest, hard-working, and patriotic, he had striven vigorously and effectively against the opposition of the rich landowners to improve the economic and social status of the middle, agricultural, and laboring classes. His reforms, however, were imposed from above at the expense of the civil liberties and the constitutional traditions of the people. He stifled all opposition, hand-picked the members of Congress and of the government services, imposed a press censorship, and in 1930 dispensed with direct suffrage in the Congressional elections. Military men played the predominant rôle in his government. The necessities of dictatorship resulted in the increase in the army from 30,000 men in 1924 to 70,000 in 1930 and a rise in military expenditures to \$50,000,000 annually. Ibañez early in his régime inaugurated a huge programme of public works, financed mainly in the United States, which increased the foreign debt from about \$125,000,000 in 1925 to about \$547,000,000 in 1931 (see above under *Finance*) but did not prove as profitable as anticipated.

It was the particularly acute repercussions in Chile of the world-wide economic depression that brought the dissatisfaction with his régime to a head. With the gradual collapse of the prices of nitrate, copper, and other exports to a point lower than the cost of production, the economic



structure of the nation was virtually wrecked. Government revenues, the profits of entrepreneurs, salaries, and wages all shrank to a fraction of their normal levels. Trade stagnated, foreign credit was curtailed, the exchange value of the peso declined to a point requiring shipments of gold reserves, and the condition of the currency and banking systems became alarming. Unemployment and suffering made it easy for liberals and radicals to fan the flame of political discontent. General Ibañez retained to the end the support of the bulk of the army and navy. But he stepped down when he saw that he could maintain his position only at the cost of civil war.

From the beginning of the year 1931, the President and Congress, then in extraordinary session, grappled with the problem of staving off financial insolvency. When Congress on February 10 recessed until May 21, it vested the President with extraordinary powers pending its reassembling. In the interval, Ibañez issued some 150 decrees with full legislative effect, including measures establishing a censorship and drastically reducing the salaries of government employees. A reorganization of the Cabinet on April 28, was followed by a decree increasing the extraordinary budget by 25,000,000 pesos (about \$2,800,000), of which 18,000,000 pesos were for military and naval expenditures. A number of the President's prominent political opponents were deported during May.

The return to Argentina early in July of Arturo Alessandri, the former President of Chile who had been living in exile in Paris, served to indicate the widespread belief that a political crisis was at hand. On July 9, Minister of Finance and acting Premier Armando Jaramillo resigned when his financial proposals were declared unacceptable. President Ibañez called on Francisco Garcés Gana, president of the Central Bank of Chile, to form a new cabinet. The banker failed to secure the necessary support and on July 12 the President turned to Pedro Blanquier, who formed a Ministry the following day, with himself as Premier and Minister of Finance. Premier Blanquier on July 16 ended the press censorship for the first time during the Ibañez régime and promised a return to strict observance of civil rights. Two other significant developments occurred the same day. Nitrate prices on the New York market broke \$4.50 a ton following the failure the previous day of negotiations for an agreement between synthetic and natural nitrate producers (see above under *Production*). And the Government announced the termination of remittances on the foreign debt pending a financial turn for the better.

The Blanquier Cabinet lasted only a week, resigning July 21 due to a difference of opinion with President Ibañez over the programme of economy to be inaugurated. The Cabinet's reforms died with it. Francisco Garcés Gana again essayed to form a ministry and this time succeeded (July 22). The fall of the Blanquier Cabinet was marked by minor clashes between the police and crowds on the streets. The Cabinet of Garcés Gana, too, gave up the ghost after an existence of 24 hours, during which students at the National University barricaded themselves in, in protest against the Ibañez régime. The crowds in Santiago had begun to

wreck street cars and demonstrations were reported from Temuco, Valparaíso, and other cities. Garcés Gana was succeeded immediately by Naval Captain Carlos Froedden, a close friend of the President.

Repeated clashes between the police and street crowds, in which hundreds were injured and an undetermined number killed, continued for three days previous to the President's resignation. Two students were killed when police stormed the barricaded University buildings. Strikes were inaugurated by many workers and professional men. Stores were looted by rioters. Then with the news of the President's resignation, the sullen and defiant crowds went into transports of joy.

**AFTERMATH OF THE DICTATORSHIP.** Upon his resignation, President Ibañez delivered the government to Pedro Opazo, President of the Senate, in accordance with provisions of the Constitution, and a new Cabinet was formed headed by Juan Esteban Montero. A relative of the ex-President by marriage, Opazo proved unpopular with the crowds. Hostile demonstrations forced him to resign July 27 and Juan Esteban Montero became Vice President and acting President. The same day a resolution passed by the Senate and Chamber of Deputies declared the Presidency vacant, a situation which under the Constitution called for a Presidential election within 60 days.

The Government declared a four-day moratorium upon the collapse of the Ibañez régime and banks remained closed until July 30. By July 28, however, order had been restored, stores were open, and the demonstrators had returned to work. Two main tasks confronted Acting President Esteban Montero—the holding of Presidential elections and the restoration of the country's business and financial stability.

**THE PRESIDENTIAL ELECTION.** In the election of October 4, Señor Montero was elected, defeating former President Arturo Alessandri by a close vote. Señor Montero, a lawyer and professor in the University of Chile, was the candidate of a coalition of the Conservative, Liberal, Republican, and Radical parties, representing the students and the professional and business interests. Señor Alessandri, on the other hand, was supported by the laboring classes who dominated the Socialist, Democratic, Communist, and other Left-wing parties. The latter campaigned on a programme of strict regulation of foreign capital in Chile and of opposition to the Cosach nitrate combination (see above under *Production*). Upon his nomination, Señor Montero resigned as Provisional President (August 17) and was succeeded by Manuel Trucco, former director-general of Chilean railways. Rioting and street fighting marked the election, casualties being estimated at 10 killed and more than 50 wounded. Hundreds more were arrested.

President Montero was inaugurated Dec. 4, 1931. Meanwhile a new Cabinet had been installed (November 15), headed by Marcial Noria as Minister of Interior and including: Minister of Finance, Luiz Izquierdo; Foreign Affairs, Carlos Balmaceda; War, Gen. Carlos Vergara; Marine, Admiral Enrique Spoerer; Education, Santiago Labarco; Justice, Luis Gutierrez; and Agriculture, Joaquin Prieto.

**THE "RED" NAVAL REVOLT.** The course of the Presidential campaign was marked by a serious revolt of the naval forces coincident with a

Communist-led movement in the larger cities for the establishment of a Soviet republic. Mutinous sailors, joined by a few officers, took control of that part of the fleet at Coquimbo on September 1. Their demands included the maintenance of their pay schedule, which was to have been reduced, the return of former President Ibañez for trial, a levy upon the rich to balance the budget, the seizure of large estates for distribution among workmen, and a public works programme to reduce unemployment. The Coquimbo rebels were joined the next day by the remainder of the fleet and the coast defense force at the Talcahuano naval base. Communist agitation was rife in Santiago and Valparaíso and the police were temporarily powerless to maintain order. The Provisional Cabinet resigned on the night of September 2, and a special session of Congress declared a state of siege, with Acting President Trucco in control.

The rebels rejected conciliatory advances made by the Government and on September 5 Government forces recaptured the naval base at Talcahuano, after sanguinary fighting in which the casualties were reported at about 300. The guns of the Talcahuano forts were then trained on mutinous ships in the harbor, which were ordered not to weigh anchor. Mutinous garrisons of the Valparaíso forts were next captured. In the meantime, however, the larger ships stationed at Talcahuano had joined the main fleet at Coquimbo. This fleet was attacked by between 80 and 100 Government airplanes on September 6. Unable to reply to machine-gun and bomb attacks from the air, the vessels of the fleet surrendered one by one, the flagship capitulating the following day. The Communist and radical agitation on land had previously been stamped out by the arrest of numerous ringleaders, and the mobilization of a volunteer civil guard of 10,000.

A mixed army and navy court commenced an investigation into the revolt on September 9 and on September 18 and 19 ten sailors and petty officers were sentenced to death, nine were sentenced to life terms, and a score of others were sentenced to varying terms in prison. On October 8, Rear Admiral Roberto Chaupluzau, commandant of the Talcahuano naval base at the time of the revolt, and six captains and four commanders were dismissed from the service for their part in the revolt. Communist rioting broke out again in Northern Chile toward the end of December, but was ended after 20 rioters and police had been killed.

**OTHER DEVELOPMENTS.** Efforts of the Government to stimulate a revival of business met with little success during the remainder of the year. A committee to control foreign exchange operations was established by the Government in August. It succeeded in balancing more evenly the inflow and outflow of exchange, but the problem of maintaining the exchange rate of the peso remained and in October a special session of Congress was convened to consider tariff and budget legislation. On October 24 the Mixed Commission of Congress recommended a moratorium in the payment of all banking, legal, and private obligations. The government commission appointed to investigate the régime of President Ibañez on November 6 recommended the dissolution of Cosach, the nitrate trust, unless changes were made to take the industry out of the hands of foreigners. Neither proposal was adopted by

the end of the year. The Finance Minister on Dec. 8, 1931, announced that the Government would give qualified support to the Cosach company.

In the field of foreign affairs, the outstanding development of the year was the move made by Foreign Minister Antonio Planet for an economic conference of Latin American republics, to which the United States was not invited. The so-called "Planet plan" was submitted to the various Latin American governments on June 23 by the Chilean government. It envisaged a conference within a few months to consider such broad problems as a customs union, and joint action to promote the financial and economic rehabilitation of the various countries, the reduction of armaments, and the solution of social problems. The plan for a special conference independent of the Pan American Union was opposed by President Olaya Herrera of Colombia and others and the overthrow of the Ibañez régime in July marked the end of the proposal. Tariff difficulties between Chile and the United States were settled Sept. 28, 1931, by a *modus vivendi* giving the United States most-favored-nation status until a new commercial treaty could be drawn up. Ratifications of an arbitration convention signed by Chile and Colombia Nov. 16, 1914, were exchanged Feb. 14, 1931. D. Emilano Figueroa (q.v.), president of the Central Bank of Chile and former President of the Republic, was killed in an automobile accident in Santiago May 16, 1931. See NAVAL PROGRESS.

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**CHINA.** A state of eastern Asia, established as a republic Feb. 12, 1912. Capital, under the Nationalist government, Nanking. The name of Peking, the former capital, was changed to Peiping in 1929 by a Nationalist decree.

**AREA AND POPULATION.** China comprises 30 provinces including three in Manchuria, and the dependencies of Mongolia, Sinkiang, and Tibet over which it exercises nominal authority. It has

#### POPULATION OF CHINA BY PROVINCES

Anhui (Anking) .....	21,715,000
Chahar (Kalgan) .....	1,997,000
Chekiang (Hangchow) .....	20,643,000
Fukien (Foochow) .....	10,017,000
Heilungkiang * (Tsitsihar) .....	3,755,000
Honan (Kaifeng) .....	30,566,000
Hopei (Tientsin) .....	31,233,000
Hunan (Changsha) .....	31,501,000
Hupeh (Wuchang) .....	26,699,000
Jehol (Chengtch) .....	6,594,000
Kansu (Lanchow) .....	6,281,000
Kiangsi (Nanchang) .....	20,323,000
Kiangsu (Choukiang) .....	34,126,000
Kirin * (Kirin) .....	7,635,000
Kwangsi (Nanning) .....	13,648,000
Kwangtung (Canton) .....	32,428,000
Kweichow (Kweiyang) .....	14,746,000
Liaoning * (Shenyang) (Mukden) .....	15,233,000
Mongolia * (Urga) (Ulan Bator Hoto) ...	6,160,000
Ningxia (Ningsia) .....	1,450,000
Shansi (Taiyuan) .....	12,230,000
Shantung (Tsinan) .....	28,673,000
Shensi (Sian) .....	11,802,000
Sikang (Kangting) .....	8,906,000
Sinkiang (Thwa) .....	2,552,000
Suiyuan (Kueihucheng) .....	2,123,000
Szechwan (Chengt) .....	47,993,000
Tibet * (Lhasa) .....	3,722,000
Tsinghai (Sining) .....	6,195,000
Yunnan (Yunnanfu) .....	18,821,000
Total (approximate) .....	474,821,000

\* The "three eastern provinces," Liaoning (Fengtien), Kirin, and Heilungkiang, constitute the geographical region referred to as Manchuria.

\* Dependencies.

an area of over 4,300,000 square miles, or nearly that of the United States and Mexico combined, and a population variously estimated from 442,000,000 to 485,000,000, or about one-fourth of the population of the earth. The 21 provinces of China proper and Manchuria embrace less than 1,900,000 square miles, but contain 435,000,000 of the population, while the remaining 2,300,000 square miles supports less than one-fortieth of the total inhabitants. The area and population by provinces and dependencies is shown in the table on page 193 from the *U. S. Commerce Yearbook* for 1931, compiled from the 1930 report of the Chinese (Nanking) Minister of the Interior. Capitals of Provinces are in parentheses.

The 1930 estimate of the Minister of Interior placed the total area, including Sinkiang (Chinese Turkestan), Mongolia, and Tibet, at approximately 4,300,000 square miles, of which about 1,897,000 square miles comprised China proper, and the total population at 474,821,000. As no general census has been taken, the above figures are but rough estimates. The Chinese Maritime Customs estimated the total population in 1928 at 451,842,000, inclusive of 19,290,000 in Manchuria, while the 1925 estimate of the Chinese Post Office was 485,508,000. Estimates for the chief cities show similar divergencies. Those of the Chinese Post Office follow: Shanghai area, 3,150,000; municipality of Greater Shanghai, 1,713,000; the International Settlement of Shanghai, 1,008,000; the French concession in Shanghai, 435,000; Peiping, 1,402,000; Tientsin, 1,000,000; Canton, 900,000; Chungking, 625,000; Changsha, 550,000; Chengtu, 550,000; Nanking, 525,000; Tsinan, 500,000; Soochow, 500,000; Hankow, 490,000; Hanyang, 450,000; Hangchow, 425,000; Shenyang (Mukden), 400,000; Foochow, 380,000; Amoy, 300,000; Kiaochow, 300,000; Dairen, 250,000; Wuchang, 250,000; Harbin, 225,000.

Foreigners in China in 1929 were estimated by the Customs authorities at 356,233, including 245,634 Japanese, 73,476 Russians, 11,612 British, and 6966 Americans. Chinese residing abroad (1928) were estimated at about 6,240,682, including 1,456,200 in British Malaya and the South Sea Islands. Confucianism, Buddhism, and Taoism are the three indigenous religions, with Buddhism predominant. Mohammedans, found in every province, are estimated to number about 20,000,000. In 1923 there were 2,208,800 native Roman Catholics and in 1920, 618,601 native Protestants.

**EDUCATION.** The educational system in 1931 was being reorganized on the French model, wherever possible. It was estimated (1931) that about 10,000,000 children and adults of both sexes were attending educational institutions of all grades. In 1923, the lower primary schools, numbered 167,076, with 5,814,375 pupils, and higher primary schools numbered 10,236, with 582,579 pupils. There were nine government universities and various private institutions of higher learning. The numerous Christian missions, schools, colleges, and universities at Shanghai and other ports enrolled about 500,000 students, including more than 4500 students majoring in professional or semi-professional studies in institutions of university rank.

**PRODUCTION.** China has an estimated area of 192,060 square miles of arable land, divided into small holdings averaging about two acres and supporting directly about four-fifths of the popula-

tion. Production is on a highly intensive basis, there being from two to four crops annually. The republic is the world's largest producer of rice, soy beans, tea, and tung oil, ranks second to Japan in the production of raw silk, and third or fourth in cotton and wheat. Wheat, barley, maize, millet, peas, and beans are chiefly cultivated in the north and sugar, rice, tea, and indigo in the south. Fruit and fibre crops are important. The estimated average annual production of the leading crops, with the percentage exported in parentheses, was given by the *Commerce Yearbook* (1929) as follows: Wheat, 300,000,000 bushels (none); rice, 800,000,000 bushels (none); corn, 100,000,000 bushels (none); peanuts, 600,000 tons (33 per cent); soy beans, 5,000,000 tons (65 to 80 per cent); kaoliang, 200,000,000 bushels (1 per cent); tea, 800,000,000 pounds (15 per cent); tobacco, 500,000,000 pounds (6 per cent); silk, 42,000,000 pounds (48 per cent); cotton, 2,500,000 bales (10 per cent). Yields of the principal crops were smaller than usual in 1931. Cotton production declined about 20 per cent and the rice crop was reported 15 to 20 per cent below average. Low agricultural prices, civil strife, bandit depredations, rising transportation costs, floods, and exchange and currency fluctuations during 1930 and 1931 reduced the income of China's great agricultural population, which is normally close to the level of subsistence. Pigs are raised everywhere and pig bristles are an important export. Due to the occupation of great areas of virgin land in Manchuria (q.v.) by millions of Chinese settlers, the agricultural production of China as a whole is rapidly expanding. See AGRICULTURE under *World Agriculture*.

The process of industrialization is proceeding rapidly in the larger cities. The chief manufactures are cotton and woolen cloth, silk filatures, flour, iron products, and glass. There were (December, 1929) 127 cotton mills in China (43 Japanese-owned, 81 Chinese-owned, and 3 British-owned), with a total of 3,969,522 spindles and 29,322 looms. There were about 150 modern flour mills, 50 of them in Manchuria. Large iron works are located at Hanyang, near Hankow. Glass factories number about 400. Cigarette factories in Shanghai employed about 30,000 workers. According to an estimate of the Ministry of Industry issued Aug. 7, 1931, approximately 200,000,000, or nearly half the total population, were wholly or partially unemployed.

Coal deposits are widely scattered throughout China proper, the fields covering an area of 133,513 acres and the annual output totaling about 25,000,000 tons. There are large iron-ore deposits, production from which averages about 1,500,000 tons annually. Petroleum is being exploited on the Upper Yangtze and oil shale in South Manchuria and Shansi Province. Copper and tin are mined in Yunnan, the tin output being about 10,000 tons annually. More than 60 per cent of the world's total production of antimony is supplied by China, which has a normal output of 25,000 tons. The country ranks second in production of tungsten and fourth in tin. Gold, silver, lead, wolfram, molybdenum, bismuth, and salt are worked also. Salt production is estimated at 3,122,307 metric tons annually.

**COMMERCE.** Despite the world-wide depression and widespread domestic disorder, the total value of China's foreign trade in 1930 was the largest recorded, except for the peak year of 1929. The





1930 total of 2,204,600,000 haikwan taels (a gold value of \$1,014,116,000 at the average exchange value for the year of \$0.46 for the haikwan tael) was 3.5 per cent less than in 1929, when the total was 2,281,457,000 taels (\$1,460,132,000 converted at \$0.64, the average tael value for 1929). Exports declined by 12 per cent from 1,015,687,000 taels (\$650,040,000) in 1929 to 894,844,000 taels (\$411,628,000). Imports showed an apparent increase of 3.4 per cent from 1,265,779,000 taels in 1929 to 1,309,756,000 taels. When converted to gold values, however, the respective totals were \$822,756,000 and \$602,498,000, or a 26.7 per cent decline. Exports and imports of gold and silver, not included in the above figures, were valued at 159,799,000 taels.

Japan (including Korea) was again China's leading source of supply in 1930, furnishing 24.6 per cent of all imports, as compared with 25.2 per cent in 1929. The United States supplied 17.5 per cent of the 1930 imports (18 per cent in 1929); Hong Kong, 16.4 (16.7); British India, 10 (4.3); Great Britain, 8.2 (9.3); Germany, 5 (5.2); and the Netherland East Indies, 3.6 (4.3). Japan was also China's principal customer, purchasing 24.2 per cent of the total exports (25.2 per cent in 1929). The United States purchased 14.7 per cent of the exports (14 per cent in 1929); Hong Kong, 17.7 (17.1); Great Britain, 7 (7.3); and Germany, 2.6 (2.2). During the last half of 1931, however, Japanese trade with China was reduced approximately 60 per cent as a result of the Chinese boycott (see JAPAN under *History*). Much of the merchandise trade credited to Hong Kong was transshipped there to or from the United States, Great Britain, and Germany.

Beans, raw silk, eggs and egg products, cotton yarns, and textiles, wood oil, millet and kaoliang, raw cotton, tea, peanuts, and bean oil, in the order mentioned, were the most valuable export products in 1931. Exports of beans and raw silk were valued at 111,787,000 and 109,108,000 haikwan taels, respectively, compared with 164,740,000 and 147,681,000 haikwan taels in 1929. Leading imports, in order of value, were cotton and cotton manufactures, 281,515,000 haikwan taels (279,590,000 in 1929); rice and paddy, 121,234,000 taels (58,981,000); sugar, 85,635,000 taels (94,034,000); mineral oils, metals and minerals, iron and steel products, machinery and electrical equipment, leaf tobacco, wheat flour, cigarettes, and fish and fish products.

The unfavorable balance of trade, amounting to 504,912,000 haikwan taels (\$190,860,000) in 1930, is partly offset by the large remittances to China from Chinese living overseas. Preliminary returns for China's foreign trade in 1931 placed the total at about 1,427,000,000 haikwan taels, imports amounting to 887,000,000 taels and exports to 540,000,000 taels (1 haikwan tael equalled \$0.36 in 1931).

**FINANCE.** Revenues of the Central government for the fiscal year ended June 30, 1930, totaled 438,000,000 yuan dollars and expenditures 539,000,000 yuan dollars (yuan dollar averaged \$0.4545 U. S. currency in 1929 and \$0.4142 in 1930), according to a somewhat obscure statement of the Minister of Finance issued in March, 1931. The deficit of 101,000,000 yuan dollars was met by government borrowings of the same amount. It was the third consecutive year in which Nanking had faced a heavy deficit; in 1928-29 the deficit was 80,000,000 dollars. Mil-

itary expenditures absorbed 245,000,000 yuan dollars, or nearly half of the total spent in 1929-30, and the service of loans took another 159,000,000. The chief revenue items, in yuan dollars, were: Customs revenues, 275,000,000; salt gabelle, 122,000,000; rolled tobacco tax, 36,000,000.

For the fiscal year ending June 30, 1931, for which budget estimates balanced at 539,000,000 yuan dollars, Finance Minister Soong estimated in March, 1931, a deficit of 143,000,000 yuan dollars. The renewal of military activities in the spring, however, undoubtedly increased the final deficit. For the fiscal year 1931-32, Minister Soong anticipated revenues of about 500,000,000 yuan dollars, expenditures of 640,000,000, and a deficit of 100,000,000. The deficit was to be covered by an internal loan and additional taxation. Military expenditures constituted 87.5 per cent of the total estimated budget expenses.

China's foreign indebtedness was estimated by Arthur G. Coons at £205,341,100 (\$995,904,335) on Jan. 1, 1926. The *Statesman's Year Book* (1931) placed the total at £104,350,000 (about \$507,141,000) on Jan. 1, 1929, and the internal debt on July 1, 1930, at 551,753,523 yuan dollars (about \$228,525,000 U. S.), of which 196,004,860 yuan dollars represented loans issued by the former government at Peking and 354,748,663 dollars loans raised by the Nanking government. Arrears of principal and interest on the Peking issues totaled about \$104,820,000 U. S. on Jan. 1, 1929. The collapse of silver prices in 1930 and 1931 tended to increase the national indebtedness, as about 75 per cent of it was payable in terms of foreign gold currency, while for the most part revenues were collected in silver. To remedy this situation, the Nanking government on Feb. 1, 1931, established a gold basis for the assessment of customs duties and, later in the spring, customs gold unit notes, with a par value of \$0.40 in U. S. currency, were issued for use in the payment of customs imposts.

**COMMUNICATIONS.** At the beginning of 1930 there were 14,192 miles of railway line in China and Manchuria, divided into 12 principal systems. Fourteen government-owned lines (excluding the important Peiping-Hankow and Lunghai railways and new lines in Manchuria) reported gross earnings of 104,889,352 yuan dollars during 1930 (1 yuan dollar exchanged at \$0.2992 in 1930), compared with 103,819,746 yuan dollars in 1929. Highways passable to motor traffic in 1930 extended about 34,810 miles, of which 1072 miles were macadam and 33,738 miles were improved earth roads. Air-mail services between Shanghai and Peiping and air-passenger and mail services between Shanghai and Ichang on the middle Yangtze continued in operation during 1931. An air-mail line from Shanghai to Manchouli on the Siberian border was opened June 1, 1931, cutting the time to Berlin to eight days. Most of China's internal trade, however, passes over the numerous rivers and canals. Telegraph lines, totaling 52,050 miles, connect the principal cities and extend to neighboring countries. Commencing May 15, 1931, 21 government radio stations in as many cities operated international services transmitting through Shanghai, direct to San Francisco, Berlin, and Paris. During 1929, 186,514 vessels of 154,667,910 tons entered and cleared Chinese ports.

**GOVERNMENT.** The "Organic Law of the Nationalist government of the Republic China" was



promulgated Oct. 4, 1928, by the Executive Committee of the Kuomintang party, which exercises all political power and which assumed control and supervision of the new system of government. The law provided for the establishment of a state council as the highest unit of the National government, composed of from 12 to 16 members, from whom the presidents and vice presidents of five subordinate Yuan, or branches of the government, are selected. The chairman of the State Council is designated head of the government for purposes of representation, with the duties of Commander-in-Chief of the army and navy. The five Yuan (branches) of the government are the Executive, Legislative, Judicial, Examination, and Control Yuan. The Executive Yuan is assisted in the executive work of the government by 10 ministries and 4 boards. The Legislative Yuan, which is the highest legislative organ, consists of between 49 and 99 members appointed by the National government at the instance of the President of the Yuan. The system is to function only during the period of "political tutelage" of the Chinese people, which is limited to six years.

The Chairman of the State Council at the beginning of 1931 was Gen. Chiang Kai-shek. The Ministers functioning under the Executive Council were: Finance, T. V. Soong; Foreign Affairs, C. T. Wang; War, Ho Ying-Ching; Navy, Admiral Yang Shu-chuang; Industry, I. H. Kung; Education, Kao Lu; Railways, Sun Fo; Interior, Liu Shang Ching; Communications, Wang Peh-chun.

#### HISTORY

Chinese history during 1931, as in the previous eventful years since the Nationalist revolution, was one of kaleidoscopic overturns, the rapid rise and fall of military and civil leaders, the constant grouping and regrouping of war lords intent upon extending the areas under their control by force and intrigue. More significant was the sharpening of the bloody struggle between the middle-class and wealthy elements supporting the Nationalist (Nanking) government and communist-led peasants and workers. Significant also was the wave of hysterical nationalism, which swept the country following Japanese military offensives in Manchuria. It forced the resignation of Gen. Chiang Kai-shek as head of the Nationalist government on December 15 and brought into the reorganized administration a group of Cantonese leaders, who since May, 1931, had maintained a rival provisional government at Canton, controlling most of South China.

The most disastrous floods in 50 years inflicted great loss of life and property while countless bands of bandits and undisciplined soldiery continued to ravage great sections of the country. Nevertheless the modernization of China in spirit and in fact continued at a rapid pace. New factories, railways, roads, and canals were built, air lines were inaugurated, and the desire for new things and for doing old things in a new way became almost a mania. In the coast and river areas in touch with Western ideas, old standards and traditions were being rapidly abandoned, contract marriage was giving way to marriage by mutual consent, and the emancipation of women was evidenced by their activities in a hundred new fields. Many of them, convicted of communistic activities, paid with their lives.

**POLITICAL DEVELOPMENTS.** The termination of the great civil war of 1930 had left Gen. Chiang Kai-shek and the young Manchurian war lord, Marshal Chang Hsueh-ling, as the two outstanding military powers in China. Marshal Chang had seized the opportunity presented by the civil struggle, in which he had remained ostensibly neutral, to extend his territory southward to the Yellow River. Establishing his headquarters at Peiping, he controlled a territory almost equal in extent and riches to that under the sway of the Nanking leader. He had at his disposal a large and well-equipped force and the great arsenal at Mukden, from which he had sold munitions to both the Nationalist government and its opponents of the so-called Northern Coalition during the 1930 struggle.

Chang's occupation of the Provinces of Hopei (Chihli), Shansi, and part of Shantung had aided Chiang Kai-shek to defeat the Northern Coalition leaders, Yen Hsi-shan and Feng Yu-hsiang. Moreover, there was a certain community of ideas between the two generals; both were affiliated with the moderately conservative elements of the Kuomintang (Nationalist party). Accordingly the Nanking government acquiesced with fairly good grace in Chang's appropriation of the total revenues of the occupied Provinces. Making a virtue of necessity, Nanking appointed Chang vice commander of the Nationalist armies and charged him with the pacification of the areas north of the Yellow River, in which some 500,000 soldiers from the defeated armies of the Northern Coalition were living off the country.

The alliance between Chiang Kai-shek and Marshal Chang lessened the possibility of war between them or of a new outbreak by Yen Hsi-shan and Feng Yu-hsiang and the Nanking government turned its attention to the three major problems before it—constitutional reform, financial and economic readjustment, and the abolition of extraterritoriality. Early in 1931 a mandate was issued for the election of delegates to a People's Convention to be held in Nanking. A programme worked out by the Nanking leaders for submission to the Convention dealt with all three of these problems. A draft constitution, providing for a provisional legislature, was drawn up. A National Economic Council was organized to carry out a ten-year plan for financial and economic reorganization, which it was hoped would eliminate the conditions responsible for the rapid spread of communism among the peasants and workers. The plan was formulated in cooperation with Sir Arthur Salter, Robert Haas, and Ludwik Rajchman, experts of the League of Nations. Early in May the Nanking government announced the unilateral abrogation of foreign extraterritorial privileges, effective Jan. 1, 1932.

In advance of the People's Convention, however, serious opposition to the government's programme appeared within the Kuomintang and among the members of the government committees. Hu Han-min, member of the Central Executive Committee and chairman of the Legislative Yuan, resigned on March 2, asserting that the proposed "provisional legislature" would be completely under the control of Chiang Kai-shek. His charges expressed a widespread fear that constitutional revision would result in a personal dictatorship by General Chiang, supported principally by Finance Minister T. V. Soong, brother-in-law of the military leader. The Left wing, or Reorganizationists, demanded a reorganization

of the Kuomintang on a broader basis, while in Canton, particularly, there was strong opposition to the predominant influence of the so-called "Soong dynasty" in the government and to the financial policies of T. V. Soong, which the Cantonese felt favored the financial interests of Shanghai and Chekiang capitalists as against their own. The arrest and detention of Hu Han-min caused a stir throughout the country and was soon followed by a successful *coup d'état* of Gen. Chen Chi-tang against the Nanking military representative in the Province of Kwangtung, of which Canton is the capital.

Chen Chi-tang had the support not only of Wang Ching-wei, leader of the Kuomintang Left wing, but also of the Cantonese financial interests. Diverse elements opposed to Nanking in Kwangsi and other southern Provinces joined with Kwangtung in proclaiming a "provisional revolutionary government of south China" on May 28. The strong sectional loyalty of the Cantonese was emphasized by the resignations of Sun Fo, Minister of Railways, and Wang Chung-hui, head of the Judicial Yuan, from the Nanking government and the desertion to Canton of several Cantonese generals controlling some 30,000 of Gen. Chiang Kai-shek's best troops. On May 30 Sun Fo was replaced as Minister of Railways by Lien Shen-hai. C. C. Wu, another Cantonese, resigned as Minister to Washington on June 10.

The People's Convention was thus held (May 5-17) under the threat of the renewal of civil war, which would make the proposed financial and economic adjustments impossible of application. Nevertheless, the Convention adhered strictly to the programme mapped out by the Nanking leaders. A manifesto issued May 13 declared that "the Chinese people will not recognize longer the unequal treaties imposed by the powers upon China." A plan of agricultural rehabilitation was adopted, providing for government aid in placing settlers on new land in the northwest and northeast, improvement of the irrigation system, the establishment of agricultural banks to lend money to farmers at low interest rates, the improvement of farming methods, establishment of coöperatives, and the expansion of primary education. On May 12, the Convention approved the provisional Constitution, designed to serve until the termination in 1934 of the period of "political tutelage," when the trusteeship of the Kuomintang was to give place to responsible government. As foreseen by Chiang's enemies, the new Constitution greatly extended his authority as chairman of the State Council. He was empowered to select and recommend to the State Council for appointment the chairmen of the five governing Yuans, and the chairmen of all governmental commissions. This power had formerly been lodged in the State Council as a body. The new document, which became effective June 1, also embodied a bill of rights.

The grave fears of a large-scale renewal of civil war was emphasized by the action of the Nanking régime in establishing on May 14 a close censorship of cable and radio messages sent from within its sphere of control. Open warfare between the rival Nanking and Canton governments failed to develop, however. Gen. Chiang Kai-shek sent representatives to Canton to discuss a basis of settlement under which the Cantonese and allied groups would peacefully return to the fold

of the Nationalist government and the summer wore away in protracted negotiations. Early in September the Canton régime finally opened its long-expected drive northward against Nanking. On September 7, Canton troops occupied Chenchow, 20 miles north of the Kwangtung-Hunan border. Then the beginning of the crisis with Japan over Manchuria opened the way for conciliation and for a renewal of negotiations. On September 18 it was reported that the Southern forces had withdrawn after some indecisive fighting with Nanking troops.

Meanwhile, the prospect of immediate war on Nanking's southern front was sufficient inducement to a group of minor war lords in the northwest to open an offensive against Gen. Chiang Kai-shek and his Manchurian ally, Marshal Chang Hsueh-liang, in the middle of July. The rebellion was led by Generals Shih Yu-san, Sun Tien-ying, and Feng Yu-hsiang, who with combined forces of over 100,000 troops occupied Honan Province north of the Yellow River, and portions of southern Hopei (Chihli) and Shansi. Instead of driving southward along the Peiping-Hankow railway, as expected, the rebels struck northeastward toward Tientsin. They hoped to turn Marshal Chang's right flank and drive his Manchurian troops back into their native Provinces. The Northern generals met with considerable success at the start, inflicting several defeats on the Manchurians and approaching perilously near Peiping and Tientsin. Aid came in the nick of time from General Shang Chen, war lord of Shansi Province, who having received his price from Nanking in the form of a promised bond issue to "rehabilitate Shansi provincial currency," attacked Shih Yu-san and his allies from the rear. By August 3, the revolt had collapsed, after 250,000 troops had been massed to suppress it.

THE ANTI-COMMUNIST OFFENSIVE. The revolt of the Northern generals occurred while Gen. Chiang Kai-shek was at Nanchang, capital of Kiangsi Province, directing operations against bandits and Communist-led irregular forces. The Communist movement, which gained its chief strength in the more inaccessible and isolated interior Provinces, was fundamentally a social revolution designed to relieve the peasantry from the exactions of landlords and government officials. The National government's first drive to suppress it, opening toward the end of 1930, made little headway. In some cases, the Nanking forces met with severe reverses and early in 1931, 10,000 Nanking soldiers deserted to the Communists. The government was forced to content itself with garrisoning the large cities, establishing cordons of troops around Communist-controlled districts, and preventing the spread of the movement to new areas. Both banks of the Yangtze for 200 miles were reported under Communist control, shipping was continually fired upon, the irregular bands roamed at will over large sections of the countryside. Virtual chaos reigned in the Yangtze valley. Thousands of inhabitants were slaughtered and the survivors reduced to beggary. On June 15, officials of the Nationalist government were reported to have admitted that 20,000 Nanking soldiers had been lost in operations against Communists and bandits in Kiangsi, Hunan, and Northern Fukien Provinces.

On June 21, Gen. Chiang Kai-shek left Nanking for Nanchang to take charge of large-scale

operations against the advancing "Reds" in Kiangsi Province. He had at his command a force reported at 500,000 men, as against the estimated Communist forces of 300,000. His offensive met with greater success than that of Nanking forces during the spring, when four government divisions were defeated by "Red" forces. The concentration of troops in Kiangsi, however, left other areas unprotected against bandit ravages. In a statement issued July 15, Finance Minister Soong declared that the country was embarking upon a life-and-death struggle against the Communist system imported from Soviet Russia. Documents Soong made public revealed that much of Kiangsi and parts of Hunan and Hupeh Provinces had been officially subdivided into sovietized areas. It was generally recognized that attempts to check Communism by armed force was only a temporary expedient and that a more fundamental attack upon the problem would have to be made through alleviating the condition of the hard-pressed peasantry.

**REORGANIZATION AT NANKING.** The general reorganization of the Nanking government which occurred toward the end of 1931 was primarily attributable to the agitation of students and the collapse of Chang Hsueh-liang's power in North China. The crisis in Manchuria (discussed in the article *JAPAN under History*) inflamed Chinese students to a degree of hysterical nationalism hard to conceive of even among Western peoples. Following the Japanese occupation of Mukden and other Manchurian cities on September 18, the Nanking government approved of the policy of passive resistance followed by Marshal Chang Hsueh-liang and the efforts of the Nanking Foreign Office were directed toward securing the assistance of the League of Nations in forcing Japan's withdrawal. The failure of these efforts centred student wrath upon C. T. Wang, the Nanking Foreign Minister. On September 28 Mr. Wang was attacked in his office by a group of student demonstrators and seriously injured. Two days later he was forced to resign, his post being filled temporarily by Frank W. Lee, former Chinese Minister to Mexico.

The student temper had already manifested itself in the declaration of a nation-wide boycott against Japanese products, which within a short time reduced Japan's trade with China by 60 per cent and forced the closing of Japanese factories and shops in China. Fanned by student agitators, a demand for the declaration of war on Japan spread throughout the country. While Chiang Kai-shek and other responsible leaders must have realized that China would be at the mercy of the Japanese fleet and army in case of war, they dared not oppose student sentiment. Chiang, in fact, encouraged the agitation, assuring student delegations that immediate military training would be given all those enlisting in a volunteer corps. He announced before a Kuomintang conference in November that he would lead 2,000,000 troops against the Japanese in Manchuria. His failure to fulfill this promise aroused much sentiment against him, the mounting hostility of the students serving effectively to reinforce the demand of Canton leaders for his resignation.

Early in October it was reported that Chiang Kai-shek had written to Wang Ching-wei offering to resign and asking the Cantonese leaders to meet with his representatives at Shanghai

for a peace conference. The Cantonese went, only to have Chiang change his mind, and the Shanghai peace parley ended in failure on November 2. The unexpected delay in the reorganization of the Nanking government led to the appointment as Acting Foreign Minister on November 23 of Dr. Wellington Koo, an internationally known diplomat and former Premier at Peking. The tide of student indignation at the Nanking government's pacific policy soon reached such heights that Dr. Koo and Dr. Alfred Sze, Chinese delegate to the League of Nations, both offered their resignations on December 5. The resignations were not accepted by the Nanking government. On the following day student demonstrations in favor of stronger methods in Manchuria began to take on alarming proportions. Thousands who had gathered at Nanking from all parts of the country commenced rioting, which the police proved unable or unwilling to stop. The rioting youths were joined by incoming contingents, who forced the railways to give them free transportation from Shanghai, Peiping, and other points. In Shanghai, students took complete charge of the Chinese section of the city, forced the resignation of the Mayor and chief of police, and established their own courts in which they tried police officials charged with obstructing their demonstrations.

On December 11, the Nanking State Council flatly rejected the demands of the 50,000 students then concentrated in the capital. But more continued to arrive, and their constant attacks upon government officials and the wrecking of government buildings and offices made it virtually impossible to transact the business of the government. By December 15, 80,000 students were in Nanking demanding the resignation of Chiang Kai-shek and his Ministers at the same time that Cantonese leaders were putting forward the same demand as the essential condition of their cooperation in forming a new Nationalist government at Nanking. (The Canton-Nanking negotiations had been resumed at Shanghai December 10.) Chiang Kai-shek capitulated to this joint demand (December 15). In a circular telegram he stated that his resignation was necessary to secure national unity which in turn was needed to enable China to resist foreign aggression. Pending the reorganization of the government, Lin Sen, chairman of the Nanking Legislative Yuan, was named acting Chairman of the State Council, and Gen. Chen Ming-shu became Chairman of the Executive Yuan. It was the first time in the history of modern China that such an important governmental overturn had been accomplished without bloodshed or prolonged civil war.

When the Cantonese leaders arrived in Nanking December 17 to prepare for the reorganization of the government at a meeting of the Central Executive Committee of the Kuomintang party, they found themselves confronted with the same student situation which had made official life impossible for the Nanking leaders. The same day troopers fired on a student mob, after they had wrecked the building of the *Central Daily News*, official organ of the Kuomintang. On December 22, Chiang Kai-shek left Nanking for his home city of Fenghua, near Ningpo, refusing the offer of the post of chairman of the National Defense Council. His departure was followed by the final resignations of Dr. Koo as Foreign Minister and of all other

Ministers and Vice-Ministers in the government, including T. V. Soong, the Nanking Minister of Finance, to whom the Cantonese were particularly antagonistic.

Chiang Kai-shek was by no means eliminated from the picture, however. He still retained his military power through a series of alliances with generals loyal to him in Chekiang, Honan, Kiangsi, and Anhwei Provinces. Furthermore, he was reported to have retained the support of more than half of the members of the Central Executive Committee of the Kuomintang. But his overthrow had put an end for the time being to hope of a strong central government capable of achieving peace and undertaking the financial and economic rehabilitation of China. Intrigue, chaos, and the exaggerated student nationalism held sway everywhere except in the foreign settlement of Shanghai. And China remained in much the same condition as when Chiang marched his victorious Nationalist armies northward to the Yangtze in 1926.

**COALITION GOVERNMENT FORMED.** After two weeks of negotiation, during which Gen. Chiang Kai-shek was asked, and refused, to return to Nanking to participate, the formation of a new government was announced following a plenary session of the Kuomintang on December 28. It represented a coalition of factions within the Kuomintang, with the Cantonese controlling the majority of posts. Lin Sen, a veteran statesman and ideologist, succeeded Chiang Kai-shek as chairman of the State Council. Effective authority, however, was centred in the hands of Sun Fo, only son of Sun Yat-sen and a progressive bourgeois from South China, who became head of the Executive Yuan, a post equivalent to the office of Prime Minister. Other officers named were: President of Legislative Yuan, Yuen Chang-chi; President of Examination Yuan, Tai Chi-tao; President of Control Yuan, Yu Yu-jen; President of Judicial Yuan, Wang Chung-hui. The list was notable for the omission of such prominent leaders as Chiang Kai-shek, Hu Han-min, the Left wing leader Wang Ching-wei, and Dr. C. C. Wu. However, General Chiang, Hu Han-min, and Wang Ching-wei were named members of the standing committee of the Central Executive Committee, which functions as the executive power when the full committee is not in session. Other members of the standing committee were Sun Fo, Yu Yu-jen, Ku Meng-yu, Chu Cheng, Chen Kuo-fu, and Yeh Chu-tsang.

The list of ten Cabinet members, announced the following day, was headed by Eugene Chen as Foreign Minister. A leading journalist, Chen negotiated the return to China of the British concession at Hankow during a previous term as Foreign Minister. The other members were: Finance, Huang Han-liang; Communications, Chen Ming-hsu; Railways, Yeh Kung-cho; War, Gen. Ho Ying-chin; Navy, Adm. Chen Hsueh-kuan; Education, Chu Chia-hua; Justice, Dr. Lo Wen-kan; Home Affairs, Li Wen-fan; Industry, Chen Kung-po. Of the ten Cabinet posts, the Nanking faction secured only the portfolios of War, Marine, and Education, the remainder going to the Cantonese. In general, the Cabinet was distinctly more radical in character than its predecessor.

During the course of the negotiations, Mme. Sun Yat-sen, influential widow of the founder of the Kuomintang movement, made a slashing attack upon both the Nanking and Canton fac-

tions. Declaring that both were composed of "self-interested, foreign-controlled politicians, who are in no way concerned with bettering China's position either at home or abroad," she predicted that the coalition would break up in civil war in the spring and that disorder would reign in China until a real revolutionary government had been established by the workers and peasants.

**THE SITUATION IN NORTH CHINA.** Japanese military activities in Manchuria thus weakened the internal position of the Nanking government and led directly to the overthrow of Chiang Kai-shek. Furthermore, in stripping Marshal Chang Hsueh-liang of his power, the Japanese completely upset the military and political equilibrium in North China. While the war lords and political leaders of all China made an effort toward unity in the face of what they considered to be foreign aggression, it was considered certain that far-reaching readjustments and shiftings of power would take place in North China during 1932.

When the Japanese undertook military action in Manchuria on the morning of September 19, Chang Hsueh-liang had an army of 340,000 men, including 220,000 in Manchuria and 120,000 in China proper north of the Yellow River. Besides the largest armory in the world at Mukden, he had immense military stores and some 200 airplanes. Before a month had elapsed Chang's sources of power in Manchuria had been completely cut off. The Mukden arsenal, military stores, airplanes, food reserves, and revenues had been confiscated or diverted to other channels. Of Chang's troops in Manchuria, 70,000 had been forcibly disarmed and the remaining 150,000 were scattered and unpaid, living off the inhabitants or divided among minor militarists intent upon establishing separate domains for independent exploitation. The young Marshal retained control of the 120,000 Manchurian troops in the Peiping-Tientsin area, but since the revenues from this district were insufficient to support them he was obliged to look to Nanking for further revenue, and Nanking had little to send him.

With Chang's ability to crush new anti-Nanking coalitions in the North seriously impaired, Gen. Chiang Kai-shek was forced to abandon his plans for forcible resistance to the Cantonese. Hence the renewal of the Nanking-Canton negotiations in November, which finally resulted in the resignation of Chiang. Previous to his resignation, Chiang's uncompromising hostility to Feng Yu-hsiang and Marshal Yen Hsi-shan also underwent a complete change. These two worthies, defeated and harried into seclusion in 1930, had returned to their old districts in Shansi and other northwestern Provinces and were rebuilding their shattered forces. The change in Chang Hsueh-liang's fortunes caused the Nanking leader to restore both Feng and Yen to their former membership in the Kuomintang executive committee and to invite them to visit Nanking. For other developments in Manchuria, see JAPAN under *History*.

**THE GREAT FLOODS.** The valleys of the Yangtze, Hwai, and Yellow Rivers were visited during 1931 by the most disastrous floods recorded for over half a century. Commencing toward the end of July, the floods continued well into November. A thickly populated area of some 34,000 square miles was affected, with an additional

8000 square miles partially flooded. It was estimated that approximately 1,000,000 persons lost their lives, including the thousands who succumbed to starvation and disease directly attributable to flood conditions. Nanking officials placed the number rendered homeless and destitute at 80,000,000; many of these were expected to succumb during the winter, although the Nanking government appropriated about \$18,000,000 (U. S. currency) for relief. The damage to property and crops was enormous. In the Hankow area alone, where the city and surrounding districts were under water for several months, the damage was placed at \$250,000,000. In September the Nanking government purchased about 15,000,000 bushels of wheat from the U. S. Federal Farm Board for famine relief purposes on liberal credit terms.

**FOREIGN RELATIONS.** The Japanese-Chinese clash in Manchuria pushed into the background the relations of China with other foreign powers. The principal development in this field was the announcement of the Nanking government on May 4, 1931, that all existing extraterritorial rights of foreigners in China would be abrogated effective Jan. 1, 1932. This action, taken without the consent of the principal treaty powers, violated the terms of unexpired treaties with the United States, Great Britain, and several other countries. It aroused little foreign reaction, however, as negotiations already under way with the foreign treaty nations appeared to be approaching a successful conclusion. The Nanking pronouncement was generally considered an effort to mollify Chinese nationalist sentiment.

Shortly afterward Foreign Secretary Henderson informed the British House of Commons that negotiations with China on the extraterritoriality question had broken down upon British insistence upon temporary exclusion of the treaty ports (Tientsin, Shanghai, Hankow, and Canton) from an immediate agreement. The disappearance of John Thorburn, a British citizen arrested by Chinese military police on June 3 and alleged to have been secretly done to death, caused a further setback in British-Chinese negotiations. The Belgian concession at Tientsin was formally returned to Chinese authorities in January, 1931, and on July 31 the judicial board of the Nanking government took over the mixed court in the French concession of Shanghai in accordance with a Franco-Chinese treaty. This secured Chinese control over cases in which Chinese were defendants, a provision already in effect in the International Settlement.

The Chinese tariff, which went into effect Jan. 1, 1931, was the first in which Chinese authorities exercised practically complete autonomy in fixing rates since the Western powers entered into treaty relations with China. The new rates imposed were designed to foster and protect domestic industries.

The third meeting of the Sino-Soviet conference to arrange for the formal application of the Khabarovsk protocol of December, 1929, opened in Moscow, Apr. 11, 1931, but was again adjourned without definite progress. In the meantime, however, the Soviet government had regained by force its treaty right to a half interest in the operation of the Chinese Eastern Railway (see 1929 YEAR BOOK) and it continued to exercise joint control with representatives of Chang Hsüeh-liang throughout 1931. While China was absorbed in factional disputes and in its

passive struggle with Japan, the Soviet Union was tightening its grip upon Outer Mongolia (see MONGOLIA). According to an *Associated Press* dispatch of June 13, 1931, from Harbin, Soviet officials formed the backbone of the Outer Mongolian administration, the country was governed along Soviet lines, and its entire trade had been transferred from Chinese to Russian hands. The Nanking government was without official representation in Urga, the capital of Outer Mongolia, the resident Soviet envoy being the dominant figure. All this was despite the fact that the Sino-Soviet treaty of 1924 recognized Outer Mongolia as "an integral part of the Republic of China."

Chinese officials expressed the fear that Soviet economic penetration in Sinkiang (Chinese Turk-estan) and Inner Mongolia would result in eventual political control. The newly completed Tur-sib railway, paralleling the Sinkiang border, offered a convenient base for the extension of Soviet influence. In Northern Manchuria, also, Soviet influence was expanding and the Japanese advance toward the Chinese Eastern Railway called forth a sharp protest from Moscow (see UNION OF SOVIET SOCIALIST REPUBLICS under *History*). On April 6, an investigator for the Nanking government reported that Soviet troops and Russian families had occupied a border strip of Manchurian territory about 400 miles long and ten miles wide in Heilungkiang and Kirin Provinces.

Relations with the United States government remained cordial. The forcible expulsion of numerous Chinese from northern and western Mexico during 1931 caused strained relations between the Mexican and Chinese governments. The U. S. government granted Chinese expelled from Mexico the right to return to China through American territory, but it refused a request of the Chinese Foreign Minister to mediate the dispute when the Mexican government intimated that such mediation would not be welcome (see MEXICO under *History*). Three American missionaries were murdered by Chinese bandits during 1931 and a number of others were captured and held for ransom. The murders occurred in interior districts only nominally under the Nanking government's control and which foreigners had been repeatedly warned to evacuate.

**THE FUTURE OF SHANGHAI.** With the approaching abolition of extraterritoriality and the gradual relinquishment by foreign powers of their concessions in China, the future of the International Settlement in Shanghai became a problem of first importance. Realizing the necessity of formulating "a constructive scheme which while giving full consideration to the aspirations of the Chinese people will, at the same time, afford reasonably adequate protection during this transition period to the great foreign commercial and business interests which have been developed in Shanghai," the Municipal Council of the Foreign Settlement on Dec. 6, 1929, called in Justice Richard Feetham of the Supreme Court of South Africa to study the situation and advise the Council. Shanghai had become China's major port. In 1930, 51 per cent of all imports into China and 35 per cent of all exports passed through its harbor. The Foreign Settlement, occupying 8.66 square miles fronting the Whangpoo River, had a population of 26,965 foreigners and 971,397 Chinese, as compared with 12,335 foreigners and 421,885 Chinese in the French Conces-

sion, and with 9790 foreigners and 1,679,310 Chinese in the section of Shanghai under Chinese administration. The foreign business houses built up in the International Settlement over a long period of years, represented large capital investments and handled a major share of the trade of the port.

The report of Justice Feetham, made public in several sections in June, 1931, and thereafter, suggested a plan based upon the continuance of extraterritoriality in the Settlement. Abolition of extraterritoriality, he said, should be deferred until China was united and pacified under a central, constitutional government capable of maintaining order and justice. He urged greater Chinese participation in the government of the Settlement, but maintained that the majority of the Council must remain foreign and that foreign powers should continue their protection under the provisions of a new treaty. The recommendations were not approved by the Chinese press and were contrary to the announced policy of the Nanking government. See MILITARY PROGRESS.

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**CHINA CONFERENCE.** See PACIFIC RELATIONS.

**CHORAL MUSIC.** See MUSIC.

**CHOSEN.** See KOREA.

**CHRISTIAN CHURCH.** See CONGREGATIONAL AND CHRISTIAN CHURCHES; and articles on various religious denominations.

**CHRISTIAN ENDEAVOR, INTERNATIONAL SOCIETY OF.** An organization comprised of all Christian Endeavor societies in the United States and Canada, found among the evangelical and reformed denominations, and a member of the World's Christian Endeavor Union, comprised of Christian Endeavor societies in 87 countries. The first society was organized in Portland, Me., Feb. 2, 1881, by the Rev. Francis E. Clark, a Congregational minister, for the purpose of training young people in the duties of church membership and the activities of the Christian life.

The international society consists of active organizations for each State and each Canadian Province. These, in turn, in 1931 were divided into 1200 city, county, and district unions, each including from 3 or 4 to 500 societies, with a membership in the United States and Canada of 2,500,000. Throughout the world there were in the same year approximately 80,000 societies, with a membership of 4,000,000, organized in 126 nations, dominions, States, and island groups.

The international society is organized into the following departments to carry on its work: Christian vocations, which yearly gives vocational counsel to thousands of young people in high schools and colleges; travel and recreation, which supplies, free of charge, monthly church-centred recreation service to Christian Endeavor

societies and church workers and conducts world-friendship tours to Europe for young people at cost; citizenship, which interests young people in citizenship problems, aids first voters, and works for moral reform; army and navy, which promotes societies in army posts and navy yards and conducts meetings on thousands of merchant vessels (in some cities sailors' homes are conducted by Endeavorers); social service and prison work, which conducts classes for foreigners, helps in community enterprises, and conducts meetings and organizes societies in prisons. The society also promotes systematic and proportionate giving through the Tenth Legion, in which 77,532 have been enrolled; emphasizes regular habits of prayer and daily Bible reading through the Quiet Hour, in which 267,224 have been enrolled; and recruits for the Christian ministry and missionary work through the Life Work Recruits, in which 10,190 have been enrolled.

The international society celebrated its fiftieth anniversary at its convention in San Francisco July 11-18, 1931, with 4000 delegates in attendance. Problems of Christian citizenship, law observance, world peace, and church unity were discussed, and a two-year plan of evangelism was launched in accordance with the youth crusade-with-Christ theme of the world's convention in 1930. The official periodical of the international society is the *Christian Endeavor World*. The officers for 1931 were: President, the Rev. Daniel A. Poling; vice presidents, the Rev. William Hiram Foulkes and the Rev. Howard B. Grosse; treasurer, A. J. Shartle; and general secretary, Carlton M. Sherwood. Headquarters are at 41 Mount Vernon Street, Boston, Mass.

**CHRISTIAN SCIENCE.** A system of metaphysical or spiritual healing discovered by Mrs. Mary Baker Eddy in 1866. The first church was established by Mrs. Eddy in Boston in 1879 and given a charter by the Commonwealth of Massachusetts. In 1892 it was reorganized as a voluntary religious association known as The First Church of Christ, Scientist, in Boston, called more frequently by its adherents "The Mother Church." Mrs. Eddy wrote the textbook of the movement, *Science and Health with Key to the Scriptures*, published in 1875. The Sunday services of the church are conducted by first and second readers, the former reading from *Science and Health*, and the latter from the authorized version of the Bible. In 1931 more than 10,000 practitioners of Christian Science in the United States and other countries were devoting their entire time to healing the sick through prayer.

A board of directors administers the affairs of The Mother Church. Its annual meeting was held in Boston June 8. Reports indicated expenditures totaling \$1,873,457 from the general fund of the church during the year. During the fiscal year ending May 31, 1931, 79 churches and Christian Science societies, including several university societies, were recognized as branches of The Mother Church: 45 in North America, 26 in Europe, 1 in Asia, 4 in Australasia, and 2 in South America. The total number of recognized branches was 2519. Three departments conduct the principal activities of the movement: The Board of Education, Board of Lectureship, and Committee on Publication. The Board of Education instructs and authorizes students to teach Christian Science: the Board of Lecture-



ship consists of 26 members who deliver free lectures on Christian Science throughout the world. During the year 3732 lectures were delivered, of which 3294 were in the United States, Canada and Alaska, and 438 in foreign fields.

The Committee on Publication aims to correct impositions on the public in regard to Christian Science. It also endeavors to guard the rights of Christian Scientists against restriction by public authority. The Christian Science Publishing Society, which publishes and issues the authorized literature of The Mother Church, operates under a deed of trust granted by Mrs. Eddy; its affairs are now administered by a board of trustees according to the Manual of the church. The publishing society issues the daily paper of the organization, *The Christian Science Monitor*; other periodicals include: *The Christian Science Journal*, *Christian Science Sentinel*, and the four editions of *The Herald of Christian Science* in the German, French, Dutch, and Scandinavian (Danish, Swedish, and Norwegian) languages respectively, each with the English translation opposite. The Benevolent Association of the Church conducts sanatoria in Brookline, Mass., and San Francisco, Calif. Pleasant View Home in Concord, N. H., is a home for Christian Scientists of advanced years. Duncan Sinclair was president of The Mother Church for the year ending May 31, 1931. The headquarters of the church are at 107 Falmouth Street, Boston, Mass.

**CHRISTMAS ISLAND.** The name applied to two separate islands, one in the Indian Ocean forming a part of the Straits Settlements (q.v.) and the other the largest atoll in the Pacific Ocean, belonging to the Gilbert and Ellice Islands Colony (British).

**CHRONOLOGY.** The following chronology lists the more important happenings of the year 1931 according to the dates of occurrence. In most cases these are treated in more detail under the respective heads, and to such articles, particularly those on leading countries and States, such as United States, Great Britain, New York, and so forth, the reader is referred. For a list of prominent persons who have died during the year, reference should be made to the article **NECROLOGY** and the important obituary notices there listed.

**January 1**—The London Naval Treaty went into effect by proclamation of President Hoover.

**2**—Revolution overthrew President Arosemena of Panama. Ricardo Alfaro, Panama's Minister to Washington, was recalled to become President.

**4**—Dr. Daniel Salamanca was elected President of Bolivia.

**6**—Ten Italian naval planes, commanded by Air Minister Balbo, completed a non-stop flight from West Africa to Brazil.

**8**—Pope Pius XI made public a 16,000-word encyclical on marriage.

**9**—Congress of Soviets at Moscow approved the Soviet Union's budget for 1931, equivalent to about sixteen billion dollars.

**10**—President Hoover refused the Senate's request that he reconsider his appointment of George Smith, Marcel Garsaud, and C. L. Draper to the Federal Power Commission.

An international commission of inquiry reported that slavery existed in Liberia.

**11**—A new constitution, providing for separation of church and state, was adopted in Bolivia.

**12**—The U. S. Senate approved President Hoover's appointment of Henry P. Fletcher, Thomas Page, Alfred Dennis, and Dr. John Coulter to the Tariff Commission.

Prime Minister MacDonald offered India responsible parliamentary government and virtual dominion status as the first Round-Table Conference in London drew to a close.

**13**—President Hoover appealed for voluntary contri-

butions of \$10,000,000 to the American Red Cross for drought relief.

**14**—The U. S. Senate approved the \$45,000,000 drought-relief bill already passed by the House.

An earthquake killed 100 persons in and near the city of Oaxaca, Mexico.

**15**—President Hoover signed the Stubbs Act, reducing penalties for minor prohibition infractions.

**16**—The U. S. Senate voted \$30,000,000 for modernization of three battleships under the London Naval Treaty. The bill was approved by the House February 20.

A League of Nations' commission met to study Aristide Briand's plan for European federation.

**17**—The Fish committee of the U. S. House of Representatives, appointed to investigate communism, recommended drastic anti-communistic legislation.

A large section of the rock forming the brink of Niagara Falls fell away.

**18**—The Wickersham Commission's report on prohibition enforcement was submitted to President Hoover.

**21**—European Premiers and Foreign Ministers, assembled at Geneva, issued a manifesto pledging them selves to maintain peace.

Arturo Araujo was elected President of Salvador.

**22**—Premier Steeg met defeat in the French Chamber and resigned with his Cabinet.

**23**—The Council of the League of Nations announced that the World Disarmament Conference would convene in Geneva, Feb. 2, 1932.

**25**—Mahatma Gandhi, Indian nationalist leader, was released after nine months' imprisonment.

**26**—Fire destroyed nearly a square mile of the business district of Buenaventura, Colombia.

**29**—Secretary of State Stimson apologized to Italy for remarks concerning Mussolini made by Maj. Gen. Smedley Butler, U.S.M.C., at a Philadelphia club.

Due to a difference of opinion over Indian policy, Winston Churchill resigned from the directorate of the British Conservative party.

**30**—Senator Pierre Laval formed a new French Cabinet.

**February 3**—Twenty-seven religious fanatics were hanged at Menemen, Turkey, for an insurrectionary outbreak.

An earthquake destroyed the city of Napier and nine other towns in New Zealand, killing 200 and injuring over 1500.

**5**—Capt. Malcolm Campbell of Great Britain broke the world's automobile speed record by driving 245 m.p.h. at Daytona Beach, Fla.

**7**—Chancellor Brüning won a crucial vote of confidence in the German Reichstag, 293-221.

**8**—King Alfonso restored freedom of speech, press, and assembly in Spain by royal decree.

**9**—The U. S. Navy appropriation bill for 1931-32 called for \$344,342,952, or \$36,000,000 less than for the previous fiscal year.

The Earl of Bessborough was appointed Governor-General of Canada, succeeding Viscount Willingdon, who was named Viceroy of India.

**10**—Hitlerites and Nationalists boycotted the German Reichstag.

India dedicated a new imperial capital at New Delhi.

The U. S. Treasury Department placed a temporary embargo on lumber and pulpwood from four districts of northern Russia.

**12**—Pope Pius XI made his first radio address, which was broadcast to many countries.

**14**—General Berenguer resigned as Premier of Spain and King Alfonso suspended elections scheduled for March.

A compromise bill providing for the distribution of a \$20,000,000 drought relief fund in food and other loans, was passed by the U. S. Senate and signed by the President.

**15**—The U. S. war veterans' bonus bill passed the House, 363-39.

Premier Svinhufvud was elected President of Finland.

**18**—Admiral Juan Aznar formed a new Spanish cabinet.

**19**—The U. S. Senate passed the veterans' bonus bill, 72-12.

Canada raised tariff duties on American automobiles by 15 per cent.

**20**—President Hoover's veto of the veterans' bonus bill was overridden by the House, 328-79.

Sixty Peruvians and one American were killed in a counter-revolution against President Sánchez Cerro of Peru.

Two exiled Albanians attempted to assassinate King Zog in Vienna.

**24**—The Supreme Court reversed a ruling by Federal Judge Clark of New Jersey that the Eighteenth Amendment was invalid.

**25**—The appointment of Eugene Meyer as Governor of the Federal Reserve Board was confirmed by the Senate, 72 to 11.

**26**—The New York World was purchased by the

Scripps-Howard newspaper interests for \$5,000,000.

27—The veterans' bonus bill passed the U. S. Senate, 76-17, over the President's veto, and became a law. The Canadian Government placed an embargo on Soviet coal, wood pulp, and other products. Jurisdiction over the Virgin Islands was transferred from the U. S. Navy to the Interior Department.

March 1—Provisional President Sánchez Cerro of Peru resigned.

Dr. Gabriel Terra was inaugurated President of Uruguay.

2—U. S. Army officers in the Philippines revealed a plot of Colorums (religious fanatics) to capture the island of Corregidor and massacre the American garrison.

3—President Hoover vetoed the Muscle Shoals bill.

4—The Seventy-first Congress of the United States, convened in extraordinary session, Apr. 15, 1929, passed out of existence.

Mahatma Gandhi and the Viceroy of India signed a truce terminating the "civil disobedience" campaign.

11-12—A gathering of progressives and liberals in Washington adopted a liberal political programme.

13—The Massachusetts General Court was the first to vote for a constitutional convention to act on the repeal or amendment of the Eighteenth Amendment.

14—The Prince of Wales opened the British Empire fair at Buenos Aires.

16—The steamer *Viking*, carrying a motion picture expedition of 140, was destroyed by an explosion off Newfoundland. Twenty were killed and many injured.

The sixth All-Union Congress of Soviets elected A. I. Rykov, Nicolai Bukharin, and M. P. Tomsky to the Central Executive Committee.

17—The U. S. Treasury was informed by the Veterans' Bureau that at least one billion dollars would be needed to meet 50 per cent loans authorized by Congress on service certificates.

18—Five prison buildings were burned and three guards injured in an outbreak in Joliet (Ill.) State prison.

President Hoover departed on a vacation cruise to Porto Rico and the Virgin Islands.

The lower house of the Danish Parliament passed a bill to abolish the army. The upper house blocked the measure.

20—A two-months strike of 34,000 Swedish textile workers was settled.

Birth control was approved by the marriage-and-home committee of the Federal Council of the Churches of Christ in America.

21—Austro-German Customs Union project was announced by the German Government.

22—France, Czechoslovakia, and Italy protested the Austro-German Customs Union agreement as illegal.

24—The New York Senate authorized an investigation of the New York City's government.

The mutiny of an infantry regiment at Lima, Peru, was put down, with 200 killed.

25—Great Britain asked Germany and Austria to defer their proposed economic union until after the May session of the League of Nations' Council.

28—President Hindenburg established a virtual dictatorship, under Article 48 of the German Constitution. The Reichstag adjourned until October.

29—President Hoover returned to Washington from his Caribbean tour.

30—Mahatma Gandhi's truce with Lord Irwin was approved by the All-India National Congress at Karachi.

31—Managua, capital of Nicaragua, was destroyed by an earthquake, followed by a fire. Two thousand were killed.

The New York Legislature's bill petitioning Congress to call a constitutional convention to repeal the 18th Amendment was signed by Governor Roosevelt.

April 4—The Funchal garrison revolted against the Carmona Government of Portugal.

The Mironescu Cabinet resigned in Rumania.

6—The District of Columbia Court of Appeals upheld the conviction of Albert B. Fall on a charge of accepting a bribe in the oil lease scandal.

7—William Hale Thompson (Republican) was defeated by Anton Cermak (Democrat) by 667,529 to 475,613 in the Chicago mayoralty election.

9—Nicholas Longworth, Speaker of the U. S. House of Representatives, died of pneumonia.

12—Republicans won an overwhelming victory in the first Spanish municipal elections in eight years.

14—Rorjiro Wakatsuki succeeded Yuko Hamaguchi as Premier of Japan.

King Alfonso fled from Spain, but without abdicating, and a republic was established, with Niceto Alcalá Zamora as Provisional President.

The Ford factory at Detroit, Mich., turned out its twenty millionth automobile.

18—Nicholas Jorga became Premier of Rumania.

Insurgent raids in which eight American citizens were killed caused the dispatch of American warships to Nicaragua. Secretary of State Stimson announced the

U. S. Government would not undertake to protect its citizens in the interior.

18—The Earl of Willingdon was sworn in as Viceroy of India.

19—Revolution broke out in Northern Honduras, menacing American banana plantation interests.

22—The United States, France, and Great Britain recognized the new Spanish republic.

27—The Soviet-Italian commercial treaty, concluded in 1930, was renewed, and expanded.

28—King Prajadhipok and Queen Rambai Barni of Siam were officially received at Washington.

A revolutionary outbreak at São Paulo, Brazil, was suppressed.

30—Count di Robilant, Italian aviator, was rescued after 18 days in the Brazilian jungle, in which his airplane crashed.

An explosion in a Brazilian naval plant near Rio de Janeiro killed 150 and injured 500.

May 1—Former Governor Alfred E. Smith dedicated the Empire State Building in New York, the world's tallest structure.

May day was marked by world-wide Communist demonstrations and riots.

A new Land Act gave 70,000 tenant farmers in the Irish Free State possession of their land.

4—Mustapha Kemal was reelected Turkish President for a third term by the Grand National Assembly.

The Chinese Nationalist Government announced that extra-territorial privileges and alien courts in China would be abolished on Jan. 1, 1932.

6—The French Colonial Exposition at Paris was opened by President Doumergue.

Foreign Minister Briand of France advanced a proposal for European economic collaboration as an alternative to the Austro-German Customs Union project.

The Soviet-Lithuanian non-aggression pact was renewed.

9—The U. S. Government henceforth would not employ the Army or Navy to collect foreign public or private debts, Secretary of State Stimson announced.

An agreement for the restriction of sugar production was signed at Brussels by representatives of Cuba, Hungary, Java, Germany, Czechoslovakia, Poland, and Belgium.

11—Mobs in Madrid, Spain, attacked and burned a number of Roman Catholic institutions.

13—Confiscation of ex-King Alfonso's estates was decreed by the Republican Government of Spain.

Senator Paul Doumer was elected President of France, defeating Foreign Minister Briand.

14—Swedish police fired on striking woodpulp workers, killing six.

Fatal rioting accompanied the parliamentary elections in Egypt.

15—The European Union Commission met in Geneva. An American delegation, headed by Samuel R. McKelvie of the Federal Farm Board, arrived in London to attend a conference of eleven wheat exporting nations to consider restriction of production.

16—President Hoover inaugurated plans to reduce Federal expenditures.

18—The U. S. Supreme Court upheld the constitutionality of the Indiana chain store tax law.

Germany and Austria consented to postpone inauguration of their proposed Customs Union until its legality was passed upon by the World Court.

Maxim Litvinov, Soviet Foreign Minister, proposed a pact of economic non-aggression to the European Union Commission.

19—Foreign Minister Henderson of Great Britain was chosen president of the 1932 Disarmament Conference.

The German "pocket battleship," the *Ersatz Preussen*, renamed the *Deutschland*, was launched at Kiel.

21—The Council of the League of Nations authorized the establishment of an international farm mortgage credit bank, under League auspices.

Fascist attacks on Catholic Action clubs caused tension between the Italian Government and the Holy See.

Heads of Eastern railroads petitioned the U. S. Interstate Commerce Commission to raise freight rates "to a level which will restore the credit and the service of the carriers."

22—The World Court was asked for advisory opinions on Danzig and Memel.

Complete religious freedom was established in Spain by the Republican Government.

23—Pope Pius XI published the full text of his encyclical on labor.

The London Wheat Conference ended in failure.

25—The U. S. Supreme Court, five to four, denied citizenship to Douglas Clyde Macintosh, professor at Yale Divinity School, and Miss Marie Bland, Canadian war nurse, because of their refusal to agree in advance to bear arms in a future war.

26—The Slawek Cabinet resigned in Poland.

27—The threatened collapse of the Austrian Creditan-

stalt inaugurated a financial crisis in Germany and Central Europe.

29—The Bank for International Settlements announced that it and 10 central banks of various nations would advance credits to the Bank of Austria.

The U. S. Farm Board ended purchases of wheat futures to stabilize prices.

30—At a great military demonstration of the Stahlhelm at Breslau, East Prussia, 150,000 German war veterans swore never to rest until former German territory incorporated in Poland was regained.

Premier Mussolini ordered the dissolution of Catholic Action clubs all over Italy.

31—Secretary of the Treasury Mellon opened subscriptions for \$800,000,000 of 3½ per cent gold Treasury bonds due in 1946. On June 4 he announced that subscriptions received aggregated \$6,000,000,000.

The monetary gold supply of the United States reached a record total of \$4,797,132,000.

June 1—The U. S. Supreme Court by a five to four decision, declared the Minnesota press law unconstitutional.

Premier Bennett's budget statement in the Canadian House of Commons included important tariff increases affecting the United States.

2—The Nationalist party was victorious in the Philippine election.

The U. S. Department of Justice announced abandonment of attempts to prevent the merger of the Standard Oil Company of New York and the Vacuum Oil Company.

3—Establishment of a German dictatorship was urged on Chancellor Brüning by 1400 industrial leaders of Western Germany.

4—A British commission reported that the unemployment insurance fund was \$400,000,000 in debt to the Exchequer and that its income sufficed to meet only half of the demands upon it.

5—A new Cabinet was formed in Belgium by Jules Renkin, Catholic party leader.

Chancellor Brüning and Foreign Minister Curtius of Germany arrived in London for the Chequers conversations with British officials. A new emergency decree raised the German tax burden.

7—The California Oil Survey Committee reported that restriction of wasteful competitive production through modification of the anti-trust laws was imperative.

8—The Wailing Wall commission confirmed Arab title to the wall but granted Jews rights of access for devotions.

Two deputy sheriffs at Ardmore, Okla., shot and killed Emilio O. Rubio, cousin of President Ortiz Rubio of Mexico, and Manuel Gomez, Mexican youths attending college in the United States.

9—A plan for financial rehabilitation of the Australian Federal and State governments was agreed upon at Melbourne.

The first Catalanian legislative body to meet in four centuries convened at Barcelona.

10—Finance Minister Flandin revealed to the French Chamber of Deputies that the financial condition of the French Lire was precarious.

The Tennessee House of Representatives, by a vote of 58 to 14, defeated a bill to repeal the law forbidding the teaching of evolution in schools supported by State funds.

The All-India National Congress working committee authorized Mahatma Gandhi to go to London for the second Round-Table Conference, regardless of Hindu-Muslim differences.

13—The German Reichsbank raised its rediscount rate from 5 to 7 per cent to check heavy withdrawals of gold and exchange.

President Juan B. Perez of Venezuela resigned. On June 19 he was succeeded by the dictator and former President, Gen. Juan V. Gomez.

Paul Doumer assumed the Presidency of France.

14—Secretary of State Stimson made public complete figures on United States armaments.

Cardinal Segura, Primate of Spain, was arrested and expelled by the Republican Government.

The French excursion steamer *St Philibert* capsized in a storm; over 450 were drowned.

15—The newspaper *Izvestia* announced that of the total area sown in the Soviet Union in the spring sowing campaign, 158,000,000 acres were sowed under socialized methods as against 66,000,000 acres sowed by individual peasants.

16—President Hoover and ex-President Coolidge spoke at the dedication of a memorial to President Harding at Marion, Ohio.

The Austrian Cabinet resigned as a result of the financial crisis.

The Bank of England advanced an unconditional credit of \$21,000,000 to avert a panic in Austria.

17—President Hoover dedicated the remodeled tomb of Lincoln at Springfield, Ill.

Railroads petitioned the Interstate Commerce Com-

mission for a 15 per cent increase in all freight charges.

18—A law became effective in the Mexican State of Vera Cruz restricting the number of Roman Catholic priests to one for every 100,000 inhabitants.

20—President Hoover's Emergency Committee for Employment warned that the demand for unemployment relief would be unusually heavy during the fall and winter.

A new Austrian cabinet was formed by Dr. Carl Buresch, governor of the Province of Lower Austria. President Hoover proposed the postponement during one year of all payments on intergovernmental debts and reparations owed to the principal creditor powers.

21—A propeller-driven railway car broke the speed record for the 163.4 miles between Berlin and Hamburg. A British expedition scaled Mount Kamet, in the Himalayas, the highest peak reached by man. It is 25,447 ft. above sea level.

22—The harbor district of St. John, N. B., was destroyed by fire, the damage totaling \$5,000,000.

23—Wiley Post and Harold Gatty started from New York on a round-the-world airplane flight, which they completed on July 1 in an elapsed time of 8 days, 15 hours, and 51 minutes, establishing a record.

Joseph Stalin inaugurated a new industrial and labor policy for the Soviet Union.

24—A \$100,000,000 short term credit was extended to the Reichsbank by the Federal Reserve Bank of New York, the Bank of England, Bank of France, and Bank for International Settlements.

25—Sir Chandrasekhara Vankata Raman, Indian physicist and Nobel prize winner, made public results of experiments showing that light consists of particles possessing attributes of angular motion.

26—Prime Minister MacDonald announced that the British Government would underwrite the credit of the Government of India.

27—The Honduran revolt ended with the killing of Gen. Gregorio Ferrera, insurgent leader.

28—Election of delegates to a Constituent Cortes in Spain resulted in a sweeping Republican-Socialist victory.

29—The Malinoff Cabinet succeeded that of Premier Liapcheff in Bulgaria.

30—The U. S. Government ended its fiscal year with a deficit of \$903,000,000 and an increase of \$600,000,000 in the public debt.

A centralized bureau for U. S. war veterans' affairs was established under Gen. Frank T. Hines.

The Wickersham Commission on Law Observance and Law Enforcement was dissolved.

July 1—The U. S. S. *Constitution* was recommissioned at Boston after being laid up for 44 years, and began a tour of the Atlantic ports.

The report of the Whitely royal commission on labor conditions in India was published.

2—The weekly report of the Reichsbank revealed that on June 27 the bank had drawn more than \$76,320,000 of the \$100,000,000 credit extended by four central banks.

3—Pope Pius XI in an encyclical charged Italian Fascism with attempting to "tear away from the Church the young."

Max Schmeling of Germany retained the world's heavyweight boxing title by knocking out W. L. (Young) Stribling of Georgia, in the 15th round, at Cleveland, Ohio.

5—Anti-Chinese rioting in Korea resulted in the killing of 119 Chinese.

7—President Hoover's moratorium plan went into effect upon its acceptance by the French Government.

To halt the drain of gold from the Reichsbank, German financial and industrial leaders organized a syndicate and placed a credit of \$119,000,000 at the disposal of the Gold Discount Bank.

The Soviet Commissariat of Agriculture announced achievement of 97 per cent of the Five-Year Plan quota for the 1931 sowing campaign.

The Bank of Catalonia at Barcelona, Spain, suspended payments.

8—The discovery of serious structural defects in five of eight new 10,000-ton cruisers was confirmed by the U. S. Navy Department.

The international business of the United States for the fiscal year ended June 30, 1931, was estimated at \$17,050,000,000, compared with \$20,185,000,000 in the previous year.

9—Kaye Don, in *Miss England II*, set a world speedboat record of 110.2 miles an hour on Lake Garda, Italy.

Secretary of State Stimson conferred with Premier Mussolini and Foreign Minister Grandi at Rome during a vacation tour of Europe.

Dr. Hans Luther, president of the Reichsbank, flew from Berlin to London and then to Paris in an unsuccessful search for a loan to tide over the German financial crisis.

10—President Hoover issued a statement denouncing short traders in the American commodity markets.

The Norwegian Government proclaimed the annexation of a part of the northeastern coast of Greenland claimed by Denmark.

The U. S. Interstate Commerce Commission authorized an increase in the size and weight of parcel post packages.

12—Some Americans were stoned during an independence parade of 40,000 Filipinos at Manila.

13—The German Government invoked Article 48 of the Constitution and closed exchanges for two days, following the failure of the Darmstaedter und National Bank.

14—The Spanish Cortes assembled for the first time in eight years in Madrid to frame a constitution for the new Republic.

The Hungarian Cabinet Council ordered the closing of all Hungarian banks for three days and the Mercur Bank in Vienna closed temporarily.

15—A conference of world nitrate producers in Lucerne, Switzerland, failed to continue an existing agreement for the restriction of production.

The Wickersham Commission's report on criminal procedure was published at the White House.

The U. S. Navy Department asked bids on ten new destroyers, to cost a total of \$49,500,000.

The Brüning Cabinet assumed dictatorial control of the German financial system to prevent its threatened collapse.

16—President Hoover announced that Secretary of State Stimson and Secretary of the Treasury Mellon would attend the seven-power financial conference at London (July 20) as full-fledged delegates.

The Blanquier Cabinet in Chile postponed interest on payments to the foreign debt.

18—Chancellor Brüning of Germany, accompanied by Foreign Minister Curtius, paid the first visit of a German chancellor to Paris since the World War; he failed to secure financial aid.

American prohibition organizations united forces for a proelection campaign against wet candidates in 257 cities.

20—A 24-hour transcontinental mail service was established between Newark, N. J., and Los Angeles, Calif.

21—Albert B. Fall, former Secretary of the Interior, entered the New Mexico State penitentiary at Santa Fe, to serve one year for his part in the oil scandal of the Harding Administration.

The French Government notified the League of Nations that France had cut her armaments to an irreducible minimum under existing conditions of security in Europe.

22—The average value of the American farm declined from \$10,284 in 1920 to \$7614 in 1930, according to published results of the 1930 farm census.

23—The seven-power financial conference in London ended after reaching a "standstill" agreement for the maintenance of existing foreign short term credits in Germany.

Gold and foreign exchange withdrawals from the Bank of England increased to \$25,000,000 a day, and the Bank raised its rediscount rate to 3½ per cent.

24—The *Graf Zeppelin* left Friedrichshafen, Germany, on an exploratory flight over the North Polar regions, via Leningrad. It returned July 30.

26—The Wickersham Commission's report on the American prison system was made public at the White House. Gen. Carlos Ibañez del Campo was forced to resign as President of Chile.

27—Abandoning the gold standard, Mexico placed its currency on a silver basis.

A new Chilean Government was established with Juan Esteban Montero as Acting President.

28—The U. S. Steel Corporation reduced its common stock dividend from \$7 a year to \$4.

30—John Polando and Russell Boardman landed at Istanbul, Turkey, after a record non-stop distance flight of 5014 miles from New York.

Lord Kysant, British shipping magnate, was sentenced to a year's imprisonment for fraud.

31—Wheat sold in the Chicago market at 48 cents a bushel, the lowest price ever recorded there.

The Reichsbank raised its discount rate to 15 per cent.

August 1—Another report of the Wickersham Commission charged that the American police system had broken down on a nation-wide scale.

The Bank of England received credits of \$250,000,000 from the Bank of France and the Federal Reserve Bank of New York. World-wide Communist anti-war demonstrations ended in numerous riots and clashes with the police.

2—A plebiscite in Catalonia indicated that more than 99 per cent of the population favored independence from the Madrid Government.

4—Argentine police raided the offices of the Soviet trading agency in Buenos Aires.

President Hoover announced that a Federal building

programme totaling \$300,000,000 would be under way by fall.

Governor Murray of Oklahoma invoked martial law to stop the flow of 8106 petroleum wells.

5—Germany's banks opened for full normal business after three weeks of restricted operation.

6—Chancellor Brüning and Foreign Minister Curtius of Germany discussed economic conditions and disarmament with Premier Mussolini during a two-day visit to Rome.

The May Commission's report forecast a \$600,000,000 deficit in the British budget.

7—The tenth report of the Wickersham Commission denounced methods sometimes employed by immigration officials in enforcing the deportation system.

8—The Stahlhelm-sponsored referendum for dissolution of the Socialist-controlled Prussian Diet failed by 3,500,000 votes to secure the 13,500,000 votes required.

A revolution broke out in Cuba.

10—Third-degree police methods were assailed in a Wickersham Commission report on Lawlessness in Law Enforcement.

11—The Reichsbank lowered its discount rate to 10 per cent indicating that the German financial crisis had passed the peak.

An agreement for carrying out the Hoover moratorium was signed in London.

12—The U. S. Federal Farm Board in a telegram to Governors of 14 cotton-growing States, urged that every third row of cotton be turned under.

13—The Mexican Congress passed a revolutionary labor code.

14—Gen. Mario D. Menocal and Col. Carlos Mendieta, leaders of the Cuban insurrection, were captured by Government forces.

15—Armed bands became active along the Ulster-Irish Free State border.

16—President Hoover appointed Walter S. Gifford, president of the American Telephone and Telegraph Co., head of a national unemployment relief organization.

U. S. Internal Revenue tax collections for the fiscal year ended June 30, 1931, declined 23 per cent from the previous year, the Treasury announced.

Another Wickersham Commission report stated that the causes of crime were too complicated to be comprehensively discussed.

Count Julius Karolyi formed a new Cabinet in Hungary, replacing Count Bethlen.

17—Texas militiamen closed 1631 oil and gas wells in the East Texas fields.

18—Representatives of Germany's foreign creditors, meeting at Basel, Switzerland, agreed to postpone for six months the withdrawal of \$1,200,000,000 of short term credits.

19—The Wiggin Committee's report on German finances was issued at Basel, Switzerland.

A filibustering expedition which landed at Jibara, Cuba, with arms for the insurgents, was dispersed by Government troops.

A moratorium on foreign debt payments for the remainder of 1931 was declared by the Chilean Government.

20—Forest fires had destroyed 1,500,000 acres of timber in Montana, Idaho, and Washington since August 10, it was announced.

21—The twelfth report of the Wickersham Commission placed America's crime bill at more than a billion dollars a year.

The Federal Farm Board announced that it would exchange 25,000,000 bushels of wheat for 1,050,000 bags of coffee owned by the Brazilian Government.

British trade union leaders rejected Prime Minister MacDonald's plans for balancing the budget.

Great floods in the Yangtze valley forced the evacuation of Hangkow, China.

22—King George returned to London from Balmoral, Scotland, because of the Cabinet crisis.

23—The Wickersham Commission reported that the foreign born in the United States committed relatively fewer crimes than the native born.

24—The British Labor Government resigned and the King commissioned Prime Minister MacDonald to form a National Government for the purpose of balancing the budget.

President Ayora resigned as President of Ecuador.

25—A British National Cabinet, including four Laborites, four Conservatives, and two Liberals, was formed.

26—A revolt in Lisbon, Portugal, was suppressed after 80 were killed and 100 wounded.

Col. and Mrs. Charles A. Lindbergh arrived in Japan by airplane from New York, via Canada, Alaska, and Siberia.

The German amphibian monoplane DO-X, world's largest airplane, arrived in New York City after a trip from Europe via West Africa and eastern South America.

27—Karl Naumestnik, an Austrian, walked across the English Channel on water skis in about eight hours.

28—A \$400,000,000 loan was obtained by the new British Government in the United States and France. The British Labor party elected Arthur Henderson to succeed James Ramsay MacDonald as its leader.

29—The U. S. Department of Agriculture announced that farm prices on August 15 were 25 per cent below the pre-war level.

30—A forced exodus of Chinese was reported from the states of Northwestern Mexico.

The U. S. Treasury announced an offering of long- and short-term bonds, totaling \$1,100,000,000, at the lowest interest rates since the World War.

31—Secretary of War Hurley arrived at Manila to study the Philippine situation for President Hoover.

September 1—The German dirigible, *Graf Zeppelin*, arrived in Pernambuco, Brazil, after a non-stop flight from Berlin.

2—Settlement of the dispute with the Vatican over alleged political activities of the Catholic Action clubs was announced by the Italian Government.

King Alexander of Yugoslavia announced a return to parliamentary government.

The Chilean cabinet resigned as a Communist-led revolt broke out in the navy.

3—The Berlin stock exchange reopened for the first time since July 11; stock prices declined by 25 to 40 per cent.

The Austrian and German Governments formally renounced their Customs Union project when the European Union Commission reconvened in Geneva.

A Syndicalist strike in Barcelona, Spain, plunged the city into two days of fighting and terror.

4—President Hoover announced the sale of 15,000,000 bushels of the Farm Board's wheat surplus to the Chinese Government for the use of flood refugees.

5—The World Court ruled eight to seven that the proposed Austro-German Customs Union project violated the conditions under which the League of Nations made a loan to Austria in 1922.

6—Convening in special session the British Parliament approved Mr. MacDonald's new National Government by a vote of 309 to 250.

7—The Chilean naval mutiny was suppressed by air and army units loyal to the government.

8—Sir Hubert Wilkins' submarine, *Nautilus*, returned to Svalbard (Spitsbergen) after a cruise under the Arctic ice.

The German Government announced the purchase of 7,200,000 bushels of the U. S. Farm Board's wheat surplus.

Foreign Minister Dino Grandi of Italy, addressing the League Assembly, proposed an armament construction truce to last at least until the 1932 Disarmament Conference was over. The proposal was accepted in modified form.

Chairman James C. Stone of the U. S. Federal Farm Board announced that the Board had abandoned its effort to stabilize prices by large-scale buying.

10—A hurricane and tidal wave wrecked Belize, capital of British Honduras, killing over 800 persons.

12—Mexico entered the League of Nations but with a reservation covering Article XXI of the Covenant, which recognized "regional understandings like the Monroe Doctrine."

Mahatma Gandhi arrived in London to attend the second Round-Table Conference on India.

13—A new airplane speed record of 379 m.p.h. was established near Calshot, England, by Flight Lieut. G. H. Stainforth. On September 29 he exceeded his own record, with a speed of 406.997 m.p.h.

An abortive Heimwehr uprising occurred in the Province of Styria, Austria.

15—A near mutiny among sailors of the British Atlantic battle fleet, due to pay cuts, caused postponement of the autumn maneuvers.

17—The American Bar Association went on record as overwhelmingly opposed to prohibition.

19—Japanese military forces in Manchuria inaugurated their armed intervention outside of the treaty areas, following the alleged bombing of a section of the Japanese-owned South Manchuria Railroad by Chinese troops.

20—Great Britain's National Government abandoned the gold standard, as a result of continued depletion of the Bank of England's gold reserve.

21—President Hoover told American Legion in convention at Detroit that the proposed \$2,000,000,000 cash bonus settlement would endanger national stability. The bonus proposal was rejected by the Legion September 24, by a vote of 902 to 507.

China formally invoked Article XI of the League Covenant in her dispute with Japan over Manchuria.

22—The United States Steel Corporation announced a 10 per cent cut in wages of 220,000 employees, effective October 1. Other great industrial concerns followed suit.

24—By a vote of 1008 to 894 the American Legion convention favored a national referendum on repeal or modification of the prohibition laws of the United States.

The Philippine Legislature unanimously adopted a resolution reiterating its demand for immediate independence for the islands.

Gen. Petar Zhivkovitch resigned as Premier of Yugoslavia.

25—Italy increased her tariffs 15 per cent to eliminate a threatened \$27,000,000 budget deficit.

Bolivian and Paraguayan patrols clashed at Agua Rica in the disputed Gran Chaco region.

27—Norway, Sweden, and Egypt abandoned the gold standard as a result of the similar action by Great Britain. Denmark followed suit the next day.

Premier Laval and Foreign Minister Briand of France arrived in Berlin for a conference with German officials.

Foreign Minister C. T. Wang of China was seriously injured by a student mob for his failure to secure the intervention of the League of Nations in the Sino-Japanese clash in Manchuria. Mr. Wang resigned September 30.

28—A joint commission to promote Franco-German economic collaboration was agreed to by Premier Laval and Foreign Minister Briand at Berlin.

29—The Protestant Episcopal Church of the United States at its Denver convention modified the canon restricting the remarriage of divorced persons.

October 1—The United States Government transferred public works, agricultural and industrial education, and public health services in Haiti to native control.

Rioting by the unemployed reached serious proportions in Scotland and Lancashire.

The Spanish Constituent Cortes extended suffrage to women of 23 years and over.

2—A renewed drain of gold and foreign exchange from the Reichsbank aroused fear of a repetition of the summer's crisis.

3—A plan for consolidation of the Pennsylvania, New York Central, Baltimore & Ohio, and Chesapeake & Ohio railways was submitted to the Interstate Commerce Commission by the presidents of the roads.

Pope Pius XI issued an encyclical urging aid for the unemployed and denouncing the international competition in armaments.

5—The National Cabinet of Great Britain decided to call an immediate general election.

U. S. Senator Dwight W. Morrow died unexpectedly at Englewood, N. J.

Hugh Herndon and Clyde Pangborn landed at Wenatchee, Wash., after making the first non-stop trans-Pacific flight from Japan.

6—A plan for the formation by banking interests of a national credit institution, with resources of \$500,000,000, to help maintain the liquidity of banks was announced by President Hoover.

Foreign Minister Julius Curtius of Germany resigned.

7—Prime Minister MacDonald opened the British electoral campaign with a nationwide radio address.

Chancellor Brüning's Cabinet resigned after issuing a decree extending the German Government's control over economic, financial, and political agencies.

8—Japanese military airplanes bombed the headquarters of Marshal Chang Hsüeh-liang at Chinchow and the Manchurian crisis entered a more serious phase.

President Vargas of Brazil decreed a 60-day moratorium on all commercial and private foreign payments, except foreign exchange contracts.

9—Chancellor Brüning formed a second coalition cabinet in Germany.

The New Jersey Legislature petitioned Congress to modify the Volstead Act to permit manufacture and sale of light wines and beer.

10—Secretary of State Stimson notified the League of Nations Council that the "American Government, acting independently through its diplomatic representatives will endeavor to reinforce what the League does" to avert the Manchurian crisis.

The Uruguayan Congress voted an obligatory moratorium on foreign commercial obligations until Dec. 31, 1931.

11—Randolph Burgess of the Federal Reserve Bank of New York explained the American banking position to representatives of European central banks at Basel, Switzerland. His reassuring statement caused the heavy drain of gold from the United States to slacken.

Lieut. Col. Luis M. Sánchez Cerro was elected President of Peru.

The St. Louis Cardinals became world baseball champions for 1931 by defeating the Philadelphia Athletics in the World Series.

German National Socialists (Hitlerites) and Nationalists united forces against the Brüning Government.

12—The 12 directors of the newly-organized National Credit Corporation were announced in New York.

Finland, Northern Rhodesia, and Southern Rhodesia abandoned the gold standard.

The Malinoff Cabinet in Bulgaria resigned and a



new ministry was constituted under Nicholas Mushanoff.

13—A Constitutional provision for the separation of church and state was passed by the Spanish Cortes, 287 to 41.

The League of Nations Council reconvened in Geneva and resumed its efforts toward a settlement of the Manchurian crisis.

The fourth Pan American Commercial Congress concluded its sessions in Washington.

The German Reichstag reassembled, only to adjourn three days later, after an opposition motion of censure had been defeated, 295 to 270.

14—Manuel Azana, Minister of War, succeeded Niceto Alcalá Zamora as the Provisional President of the Spanish Republic.

15—Alfredo Baquerizo Moreno succeeded Louis Larrea Alba as Provisional President of Ecuador, when an attempt by the latter to establish a dictatorship failed.

The Federal Reserve Bank of New York raised its discount rate from 2½ to 3½ per cent in an effort to end hoarding.

The Mexican Cabinet was reorganized, with former President Plutarco Elias Calles as Minister of War.

16—The Government of the Irish Free State placed in effect a drastic public safety bill, to end a state of terrorism.

Prentiss Gilbert, American consular representative in Geneva, took his seat with the League of Nations Council in a consultative capacity, during consideration of the Sino-Japanese dispute over Manchuria.

18—Thomas Alva Edison, inventor, died at West Orange, N. J., at the age of 84.

19—Yorktown, Va., celebrated the 150th anniversary of the surrender of the British army under Lord Cornwallis. President Hoover spoke.

The Canadian Government restricted the export of gold to shipments licensed by the Minister of Finance.

A national employment insurance plan for the United States was submitted to a committee of Senators by Gerard Swope, president of the General Electric Company.

20—The United States Government called the attention of the Government of Japan and China to their obligations under the Kellogg-Briand Pact to maintain peace in Manchuria.

Rejecting the application of the railways for a 15 per cent increase in freight charges, the U. S. Interstate Commerce Commission offered a substitute plan for specific increases on specified commodities.

Neptali Bonifaz was elected President of Ecuador. The second Balkan Conference convened at Istanbul, Turkey, continuing until October 26.

21—The naval dirigible Akron, world's largest airship, was delivered to the U. S. Navy by the builders.

22—Premier Pierre Laval of France arrived in New York on his way to Washington for a discussion of Franco-American relations with President Hoover.

Anti-British rioting broke out on the island of Cyprus, in connection with an agitation for union of the island with Greece.

23—The Paraguayan Government proclaimed a state of siege, following student disorders in Asunción.

President Hoover's organization for unemployment relief recommended a programme to promote business recovery.

24—The League of Nations Council called on Japan to withdraw its troops in Manchuria within the treaty areas by November 16.

The George Washington Bridge across the Hudson at New York City, longest suspension bridge in the world, was officially opened to traffic.

25—Premier Mussolini of Italy reiterated his demand for revision of the Versailles Treaty and for disarmament on the same day that Foreign Minister Grandi arrived in Berlin for an official visit.

A joint statement was issued by President Hoover and Premier Laval setting forth the results of their conversations. Premier Laval sailed for France, October 27.

Federal Judge James H. Wilkerson sentenced Alphonse Capone, noted gang leader, to 11 years in prison, a \$50,000 fine, and \$100,000 costs for evading income tax payments to the United States Government on his illegal revenues.

26—President José Guggiarri of Paraguay resigned by compulsion and was succeeded by Dr. E. González Navero, the Vice President. A new Liberal Cabinet was formed.

27—Conservatives supporting the British National Government won a sweeping victory in the general election. Prime Minister MacDonald was reelected in a Labor constituency by 6000 majority.

President Hoover issued a statement opposing immediate independence for the Philippine Islands.

The U. S. Government accepted the League of Nations' proposal for the postponement of new armament construction for one year, provided that the other great naval powers of the world took similar action.

30—The Turko-Soviet treaty of 1929 was renewed for five years.

The U. S. Shipping Board sold the U. S. Lines to a holding company organized by the Dollar Line, the Dawson interests of San Francisco, and the Roosevelt-International Mercantile Marine interests of New York.

31—At Premier Mussolini's behest, Italian industry and labor agreed to reduce wages and other production costs.

November 2—President Hoover appointed a committee to investigate charges of William Howard Gardiner, president of the Navy League, that the U. S. Navy was being "starved." The committee reported November 7 that the charges were "wholly unwarranted."

The short term credit extended to the German Reichsbank by the Federal Reserve Bank of New York June 25 was renewed.

3—Local elections were held throughout the United States, resulting in Democratic control of the National House of Representatives.

The Constituent Cortes of Spain wrote into the new Constitution a provision that war could be declared by the President only if it was beyond question defensive, if it was in accord with the law of the League of Nations, and if the dispute had first been submitted to the League for arbitration.

Emperor Haile Selassie I of Ethiopia opened the first national legislature at Addis Ababa.

Proposals for administrative union of Uganda, Kenya, and Tanganyika were rejected in the report of the British Parliamentary committee on closer union in East Africa.

4—Wheat prices on the Chicago market rose to 70 cents a bushel from a record low of 44 cents on October 5.

Former Prime Minister David Lloyd George resigned as leader of the badly divided British Liberal party.

5—Prime Minister MacDonald announced the new British National Cabinet.

A native mission to seek independence for the Philippines sailed from Manila for the United States.

8—Parliamentary elections were held in Yugoslavia. Gen. Agustin Justo was elected President of Argentina.

Prince Nicholas of Rumania eloped with Mme. Dumitrescu (Mme. Jana Delet).

Chinese mobs attacked the Japanese concession in Tientsin.

9—An earth slide in the Panama canal interrupted traffic for two days.

The Filipino Legislature approved Manuel Quezon's plan for 10 years of autonomy with free trade, followed by a plebiscite to determine future relationships with the United States.

10—A second Sino-Japanese clash occurred in Tientsin, during which the American Methodist Mission was damaged.

A line between Klamath Falls, Ore., and Keddies, Calif., connecting the Great Northern and Western Pacific Railways, was completed.

Addressing the first session of the newly elected British Parliament, Prime Minister MacDonald declared a new settlement of war debts and reparations was necessary to right the world's "crazy economy."

11—Bolivia and Paraguay opened negotiations in Washington for a non-aggression pact and the settlement of the Chaco dispute.

The Statute of Westminster received the assent of King George.

13—A Toronto, Canada, court, sentenced eight Communist leaders to prison and authorized confiscation of the party's property in Canada.

Stanley Baldwin, British Conservative leader, told the House of Commons that the private commercial debts of Germany should have priority over reparation payments.

15—In elections to the Hessian Diet, German National Socialists (Hitlerites) more than doubled the vote polled in the September, 1930, elections to the Reichstag.

16—The Council of the League of Nations reconvened in Paris in a new effort to restore peace in Manchuria.

Foreign Minister Dino Grandi of Italy arrived in Washington for conversations on Italo-American relations with President Hoover. He sailed for Italy November 27.

The League of Nations Secretariat informed the powers that an armaments construction truce had been accepted for one year, commencing Nov. 1, 1931.

19—The German Government asked the Bank for International Settlements to appoint a special advisory committee to investigate Germany's capacity to resume reparation payments on July 1, 1932.

The Soviet Union, during the second Five-Year Plan (1933-38), would concentrate upon the production of goods with which to raise the domestic



standard of living, it was semi-officially announced. Only surplus products would be shipped abroad.

Former King Alfonso was declared a traitor and forbidden to set foot on Spanish soil in a law passed by the Cortes.

Japanese troops occupied Taitshih, metropolis of northwestern Manchuria, after defeating Chinese forces at the Nonni River.

The British House of Commons approved the first of a series of protective duties on imported articles, thus abandoning the nation's traditional policy of free trade.

22—The U. S. Federal Farm Board announced that nearly 7,000,000 bales of cotton would be withheld from the market until July 31, 1932, in order to prevent further price declines.

23—Nicaraguan insurgents captured and looted the town of Chichigalpa.

24—Philip Snowden, former Labor Chancellor of the British Exchequer, was elevated to the peerage as Viscount Snowden of Ickneshaw.

The Scullin (Labor) Government of the Commonwealth of Australia was defeated in the Federal House of Representatives and resigned. New elections were called for December 19.

26—Europeans and Americans were endangered at Tientsin, China, during fighting between Chinese and Japanese troops.

Premier Laval stated that France would consent to a reduction of German reparation payments only on condition of an equal reduction in payments on the French war debt.

27—Bert Hinkler, Australian aviator, landed at St. Louis, Senegal, West Africa, after a solo transatlantic flight from Natal, Brazil.

A mass meeting for disarmament held in the Trocadero Palace, Paris, by delegates from peace societies in 80 countries was broken up by the organized obstruction of French Nationalists.

A Round-Table Conference to determine the political future of Burma opened in London.

28—A plot to overthrow the Hungarian Government was nipped in the bud by the arrest of 32 conspirators.

British authorities at Tharawaddy, Burma, hanged Saya San, also known as King Golden Crow, leader of a formidable native revolt.

The U. S. Department of Labor announced that a cotton-picking machine had been developed capable of doing in three hours the equivalent of 77 hours of picking by hand.

30—The Viceroy of India signed an ordinance conferring broad powers on magistrates to deal with a campaign of terrorism which had broken out in Bengal.

December 1—Prime Minister MacDonald of Great Britain, at the close of the second Round-Table Conference on India, reaffirmed his Government's intention to proceed with the creation of a federated Indian state.

The Federal Government of Brazil defaulted on interest and amortization payments on four foreign loans.

The Wabash Railway went into the hands of Federal receivers at St. Louis, Mo.

2—The Coalition Government of New Zealand decisively defeated Labor in a general election.

A conference on home building and home ownership, called by President Hoover, opened at Washington, with 3000 delegates in attendance.

3—The British Government's policy of eventual dominion status for India was upheld, 369 to 43, in the House of Commons.

President Arturo Araujo of Salvador was overthrown by a military revolt. The following day the revolutionary junta appointed Gen. Maximiliano Martinez to the Presidency.

The Canadian National and Canadian Pacific Railways announced wage reductions of 10 per cent, retroactive to November 15.

4—Additional duties of 15 per cent were imposed on imports from Great Britain by the French Government. Juan E. Montero was inaugurated constitutional President of Chile.

Bituminous coal mine operators of Eastern United States formulated a plan for stabilization of the industry.

5—The Cathedral of the Redeemer, Moscow's largest church, was destroyed by dynamite to provide a site for the new Palace of the Soviets.

Foreign Minister Wellington Koo of the Chinese (Nanking) Government resigned.

The District of Columbia Supreme Court sustained President Hoover's refusal to resubmit the appointment of Dr. George Otis Smith as chairman of the Federal Power Commission, after Dr. Smith's appointment had once been confirmed by the Senate.

6—A Moslem Congress, attended by representatives from the chief Moslem countries, opened its sessions in Jerusalem.

7—Secretary of the Treasury Mellon invited sub-

scriptions for \$1,800,000,000 of U. S. Government notes and certificates of indebtedness.

The Seventy-second Congress convened at Washington, with Democrats in control of the House for the first time in 12 years. Representative John N. Garner, of Texas, was elected Speaker.

Led by Communists, a group of about 1600 "hunger marchers" reached Washington by automobile caravans and attempted unsuccessfully to petition Congress and President Hoover for Federal guarantees of employment and for national unemployment insurance.

After being suspended for three years, the Yugoslav parliament was reconvened at Belgrade.

Deputy Giovanni Giuristi resigned as Secretary-General of the Italian Fascist party and was succeeded by Achille Starace.

8—The German Government's control over the nation's economics, finances, and politics was drastically extended by decree.

President Hoover, in his annual message to Congress, submitted a programme of legislation designed to stimulate business recovery.

Col Luis M. Sánchez Cerro was inaugurated as constitutional President of Peru.

About 1500 delegates representing 1,500,000 railway employees in the United States met in Chicago to discuss wage cuts.

9—In his annual Budget message, President Hoover recommended increased taxation to prevent an estimated deficit of \$2,123,000,000 in 1931-32 and of \$1,417,000,000 in 1932-33.

The new Constitution of the Spanish Republic was adopted in final form by the Cortes (parliament), 368 to 0, with 98 abstentions.

10—An attempt by Philippine Communists and fanatical patriots to attack Manila and overthrow the government was frustrated; 154 were subsequently arrested for sedition.

The Council of the League of Nations adopted a second proposal for settlement of the Manchurian crisis.

William B. Jones, mine union secretary active in the Harlan County, Ky., labor difficulties, was convicted at Mt. Sterling, Ky., of the murder of a deputy sheriff during the clash at Evans between strikers and peace officers; he was sentenced to life imprisonment.

President Hoover's annual survey of foreign relations, in which he asked immediate approval of the Administration's moratorium on war debt payments to the United States, was read in Congress.

11—Premier Reijiro Wakatsuki and his Minseito Cabinet resigned in Japan.

President A. Smetona of Lithuania was reelected for a seven-year term by an electoral college.

Niceto Alcalá Zamora, former Provisional President of the Spanish Republic, was inaugurated as constitutional President.

Representatives of Germany's private creditors in 22 countries met German bankers in Berlin. Their task was to formulate a policy with regard to short term private credits "frozen" in Germany until the expiration in February, 1932, of the standstill agreement reached in June, 1931.

12—The Azana Cabinet resigned in Spain, but was reorganized December 15 under the same head.

13—Japan abandoned the gold standard, a minority cabinet was formed under Ki Inukai.

14—President Hoover requested an additional appropriation of \$136,352,000 during the 1931-32 fiscal year for public buildings and roads.

Executives of the railways of Eastern United States accepted a union proposal for the establishment of a joint committee to negotiate on wages and employment on the railways.

15—Chiang Kai-shek and T. V. Soong resigned with the entire Nanking Government and a new government was formed, with Cantonese leaders holding the most prominent positions.

A conference to consider economic collaboration between Argentina, Brazil, and Uruguay, opened at Montevideo, Uruguay.

The Republican National Committee of the United States scheduled the party's 1932 presidential convention for June 14 at Chicago.

Nicholas Murray Butler, president of Columbia University, New York, and Jane Addams, founder of Hull House, Chicago, were awarded the Nobel Peace Prize.

16—A Republican anti-prohibition bloc of 64 members was organized in the U. S. House of Representatives.

The Metropolitan Opera, New York City, broadcast *Haensel und Gretel* to a world-wide audience.

18—The U. S. House of Representatives passed, 317 to 100, a joint resolution approving the Hoover moratorium proposal of June 20.

19—An agreement for restriction of world copper production during 1932 was reached by the leading producers at Brussels, Belgium.

The U. S. House of Representatives passed a bill adding \$100,000,000 to capitalization of Federal land banks.

Premier Scullin's Labor Government was overwhelmingly defeated in the Australian general election and a new Cabinet was formed under J. E. Lyons, leader of the United Australia party.

21—Japanese forces in Manchuria inaugurated a drive against Chinchow.

22—Despite a previous promise to hold a presidential election in 1932, President Machado of Cuba announced that he would remain in office until the expiration of his term in 1935.

The Hungarian Government declared a moratorium on foreign debt payments.

A wing of the Vatican library collapsed, killing four persons and destroying many valuable books and records.

The Mexican Federal Chamber of Deputies passed a bill limiting the number of priests who might officiate in the Federal District or the Territory of Lower California to one for every 50,000 inhabitants, effective December 30.

The All-Union Executive Committee of the Soviet Union convened in Moscow to approve plans for completion of the Five-Year Plan during 1932.

23—The report of the Basel committee of experts, appointed by the Bank for International Settlements to investigate Germany's capacity to resume reparation payments, stated that Germany could not resume conditional payments in July, 1932.

24—The International Labor Office at Geneva estimated that 100,000,000 persons, including unemployed and their families, were hungry and destitute.

The U. S. Interstate Commerce Commission authorized the railways to raise freight rates.

25—Troops fired on a menacing mob of "Red Shirts," Indian nationalists, at Utmanzai, near Peshawar, killing eight.

26—The U. S. Senate appointed two subcommittees to study proposals for modifying the prohibition laws. Pius XI, in another encyclical, urged Protestant and Eastern Orthodox churches, to unite with the Roman Catholic Church under Papal authority.

27—The All-Indian Moslem League, at New Delhi, repudiated the new campaign of civil disobedience sponsored by the All-India National Congress.

30—Finland's citizens voted overwhelmingly for repeal of the national prohibition law at a referendum on the issue held December 29 and 30.

The British Government called an international conference at Lausanne, Switzerland, for Jan. 18, 1932, to consider revision of the reparation and war debt settlements

**CHURCHES.** See ARCHITECTURE; and articles on various religious denominations.

**CHURCHES OF CHRIST.** See DISCIPLES OF CHRIST.

**CHURCHES OF CHRIST IN AMERICA,** FEDERAL COUNCIL OF THE. See FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA.

**CHURCHILL.** See CANADA under *History*; MANITOBA.

**CHURCH OF ENGLAND.** See ENGLAND, CHURCH OF.

**CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS.** See LATTER-DAY SAINTS, CHURCH OF JESUS CHRIST OF.

**CHURCH UNITY.** See PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA; PROTESTANT EPISCOPAL CHURCH.

**CIGARS, CIGARETTES.** See TOBACCO INDUSTRY.

**CINCINNATI, UNIVERSITY OF.** An institution for the higher education of men and women in Cincinnati, Ohio, founded in 1870. The registration for the autumn of 1931 was 10,705. The summer-school enrollment for 1931 was 1272. There were 596 members on the faculty. The endowment funds of the university for the year ending Dec. 31, 1929, amounted to \$6,983,956; the income for the same period was \$2,485,642. The library contained 184,661 volumes. During 1931 Teachers College and Wilson Auditorium were completed. President, Herman Schneider, Sc.D.

**CINCINNATI MUSEUM.** See ART EXHIBITIONS; ART MUSEUMS.

**CINEMAS, CINEMATOGRAPHY.** See MOTION PICTURES; PHOTOGRAPHY.

**CITRUS CROPS.** See HORTICULTURE.

**CITY AND REGIONAL PLANNING.** After ten years of work carried on by engineers, landscape and building architects, municipal and social economists and other specialists, work on the Regional Plan for New York and its Environs was officially announced as completed at a dinner held in December. The region covered is over 5000 square miles in area, lying within a radius of 50 miles of the city hall and is located in 22 counties of three States, New York, New Jersey, and Connecticut, embracing over 400 cities, villages, and towns. Except for the publication of the last two or three of ten volumes of reports, the detail work on the regional plan was completed in 1928. Among the many subjects covered in these reports are past and prospective growth in population of the region and its component parts; major highway systems; ways and means of transportation, including the rapid transit subways, suburban and main line railways, airways, and airports and waterways; parks and parkways; main systems of water supply and sewage disposal. The population of New York and Environs was shown to be over 11,000,000 by the census of 1930 and was estimated to be 20,000,000 in 1960. This great undertaking, by far the largest in the whole history of city and regional planning the world over, was financed by the Russell Sage Foundation and other private contributors and was under the general direction of a committee of notable publicists, headed until his death by Charles D. Norton and subsequently by Frederick A. Delano as chairman. The general director of the plans and surveys was Thomas Adams, a town planner of varied experience in Great Britain, Canada, and the United States.

Another extensive plan completed during the year was that of the Regional Planning Federation of the Philadelphia Tri-State District, carried out within the three years ending in July, 1931, by means of a \$600,000 subscription fund pledged early in 1928. The Philadelphia region embraces 11 counties in Pennsylvania, New Jersey, and Delaware. The work was under the direction of a technical advisory committee of some 200 state, county, city, township, and borough engineering officials together with the leading consulting engineers, architects, and landscape architects of the region. Publication of the report on the plan was postponed until after the completion of a welfare and unemployment campaign in the district. At the close of the year arrangements were being made to raise funds to supplement those still available from the original contributions in order to carry on work during 1932. Planning associations were being formed in the counties in the district not already having them and coöperation was being given by the recently formed Philadelphia City Planning Commission.

The Chicago Regional Planning Commission continued its work during the year as did also other regional commissions in the United States and in England. Progress continued to be made on the execution of the Chicago Plan, made many years ago, promptly put under execution under the Chicago City Plan Commission, a very large citizen organization. Vast sums for the construction of major highways was provided from the treasury on authorization of the voters.

Less expensive prosecution of city planning projects continued to be carried out in various

parts of many cities both in the United States and elsewhere. As an example of what is being done in relatively small places, it may be noted that the village board of Ossining, N. Y., approved a plan in 1931 looking to the establishment of a "model community" in 25 years at a cost of \$4,500,000, the money to be spent in installments. Among the improvements projected are a station plaza, an amphitheatre to be developed on a natural slope as a sort of central community centre; relocation of the Albany Post Road, parks and several new school buildings.

Boulder City, Nev., was put under construction during the year as a model small town to house workers on the construction of the Hoover Dam across the Colorado River (see DAMS). This town is located 25 miles east of Las Vegas, Nev. It is built on land considerably higher than the dam site, in order to get more comfortable living conditions, and overlooks the site of the large body of water that will be formed by the dam (for general plan and description of Boulder City see *National Municipal Review*, May, 1931).

The city of Bogotá, Colombia, engaged a prominent American city planner to make plans for the improvement of that South American city. New Delhi, the new capital city of India, was opened with due ceremonies early in February, 1931, after having been put under construction in the open country some 18 years earlier. The centre of New Delhi was about 2½ miles south of the centre of the ancient city of Delhi. The World War was in part responsible for the long period of construction prior to the official opening (for a description of the new capital, with plans and half tone views, see *Engineering News-Record* Sept. 10, 1931).

The annual survey of progress in city planning and zoning, dated May, 1931, compiled by the Division of Building and Housing of the U. S. Department of Commerce, showed 786 municipalities of the United States having official planning commissions and 981 municipalities having zoning ordinances at the beginning of 1931. In addition there were 67 county or regional planning commissions, official and unofficial, and 38 unofficial city planning boards (for more detailed information on this line of progress, see earlier YEAR BOOKS).

**BIBLIOGRAPHY.** New books appearing during the year included: Hubbard and others, *Airports: Their Location, Administration and Legal Basis* (Cambridge, Mass.); Matzenbaum, *The Law of Zoning* (New York); Lohmann, *Principles of City Planning* (New York); Adams and others, *Buildings: Their Uses and the Spaces About Them*, vol. vi of Regional Survey of New York and Environs (New York); Ford, *Building Height, Bulk and Form* (Cambridge, Mass.); Whitten and Adams, *Neighborhoods of Small Houses* (Cambridge, Mass.).

**CITY GOVERNMENT, CITY MANAGEMENT, ETC.** See MUNICIPAL GOVERNMENT.

**CIVIC FEDERATION, THE NATIONAL.** See NATIONAL CIVIC FEDERATION, THE.

**CIVIL ENGINEERS, AMERICAN SOCIETY OF.** An association of professional engineers, founded in 1852 to advance engineering and architectural knowledge and practice, to maintain high professional standards, and to encourage intercourse between men of practical science. The membership as of Dec. 15, 1931, consisted of 18 honorary members, 5997 members, 6361 associate members, 2825 juniors, 126 affiliates, and 5 fel-

lows. The members included civil, military, naval, mining, mechanical, electrical, and other engineers, in active practice 12 years, and qualified to design as well as to direct engineering work. The associate members were those who had been practicing eight years; the juniors, beginners in the profession; affiliates, persons qualified to co-operate with engineers, but not themselves engineers; fellows, contributors to the permanent funds of the society, who may not be eligible to membership; and honorary members, persons of acknowledged eminence in engineering. There were, in 1931, 53 local sections and 99 affiliated student chapters in colleges throughout the United States.

Four general meetings of the society are held each year, including the annual meeting, annual convention, and spring and fall meetings. At the annual meeting, held in New York City Jan. 21-23, 1931, the following medals and prizes were awarded for papers published in the society's *Transactions*: The Norman Medal, to Charles Terzaghi; the J. James R. Croes Medal, to H. de B. Parsons; the Thomas Fitch Rowland Prize, to Rufus McC. Beanfield; the James Laurie Prize, to John H. Gregory, C. B. Cornell, and C. B. Hoover; and the Arthur M. Wellington Prize, to George Gibbs. At the spring meeting, held in Norfolk, Va., April 15-17, the question of transportation was considered at the general sessions, while at the fall meeting, held in St. Paul, Minn., October 7-10, a study was made of the iron mining industry. The sixty-first annual convention was held in Tacoma, Wash., July 8-11, the chief topic of discussion being the Pacific Northwest. At each of the meetings some sessions were under the direction of one or more of the 10 technical divisions, which presented papers on their special branches of engineering. Seven research committees, with a total personnel of about 60, were engaged throughout the year in special investigations. Nearly 100 members served on joint boards and committees, with representatives of other societies, for research and standardization.

The society publishes two monthly magazines: *Proceedings*, containing technical papers which are later collated, with discussions, in the yearly volume of *Transactions*; and *Civil Engineering*, which presents news of society affairs and articles of more popular appeal. The *Year Book* contains a list of members and general information about the society. A series of *Manuals*, published at irregular intervals, deals with various topics of engineering interest. The officers of the society in 1931 were: President, Francis Lee Stuart; vice presidents, J. M. Howe, Frank E. Winsor, J. N. Chester, and H. M. Waite; secretary, George T. Seabury; treasurer, Otis E. Hovey. Headquarters are in the Engineering Societies Building, 33 West Thirty-ninth Street, New York City, of which, with three other national engineering societies, it is joint owner.

**CIVILIZATION STUDIES.** See PHILOLOGY, MODERN.

**CIVIL SERVICE REFORM LEAGUE, NATIONAL.** Organized in 1881 for the purpose of putting to an end the so-called spoils system of making appointments to public office, this organization has sought to accomplish its end by promoting administrative efficiency through the application of the merit system to the appointment, promotion, and tenure of government officials. It also has advocated, on the principle that public office is a public trust, that those best

fitted through demonstrated ability and capacity should serve the State.

During 1931 the league urged the revocation of the executive order by which employees of the United States Employment Service in the Department of Labor are selected without regard to the civil service law. It persistently protested against filling presidential postmasterships on a political basis and assessing postmasters for political funds. It urged upon the President and his Advisory Committee on Veteran Preference the modification of the executive order increasing the preference given war veterans in civil service positions. It assisted in the adoption of a new civil service law and in drafting civil service rules for Porto Rico.

The league endeavors to secure the adoption and improvement of civil service laws in various States and cities. Reports of its work are issued periodically. *Good Government* is the official organ. The officers in 1931 were: George McAneny, president; W. W. Montgomery, Jr., chairman of the executive committee; Howard R. Guild, chairman of the council; A. S. Frissell, treasurer; and H. Eliot Kaplan, secretary. Headquarters are at 521 Fifth Avenue, New York City.

**CIVITAN INTERNATIONAL.** An organization composed of selected professional and business men, throughout the United States and Canada, who have dedicated themselves to unselfish service to their city, county, State, and nation. The first Civitan club was founded in Birmingham, Ala., in 1917, the word "Civitan" being coined from the Latin "civitas." The motto of the organization is "Builders of Good Citizenship." The organization of field work was begun in 1920, when the international association was formed in Birmingham, and by 1921, when the first annual convention was held, there were 30 clubs. A total of 263 clubs had been chartered by Nov. 1, 1931. The primary requisite for membership is that every applicant be a "duly qualified and registered voter."

Among the outstanding achievements of the Civitan clubs in 1931 were the inauguration of "Sunbeam and Shadows" radio hour. The plan, which was originated by the Miami (Fla.) Civitan Club, consists of broadcasting the appeals of those in distress, by number; these appeals are known as "Shadows," while the responses for the relief of such unfortunates are known as "Sunbeams." The various clubs also continued their work of curbing crime, elimination of tuberculosis, and eradication of Communistic activities wherever found. There were the usual agencies of Big Brothers work, Boy Scout camps, parole of first offenders to Civitans for personal observation, Americanization work, city beautification, sponsoring of essay contests on "Good Citizenship," and, in general, participation in all matters of civic improvement and humanitarian purpose.

The 1931 convention was held in St. Louis, Mo. June 21-24, and the 1932 convention was to be held in Baltimore, Md. The official organ is the *Civitan*, published monthly in Atlanta, Ga., Bruce Moran, editor. The officers for 1931 were: President, Harold Tschudi, Baltimore, Md.; vice presidents, Merton W. Clement, Worcester, Mass., Cary H. Howard, Tulsa, Okla., Claude B. Squires, Charlotte, N. C.; international secretary, Arthur Cundy, Birmingham, Ala.; and international treasurer, Claude L.

Hagan, Birmingham, Ala. Headquarters are at 800 Farley Building, Birmingham, Ala.

**CLARKE, SIR EDWARD GEORGE.** A British lawyer and public official, died Apr. 26, 1931, in London, where he was born Feb. 15, 1841. He received his education at the City of London College and King's College. In 1864 he was called to the bar at Lincoln's Inn, practicing in the Common Law Courts and Surrey Sessions where he won fame through his brilliant handling, as counsel, of the Penge Murder Case (1877); the Adelaide Bartlett Case (1886); the Baccarat Case (1891), in which Edward VII, then Prince of Wales, gave evidence in the slander action brought by Sir W. Gordon-Cumming; and the Jameson Case (1896), in which he defended Dr. Leander Starr Jameson, leader of the raid into the Transvaal in December, 1895. He was knighted in 1886, having become solicitor-general under Lord Salisbury's Conservative administration and holding that office until 1892. He was a member of Parliament for Southwark (1880), for Plymouth (1880-1900), and for the City of London (1906). He retired from the bar in 1914. Among his publications are *Treatise on the Law of Extradition* (1866; 4th ed., 1903); *The Story of My Life* (1918); and *Benjamin Disraeli: The Romance of a Great Career* (1926).

**CLARKE, FRANK WIGGLESWORTH.** An American chemist, died in Chevy Chase, Md., May 23, 1931. He was born in Boston, Mass., Mar. 19, 1847, and was graduated from the Lawrence Scientific School, Harvard University, in 1867. He was an instructor at Cornell University in 1869, professor of chemistry at Howard University in 1873-74, and professor of chemistry and physics at the University of Cincinnati from 1874 to 1883, when he was appointed chief chemist of the U. S. Geological Survey and honorary curator of minerals in the U. S. National Museum. In 1900 he was a member of the Paris Exposition international jury of awards; in 1901, president of the American Chemical Society; and in 1903, Wilde medallist of the Manchester (England) Literary and Philosophical Society. He was joint author with Louis M. Dennis of *Elementary Chemistry* (1902) and author of *The Constants of Nature* (5 vols., 1873-82) and of various bulletins of the Geological Survey and many papers on chemistry and mineralogy.

**CLARKEITE.** See MINERALOGY.

**CLARK UNIVERSITY.** A nonsectarian university in Worcester, Mass., founded in 1889. It comprises a college for men, a coeducational graduate division of arts and sciences, and a coeducational senior college (extension courses) granting the degree of bachelor of education. The registration for the autumn of 1931 was 494 including 236 undergraduates, 82 graduate students, 21 special students, and 155 extension students. The enrollment for the summer session was 300. There were 40 members on the faculty. The productive funds amounted to approximately \$5,000,000. The library contained 137,000 volumes. President, Wallace W. Atwood, Ph.D.

**CLASSICAL ANTIQUITIES.** See ARCHÆOLOGY.

**CLASSICAL STUDIES.** See PHILOLOGY, CLASSICAL.

**CLEVELAND, OHIO.** See MUNICIPAL GOVERNMENT.

**CLEVELAND COLLEGE.** See WESTERN RESERVE UNIVERSITY.

**CLIMATE.** See METEOROLOGY.

**CLIPPERTON ISLAND.** An island in the Pacific, situated some 500 miles southwest of Mexico and 1500 miles northwest of the Panama Canal. In dispute between Mexico and France, it was awarded to France in January, 1931, by the King of Italy acting as arbitrator. It is less than a square mile in area, with 30 inhabitants, and has small phosphate deposits.

**CLOUD STUDIES.** See METEOROLOGY.

**COAL.** With disturbed economic conditions and decreased industrial activity world-wide, it was

inevitable that the production of coal should be further curtailed in 1931 and that there should be a further decline in the production from the statistics for 1930 as shown compared with earlier years in the accompanying table. With reduced production and demand labor difficulties in some countries and fields developed, and these were often serious, at least from the economic standpoint especially where the costs of production were high in comparison with the return for the coal mined. See GREAT BRITAIN under *History*.

**COAL AND LIGNITE PRODUCED IN THE PRINCIPAL COUNTRIES OF THE WORLD IN THE CALENDAR YEARS 1926-1930, IN METRIC TONS**

[Compiled by L. M. Jones, of the U. S. Bureau of Mines]

Country	1926	1927	1928	1929	1930
<b>North America:</b>					
Canada—					
Coal .....	11,687,032	12,340,507	12,439,470	12,272,806	10,867,432
Lignite .....	3,261,599	3,468,793	3,494,505	3,599,720	3,132,608
Greenland .....	1,500	2,900	8,000	3,600	4,800
Mexico .....	1,309,138	1,031,308	1,022,475	1,054,196	1,294,259
United States—					
Anthracite .....	76,599,968	72,661,094	68,354,261	66,975,462	62,944,536
Bituminous and lignite ...	520,147,061	469,704,558	454,265,822	485,380,952	424,130,508
<b>South America:</b>					
Argentina .....	( <sup>a</sup> )	( <sup>a</sup> )	( <sup>a</sup> )	( <sup>a</sup> )	( <sup>a</sup> )
Brazil .....	400,000 <sup>b</sup>	400,000 <sup>b</sup>	400,000 <sup>b</sup>	400,000 <sup>b</sup>	400,000 <sup>b</sup>
Chile .....	1,490,509	1,481,511	1,375,616	1,507,866	1,441,370
Colombia .....	( <sup>a</sup> )	( <sup>a</sup> )	( <sup>a</sup> )	( <sup>a</sup> )	( <sup>a</sup> )
Peru .....	170,070	158,601	177,513	219,654	200,014
Venezuela .....	15,928 <sup>c</sup>	16,104 <sup>c</sup>	15,812 <sup>c</sup>	16,859 <sup>c</sup>	9,443
<b>Europe:</b>					
Albania—Lignite .....	1,558	3,115	2,985	4,117	4,283
Austria—					
Coal .....	157,308	175,601	202,098	208,020	215,888
Lignite .....	2,957,728	3,064,068	3,262,570	3,524,792	3,062,981
Belgium .....	25,259,600	27,550,960		26,939,930	27,405,560
Bulgaria—					
Coal .....	62,150	69,192	70,336	72,478	70,567
Lignite .....	1,140,093	1,168,454	1,360,790	1,572,964	1,522,361
Czechoslovakia—					
Coal .....	14,176,998	14,016,300	14,560,305	16,521,457	14,435,002
Lignite .....	18,515,666	19,620,637	20,451,421	22,560,796	19,193,669
France—					
Coal .....	51,391,523	51,791,821	51,365,247	53,779,777	53,884,035
Lignite .....	1,061,122	1,083,041	1,074,627	1,197,238	1,142,733
Germany—					
Coal .....	145,295,724	153,599,355	150,860,599	163,440,632	142,697,760
Lignite .....	139,150,557	150,503,914	165,588,097	174,455,946	145,913,818
Snaar .....	13,680,874	13,595,824	13,106,718	13,579,348	13,235,771
Greece—Lignite .....	153,321	143,346	120,639	156,526	( <sup>a</sup> )
Hungary—					
Coal .....	827,710	785,922	783,279	826,270	811,548
Lignite .....	5,822,159	6,244,275	6,510,070	7,043,920	6,176,484
Irish Free State .....	79,715	( <sup>a</sup> )	( <sup>a</sup> )	86,554	( <sup>a</sup> )
Italy—					
Coal .....	209,260	168,528	127,932	223,348	231,126
Lignite .....	1,181,342	912,458	697,033	782,045	576,860
Netherlands—					
Coal .....	8,842,687	9,488,412	10,920,054	11,581,202	12,211,084
Lignite .....	211,194	201,382	196,696	156,568	( <sup>a</sup> )
Poland—					
Coal .....	35,747,348	38,084,086	40,616,384	46,236,037	37,505,649
Lignite .....	76,026	78,464	73,560	74,321	54,962
Portugal—					
Coal .....	201,732	178,554	201,348	196,901	( <sup>a</sup> )
Lignite .....	30,699	25,713	26,450	29,343	( <sup>a</sup> )
Rumania—					
Coal .....	322,191	373,457	397,564	370,947	298,825
Lignite .....	2,731,362	2,850,011	2,629,676	2,675,080	2,071,057
Russia—					
Coal .....	20,614,717	25,944,341	28,827,819	36,384,000	39,952,000
Lignite .....	1,605,327	1,763,196	1,978,570		
Spain—					
Coal .....	6,536,087	6,562,936	6,370,508	7,108,316	7,119,807
Lignite .....	399,830	420,602	422,504	438,951	388,032
Svalbard (Spitzbergen) ..	291,211 <sup>d</sup>	303,000 <sup>d</sup>	275,019 <sup>d</sup>	251,185 <sup>d</sup>	192,450 <sup>d</sup>
Sweden .....	383,673	398,298	358,513	394,975	397,960
Switzerland .....	( <sup>a</sup> )	7,000 <sup>b</sup>	7,000 <sup>b</sup>	7,000 <sup>b</sup>	4,000 <sup>b</sup>
Turkey—Lignite .....	4,638	4,000	( <sup>a</sup> )	312	800
United Kingdom—					
Great Britain .....	128,305,291	255,264,615	241,283,355	262,046,206	247,796,127
Northern Ireland—Lignite .	( <sup>a</sup> )	510	650	327	( <sup>a</sup> )
Yugoslavia—					
Coal .....	190,814	287,728	457,472	408,611	366,208
Lignite .....	8,976,938	4,458,481	4,694,408	5,242,527	4,909,679
<b>Asia:</b>					
British Borneo .....	92,583	80,466	79,721	73,100	74,345
China .....	23,040,119	24,172,009	25,091,760	( <sup>a</sup> )	( <sup>a</sup> )

**COAL AND LIGNITE PRODUCED IN THE PRINCIPAL COUNTRIES OF THE WORLD IN THE CALENDAR YEARS 1926-1930, IN METRIC TONS—(Continued)**

Country	1926	1927	1928	1929	1930
Chosen .....	682,896	709,578	815,817	937,902	884,138
Federated Malay States .....	471,756	470,432	565,523	672,181	574,650
India, British .....	21,336,204	22,436,757	22,904,685	23,794,605	22,942,976
Indo-China—					
Coal .....	1,284,661	1,482,900	1,954,098	1,941,810	1,937,000
Lignite .....	5,598	7,000	15,472	30,718	29,000
Japan—					
Japan proper—					
Coal .....	31,296,168	33,387,160	33,694,298	34,100,000	(*)
Lignite .....	161,134	178,613	121,923	139,031	(*)
Karafuto .....	275,828	357,046	539,481	635,515	(*)
Taiwan .....	1,794,511	1,857,257	1,583,598	1,530,025	(*)
Netherland East Indies .....	1,466,859	1,620,205	1,703,526	1,831,741	1,869,638
Philippine Islands .....	28,577	23,410	27,857	17,321	20,751
Russia—					
Coal .....	2,849,399 <sup>c</sup>	3,907,499 <sup>c</sup>	3,916,129 <sup>c</sup>	6,489,000	6,504,000
Lignite .....	694,866	869,262	903,758		
Sakhalin—Coal .....	19,624	46,274	126,551		
Turkey—					
Coal .....	1,222,387	896,074 <sup>f</sup>	923,403 <sup>f</sup>	985,035 <sup>f</sup>	1,139,652 <sup>f</sup>
Lignite .....	7,569	6,555	5,169	7,659	7,372
Africa:					
Algeria .....	13,731	21,269	16,631	16,130	17,193
Belgian Congo—					
Coal .....	90,250	86,950	97,780	114,450	133,800
Lignite .....	.....	.....	.....	2,800	.....
Madagascar .....	.....	5	33	26	.....
Nigeria .....	329,784	363,643	365,083	350,473	364,000
Portuguese East Africa .....	10,868	15,834	6,455	(*)	(*)
Southern Rhodesia .....	874,140	908,744	1,094,843	1,036,816	938,736
Union of South Africa .....	12,949,950	12,580,314	12,606,576	13,018,828	12,222,501
Oceania					
Australia—					
New South Wales .....	11,060,483	11,304,688	9,599,841	7,740,000	7,206,899
Queensland .....	1,240,657	1,116,680	1,093,615	1,390,713	1,112,246
Tasmania .....	104,000	113,854	130,562	132,382	140,942
Victoria—					
Coal .....	600,487	695,227	668,889	715,124	(*)
Lignite .....	973,310	1,478,842	1,617,407	1,769,122	(*)
Western Australia .....	482,440	509,554	536,901	553,462	509,473
New Caledonia .....	15,000	9,000	16,565	21,000	9,670
New Zealand—					
Coal .....	1,215,590	1,311,247	1,370,379	1,389,107	1,403,873
Lignite .....	1,060,361	1,093,484	1,105,483	1,187,458	1,179,019
Total, all grades .....	1,364,000,090	1,477,000,000	1,464,000,000	1,560,000,000	1,413,000,000
Lignite (total of items shown above) .....	185,000,000	200,000,000	216,000,000	230,000,000	194,000,000
Bituminous and anthracite (by subtraction) .....	1,179,000,000	1,277,000,000	1,248,000,000	1,330,000,000	1,219,000,000

<sup>a</sup> Estimate included in total.

<sup>b</sup> Approximate production.

<sup>c</sup> Exclusive of output of State of Falcón (about 8,000 tons), for which estimate is included in total.

<sup>d</sup> Exclusive of minus in the Saar under French control.

<sup>e</sup> Mines under French control.

<sup>f</sup> Year ended September 30.

<sup>g</sup> Production less consumption at mines, for which data are not available.

<sup>h</sup> Exports.

<sup>i</sup> Exclusive of Sakhalin.

<sup>j</sup> Shipments.

PRODUCTION OF SOFT COAL IN 1931. The total production of soft coal during 1931, including lignite and coal coked at the mines, was estimated by the U. S. Bureau of Mines at 378,110,000 net tons. The figure represented the sum of the Bureau's current estimate for the fifty-two weeks in the year. In comparison with the output in 1930, as shown by the annual canvass of the mines for that year, the estimate for 1931 showed a decrease of 89,416,000 tons or 19.1 per cent. It was the lowest since 1909 when 379,944,000 tons were mined. The total production for years 1925-30 was as follows:

Net tons	Net tons
1930 .....	467,526,000
1929 .....	534,989,000
1928 .....	500,745,000
1927 .....	517,763,000
1926 .....	573,367,000
1925 .....	520,053,000

According to the annual summary in the *Coal Age* (New York), the greater part of the decrease in bituminous produced during 1931 was due to

diminished industrial consumption. The portion taken by the railroads as locomotive fuel, normally about 24 per cent, showed a decline of about 17 per cent, being only 81,200,000 tons consumed in road, train, and yard switching service as against 97,857,000 tons in 1930. Likewise, with the public utilities normally taking about 11 per cent of the total output, their consumption in 1931 was estimated about 38,900,000 tons, or a decrease of 9.3 per cent from the 1930 total of 42,898,000 tons. In the production of pig iron and ferro-alloys, normally requiring about 10 per cent of the annual output, the consumption dropped from 47,300,000 gross tons in 1930 to an estimated 27,800,000 tons in 1931, a decline of 41.3 per cent. These three industries, which in normal times represent 45 per cent of the production and 60 per cent of the industrial consumption, accordingly witnessed a decrease of from 188,055,000 tons in 1930 to 147,902,000 tons in 1931.

With lessened production it was inevitable that there should be a fall in the price in the bitumi-



nous markets, which was estimated at an average of 5.8 per cent, or from \$1.75 a ton in 1930 to \$1.65 in 1931. Naturally there were cuts in the wages in some non-union fields, resulting in bitter disputes between operators and employees. The conditions involved in the distress among the miners and competitive conditions in the bituminous industry led to serious discussion of plans for stability of employment, wage scales, and prices, with agitation for Federal legislation to regulate the industry on the part of the miners. Towards the end of the year the National Coal Association adopted a plan providing for physical mergers of properties in the different districts and as a preliminary measure the formation of district sale agencies. These and other plans, including the development of a sales agency somewhat resembling a trust, were in progress at the end of the year.

**ANTHRACITE PRODUCTION IN 1931.** The total of the Bureau of Mines' current estimates of production of Pennsylvania anthracite for the fifty-two weeks of 1931 amounted to 59,531,000 net tons. In comparison with the operators' final reports for 1930, the current estimate for 1931 showed a decrease of 9,854,000 tons, or 14.2 per cent. The decrease was much smaller than that for bituminous coal or for business in general, indicating that the anthracite industry had been comparatively stable during the great depression.

The estimate was based on weekly reports of cars of anthracite loaded by the nine originating carriers, and included an allowance for colliery fuel and local sales within the anthracite region, and for dredge and washery coal. The total output in recent years (as reported by the operators) was as follows:

Net tons		Net tons	
1930 .....	69,385,000	1928 .....	75,348,000
1929 .....	78,828,000	1927 .....	80,096,000

As in 1929 and 1930, activity in the anthracite industry in 1931 was chiefly along the lines of preparation for the future, since, due to the continuance of the general depression which naturally affected, though indirectly, the consumption of anthracite, and to relatively high temperatures during the earlier and later months of the year, production was at the lowest point in the present century, except for the strike years of 1902, 1922, and 1925. See **STRIKES AND LOCK-OUTS**.

How much of the decreases from earlier years was due to the effects of the depression and of moderate temperatures during the winter months on the one hand and to the competition of other fuels (bituminous coal, coke, fuel oil, and gas—natural and artificial) on the other, it was of course impossible to say. All influenced the consumption of anthracite to some extent, but it was assumed that the losses due to the first two influences represented more than 50 per cent of the total. Excesses of temperature of from 1200 to 1500 degrees above normal during the year, much of which were in the supposedly coal-burning months of October and November, and extending through the greater part of December, necessarily resulted in the consumption of less fuel for heating purposes. Furthermore enforced economy in the use of coal on the part of householders with moderate incomes, which had been materially reduced through the economic

conditions, contributed to the decreased production of anthracite in 1931 as in 1930. It is on the householders with modest incomes in the medium sized towns and in the rural districts throughout the New England and Middle Atlantic States that the anthracite industry largely depends, and the unfavorable situation in 1931 was clearly evinced in the almost negligible advantage taken of the reduced prices during the summer months, and the usual laying by of coal, during the summer, for the winter months was conspicuous by its absence.

Shipments of anthracite for the full year 1931, as reported by the carriers to the Anthracite Bureau of Information, amounted to 47,878,500 gross tons as compared with 49,456,323 tons in 1930. Shipments by months from Jan. 1, 1930, to Dec. 31, 1931, were as follows:

## SHIPMENTS OF ANTHRACITE

	1930	1931
January .....	5,405,788	5,054,819
February .....	4,708,707	4,895,183
March .....	3,430,940	3,898,578
April .....	3,662,647	4,708,199
May .....	4,750,368	4,132,989
June .....	4,052,989	3,551,212
July .....	4,845,841	3,088,670
August .....	4,821,790	3,401,981
September .....	3,899,405	3,372,928
October .....	6,177,851	5,194,908
November .....	4,200,047	3,319,758
December .....	4,889,057	3,759,217
Total .....	54,845,880	47,878,500

For the first time in the history of the industry, the U. S. Bureau of Mines was taking part in a detailed study of Pennsylvania anthracite. In coöperation with Professor Turner, the Bureau of Mines took face samples of all the beds in the central portions and eastern and western extremes of the four great anthracite basins. The Pittsburgh Station of the Bureau of Mines completed proximate analyses, ultimate analyses, calorific determinations, and ash softening temperatures on all these samples. A large number of samples were also taken for a study of friability to be made by the U. S. Bureau of Mines.

The U. S. Bureau of Mines compiled during the year a report on *Anthracite in 1930* by Ellery B. Gordon and H. L. Bennit which includes, in addition to the standard tables of production, value, men employed, days worked, etc., a number of significant summaries on the anthracite situation dealing with Incursion of competitive fuels, Decline in retail prices, Important distribution channels, Anthracite's effort to meet competition.

On the score of safety, the coal mines of the United States made the best record in the history of the industry. A total for the year of the bituminous mines involved 1050 deaths as against 1619 in 1930, and 380 deaths in the Pennsylvania anthracite district as against 444 in the year before. These figures gave a total of 3.208 fatalities per million tons mined as against 3.842 fatalities per million tons in 1930. During 1931 there were five major disasters in which 51 deaths resulted, a major disaster being considered one in which five or more lives were lost.

Coal production in Canada also suffered a decline in 1931, amounting to 12,212,000 tons as compared with 14,880,000 tons in 1930 and 17,496,000 tons in 1929. The imports during 1931 totaled 13,532,000 tons, of which the United States furnished 12,467,000 tons.

PRODUCTION, VALUE, MEN EMPLOYED, DAYS WORKED, AND OUTPUT PER MAN PER DAY AT  
COAL MINES IN THE UNITED STATES IN 1930

[Exclusive of product of wagon mines producing less than 1,000 tons]

State	Production, net tons	Value, total	Average per ton	Number of employees, total	Average number of days worked	Average tons per man per day
Alabama	15,570,058	\$ 31,616,000	\$2.03	24,393	189	8.88
Alaska	120,100	631,000	5.25	99	294	4.13
Arizona	9,084	29,000	3.19	24	196	1.94
Arkansas	1,583,434	5,153,000	3.36	4,626	115	2.87
California, Idaho, and Oregon	18,538	100,000	5.39	138	74	1.81
Colorado	8,196,910	21,485,000	2.62	11,091	169	4.38
Georgia	7,092	18,000	2.54	60	71	1.66
Illinois	53,731,230	93,484,000	1.74	53,603	156	6.42
Indiana	16,489,962	26,178,000	1.59	18,881	157	7.56
Iowa	3,892,571	10,385,000	2.67	7,901	155	3.18
Kansas	2,429,929	5,231,000	2.15	4,855	126	3.96
Kentucky	51,208,995	76,186,000	1.49	56,674	187	4.83
Maryland	2,270,593	8,690,000	1.63	3,299	197	3.50
Michigan	661,113	2,323,000	3.51	1,294	187	2.73
Missouri	3,853,150	8,967,000	2.33	5,700	166	4.07
Montana	3,022,004	6,043,000	2.00	2,085	172	8.45
New Mexico	1,969,433	6,017,000	3.06	2,902	176	3.85
North Carolina	28,500	100,000	3.51	70	290	1.40
North Dakota	1,700,157	2,768,000	1.63	1,258	180	7.50
Ohio	22,551,978	31,643,000	1.40	25,574	189	4.67
Oklahoma	2,793,954	7,768,000	2.78	5,424	148	3.49
Pennsylvania bituminous	124,462,787	213,584,000	1.72	130,150	198	4.82
South Dakota	12,810	31,000	2.42	43	109	2.73
Tennessee	5,130,428	8,417,000	1.64	7,535	196	3.48
Texas	833,872	1,307,000	1.57	1,305	181	3.53
Utah	4,257,541	10,515,000	2.47	3,504	168	7.23
Virginia	10,907,377	17,520,000	1.61	11,709	200	4.66
Washington	2,301,928	7,439,000	3.23	2,801	205	4.01
West Virginia	121,472,638	181,722,000	1.50	105,988	204	5.61
Wyoming	6,088,133	15,133,000	2.49	5,216	188	6.20
Total bituminous, 1930	467,526,299 *	795,483,000	1.70	493,202	187	5.06
Total bituminous, 1929	534,988,593	952,781,000	1.78	502,993	219	4.85
Total anthracite, 1930	69,384,837	354,574,000	5.11	150,804	208	2.21
Total anthracite, 1929	73,828,195	385,643,000	5.22	151,501	225	2.17
Grand total, 1930	536,911,136	\$1,150,057,000	\$2.14	644,006	192	4.34
Grand total, 1929	608,816,788	\$1,338,424,000	\$2.20	654,494	221	4.21

\* The figures relate only to active mines of commercial size that produced bituminous coal in 1930. The number of such mines in the United States was 5,891 in 1930; 6,057 in 1929; and 6,450 in 1928.

Methods of mining in 1930: The tonnage by hand was 55,489,908; shot off the solid, 29,105,549; cut by machines, 362,425,163; mined by stripping, 19,842,359, not specified, 663,320.

Size classes of commercial mines in 1930: There were 173 mines in Class 1A (500,000 tons and over) producing 27.7 per cent of the tonnage, 543 in Class 1B (200,000 to 500,000 tons) with 35.4 per cent; 608 in Class 2 (100,000 to 200,000 tons) with 18.6 per cent, 644 in Class 3 (50,000 to 100,000 tons) with 9.9 per cent, 1,238 in Class 4 (10,000 to 50,000 tons) with 6.7 per cent; 2,685 in Class 5 (less than 10,000 tons) producing 1.7 per cent.

PRODUCTION OF COAL, BY STATES

[Net tons]

(U. S. Bureau of Mines)

State	1928	1929	1930	1931 <sup>b</sup>
Alabama	17,621,362	17,943,923	15,570,000	11,620,000
Arkansas	1,660,973	1,695,108	1,533,000	1,238,000
Colorado	9,847,707	9,920,741	8,197,000	6,444,000
Illinois	55,948,199	60,657,641	53,731,000	44,105,000
Indiana	16,378,580	18,344,358	16,490,000	13,310,000
Iowa	3,683,635	4,241,069	3,893,000	3,305,000
Kansas	2,809,724	2,975,971	2,430,000	1,995,000
Kentucky	45,588,163	46,025,452	40,294,000	31,545,000
{ Eastern	16,277,216	14,437,148	10,915,000	8,345,000
{ Western	2,686,979	2,649,144	2,271,000	1,950,000
Maryland	617,342	804,869	661,000	393,000
Michigan	3,732,421	4,030,311	3,853,000	3,269,000
Missouri	3,324,195	3,407,526	3,022,000	2,210,000
Montana	2,711,851	2,622,769	1,969,000	1,520,000
New Mexico	1,649,930	1,862,130	1,700,000	1,610,000
North Dakota	15,841,225	23,689,477	22,552,000	21,440,000
Ohio	3,501,325	3,774,080	2,794,000	1,880,000
Oklahoma	131,202,163	143,516,241	124,463,000	97,276,000
Pennsylvania bituminous	5,610,959	5,405,464	5,130,000	4,170,000
Tennessee	1,182,034	1,100,665	834,000	850,000
Texas	4,842,544	5,180,521	4,258,000	3,330,000
Utah	11,900,923	12,748,306	10,907,000	9,650,000
Virginia	2,519,901	2,521,827	2,802,000	1,810,000
Washington	132,952,159	138,518,865	121,473,000	99,769,000
West Virginia	6,571,683	6,704,790	6,088,000	5,006,000
Wyoming	286,767	230,734	196,000	70,000 *
Other States				
Total bituminous	500,744,970	534,988,593	467,526,000	378,110,000
Pennsylvania anthracite	75,348,069	73,828,195	69,385,000	59,581,000
Grand total	576,093,039	608,816,788	536,911,000	437,641,000

\* This group is not strictly comparable in the several years.

<sup>b</sup> Figures for 1931 are estimates.

The coal industry in Great Britain in 1931 suffered relatively less than in the United States and Germany. Preliminary statistics for Great Britain gave a production of 220,156,000 long tons in 1931 as compared with 243,881,824 tons in 1930, and with 276,000,560 tons in 1923, the highest record of recent years. In 1931 coal exports from Great Britain amounted to 42,749,740 tons as against 54,874,065 tons in 1930, a decline of 22 per cent, and 47 per cent from 79,459,469 tons, the postwar record of 1923. In 1931, bunker coal totaled 14,609,545 tons as compared with 18,259,027 tons in 1922, the postwar peak. The operation of the Coal Mines Act of 1930, which came into effect during 1931, is discussed under GREAT BRITAIN.

**COBB, HENRY IVES.** An American architect, died in New York City, Mar. 27, 1931. He was born in Brookline, Mass., Aug. 19, 1859, and attended the Massachusetts Institute of Technology and Harvard University, being graduated from the latter in 1880. Beginning his practice in Chicago in 1881, he was architect for the Chicago Opera House, the Newberry Library, the Church of the Atonement, the city hall, the court house, and the University of Chicago. In 1893 he was one of the National Board of Architects for the World's Columbian Exposition, and designed the Horticultural Hall, Fisheries Building, and the Massachusetts State Building. He was retained as special architect by the U. S. Government during 1893-1903, designing the Federal Building in Chicago and other government edifices. He also designed the Pennsylvania State Capitol, the Albany (N. Y.) Savings Bank, the Booth Memorial Theatre, the Harriman Bank Building, and the Sinclair Oil Building in New York City, and buildings of the American University in Washington. He had been engaged in practice in New York City since 1902.

**COCCIDIOSIS.** See VETERINARY MEDICINE.

**COCHIN-CHINA,** k'och'in-Ch'i'na. The southernmost colony in French Indo-China. Area, estimated at 24,700 square miles; population, estimated in 1929 at 4,392,886, of whom 16,402 were French (excluding military forces) and the remainder chiefly Annamites, Cambodians, Moïs, Chams, and Chinese. Saigon, the capital, had a population in 1929 of 123,890, including 12,100 French, but excluding 3066 troops. Cholon had 193,400 inhabitants. Schools numbered 1584, with 190,275 pupils, in 1930.

Agriculture is the principal occupation and rice the chief crop, to which was devoted most of the 5,221,727 acres under cultivation. Rice production in 1929 was 2,164,249 metric tons. Maize, sweet potatoes, beans, cotton, sugar-cane, rubber, tobacco, and coffee are other crops. The output of the fisheries is valued at about 3,000,000 francs annually. Livestock in 1929 included 422,921 buffaloes, 576,546 swine, and 10,701 horses. Total exports in 1929 were valued at 2,426,842,000 francs, compared with 2,798,975,000 francs in 1928, and imports at 2,301,020,000 francs (2,283,241,000 francs in 1928). One franc equals about \$0.039. The local budget for 1929 balanced at 22,513,626 piasters (the piaster was stabilized at \$0.392 on May 31, 1930). A total of 859 steamers of 2,106,231 tons entered Saigon, the chief port, in 1929. The territory is ruled directly by a governor and a colonial council of 24 members; it is represented in the French Parliament by one deputy. Governor in 1931, J. F. Krauthimer, appointed in 1929. See FRENCH INDO-CHINA.

**COCOS or KEELING ISLANDS.** See STRAITS SETTLEMENTS.

**CODLING MOTH.** See ENTOMOLOGY, ECONOMIC.

**COELENTERATES.** See ZOÖLOGY.

**COFFEE.** See BRAZIL; COLOMBIA; COSTA RICA.

**COFFER DAMS.** See FOUNDATIONS.

**COINS, VALUE OF FOREIGN.** The legal estimates of the value of foreign coins on Jan. 1, 1932, as issued by the U. S. Secretary of the Treasury are given in the table on page 217.

**COKE.** The production of coke in the United States in 1931, according to estimates of the U. S. Bureau of Mines, was 33,728,504 net tons, a decrease of 20.8 per cent when compared with 1930, and the smallest amount since 1921 when but 25,287,622 tons were produced, this in turn being the smallest amount since 1904. The chief cause of the decrease in coke production was the continued reduced activity of blast furnaces, the output of pig iron for 1931 decreasing 41.8 per cent below the level of 1930, and amounting to but 18,500,000 gross tons. The production of beehive coke was 1,273,900 net tons in 1931, the lowest since 1880, and less than half the output of 1930. It was but 3.8 per cent of the total, whereas in 1913 it was 72.5 per cent as against 27.5 per cent for by-product coke. Pennsylvania, with 1,007,600 tons, was the leading State in the production of beehive coke, and the combined output of Pennsylvania and West Virginia in 1931 represented about 88 per cent of the total. Pennsylvania was also the largest producer of by-product coke. The output of its by-product ovens in 1931 was 7,519,000 tons. As a producer of by-product coke, Ohio ranked second, New York third, Alabama fourth, and Indiana fifth. The details are given in Table II.

TABLE I—PRODUCTION OF BY-PRODUCT AND BEEHIVE COKE AND PIG IRON IN THE UNITED STATES, 1925-31

Year	Coke—net tons produced By product	Beehive	Total	Pig iron gross tons
1925 ..	39,912,159	11,354,784	51,266,943	36,700,566
1926 ..	44,376,586	12,488,951	56,865,537	39,372,729
1927 ..	43,884,726	7,207,417	51,092,143	36,565,645
1928 ..	48,313,025	4,492,803	52,805,828	38,515,714
1929 ..	53,411,826	6,472,019	59,883,845	42,613,983
1930 ..	45,195,705	2,776,316	47,972,021	31,399,105
1931* ..	32,454,604	1,273,900	33,728,504	18,275,165

\* Preliminary figures

TABLE II—PRODUCTION OF BY-PRODUCT COKE, BY STATES, IN 1930 AND 1931  
[Net tons]

State	1931*	1930
Alabama .....	2,948,399	3,986,920
Colorado .....	225,760	379,070
Illinois .....	2,461,217	3,576,577
Indiana .....	2,757,040	4,984,620
Maryland .....	818,107	1,169,016
Massachusetts .....	1,249,313 <sup>b</sup>	862,661
Michigan .....	2,501,571	2,603,815
Minnesota .....	443,915	641,205
New Jersey .....	939,572	918,814
New York .....	3,478,307	3,849,563
Ohio .....	3,960,007	6,163,324
Pennsylvania .....	7,519,183	12,529,255
Tennessee .....	86,387	100,489
Utah .....	164,777	225,361
Washington .....	29,604	36,221
West Virginia .....	1,258,837	1,479,431
Connecticut, Kentucky, Mis- souri, Rhode Island, and Wisconsin .....	1,612,598	1,689,411
Total .....	32,454,604	45,195,705

\* From monthly reports furnished by operators.

<sup>b</sup> Includes an unknown amount of breeze.

## VALUES OF FOREIGN MONEYS—JAN. 1, 1932

Country	Legal standard	Monetary unit	U. S. money	Remarks
Argentine Republic . . .	Gold . . . . .	Peso . . . . .	\$0.9648	Currency convertible at 44% face value.
Austria . . . . .	Gold . . . . .	Schilling . . . . .	.1407	
Belgium . . . . .	Gold . . . . .	Belga . . . . .	.1990	1 belga equals 5 Belgian paper francs.
Bolivia . . . . .	Gold . . . . .	Boliviano . . . . .	.8650	13½ bolivianos equal 1 pound sterling.
Brazil . . . . .	Gold . . . . .	Milreis . . . . .	.5462	Currency convertible at 4.567 paper milreis to gold milreis (\$0.1196).
British Colonies in Australia and Africa . . .	Gold . . . . .	Pound sterling . . . . .	4.8665	
British Honduras . . .	Gold . . . . .	Dollar . . . . .	1.0000	
Bulgaria . . . . .	Gold . . . . .	Lev . . . . .	.0072	
Canada . . . . .	Gold . . . . .	Dollar . . . . .	1.0000	
Chile . . . . .	Gold . . . . .	Peso . . . . .	.1217	
China . . . . .	Silver (Stated values are estimated market values in gold, of silver content of units)	Haikwan . . . . .	.3732	A unit of account, used only for customs purposes.
		Amoy . . . . .	.3668	
		Canton . . . . .	.3657	
		Chefoo . . . . .	.3508	
		Chin Kiang . . . . .	.3583	
		Foochow . . . . .	.3393	China's import duties are levied on a gold basis, the gold unit being defined as 60 1866 centigrams pure gold (equal 40 cents U. S.). China's export duties remain on a silver basis.
		Hankow . . . . .	.3432	
		Kiaochow . . . . .	.3554	
		Nanking . . . . .	.3630	
		Newchwang . . . . .	.3440	
		Ningpo . . . . .	.3527	
		Peiping . . . . .	.3576	
		Shanghai . . . . .	.3350	
		Swatow . . . . .	.3388	
		Takow . . . . .	.3691	
		Tientsin . . . . .	.3554	
		Yuan . . . . .	.2377	The Yuan silver dollar of 100 cents is the monetary unit minted by the Central Government of the Republic.
		Hong Kong . . . . .	.2412	
		British Mexican . . . . .	.2430	
Colombia . . . . .	Gold . . . . .	Peso . . . . .	.9733	Old Mex. dollars, issued before 1918.
Costa Rica . . . . .	Gold . . . . .	Colon . . . . .	.4653	Currency Government paper and silver. Law establishing conversion office fixes ratio 4 colons (nongold) = \$1 U. S.
Cuba . . . . .	Gold . . . . .	Peso . . . . .	1 0000	
Czechoslovakia . . . . .	Gold . . . . .	Krone . . . . .	.0296	
Denmark . . . . .	Gold . . . . .	Krone . . . . .	.2680	
Dominican Republic . . .	Gold . . . . .	Dollar . . . . .	1.0000	U. S. money chief circulating medium.
Ecuador . . . . .	Gold . . . . .	Sucre . . . . .	.2000	
Egypt . . . . .	Gold . . . . .	Pound (100 piasters) . . . . .	4.9431	
Estonia . . . . .	Gold . . . . .	Kroon . . . . .	.2680	
Finland . . . . .	Gold . . . . .	Markka . . . . .	.0252	
France . . . . .	Gold . . . . .	Franc . . . . .	.0392	
Germany . . . . .	Gold . . . . .	Reichsmark . . . . .	.2382	
Great Britain . . . . .	Gold . . . . .	Pound sterling . . . . .	4 8665	Obligation to sell gold at legal monetary par suspended Sept. 21, 1931.
Greece . . . . .	Gold . . . . .	Drachma . . . . .	.0130	
Guatemala . . . . .	Gold . . . . .	Quetzal . . . . .	1.0000	
Haiti . . . . .	Gold . . . . .	Gourde . . . . .	.2000	Currency: National bank notes redeemable on demand in American dollars.
Honduras . . . . .	Gold . . . . .	Lempira . . . . .	.5000	
Hungary . . . . .	Gold . . . . .	Pengo . . . . .	.1749	
India (British) . . . .	Gold . . . . .	Ruppee . . . . .	.3650	
Indo-China . . . . .	Gold . . . . .	Piaster . . . . .	.3918	
Italy . . . . .	Gold . . . . .	Lira . . . . .	.0526	
Japan . . . . .	Gold . . . . .	Yen . . . . .	.4985	
Latvia . . . . .	Gold . . . . .	Lat . . . . .	.1930	
Liberia . . . . .	Gold . . . . .	Dollar . . . . .	1.0000	Currency: Depreciated silver coins.
Lithuania . . . . .	Gold . . . . .	Litas . . . . .	.1000	Currency: Notes of Bank of Lithuania.
Mexico . . . . .	Gold . . . . .	Peso . . . . .	.4985	By law of July 25, 1931, gold has no legal tender status but it may be held as monetary reserve for use in foreign exchange operations.
Netherlands . . . . .	Gold . . . . .	Guilder (florin) . . . . .	.4020	
Newfoundland . . . . .	Gold . . . . .	Dollar . . . . .	1.0000	
Nicaragua . . . . .	Gold . . . . .	Cordoba . . . . .	1.0000	
Norway . . . . .	Gold . . . . .	Krone . . . . .	.2680	
Panama . . . . .	Gold . . . . .	Balboa . . . . .	1.0000	
Paraguay . . . . .	Gold . . . . .	Peso (Argentine) . . . . .	.9648	Currency: Depreciated Paraguayan paper currency.
Persia . . . . .	Gold . . . . .	Royal . . . . .	.2433	Gold standard established by law of Mar. 18, 1930. Silver kran (about 4 1 cents U. S.) system still operating; foreign exchange controlled. Established by decree of Apr. 18, 1931.
Peru . . . . .	Gold . . . . .	Sol . . . . .	.2800	
Philippine Islands . . .	Gold . . . . .	Peso . . . . .	.5000	
Poland . . . . .	Gold . . . . .	Zloty . . . . .	.1122	
Portugal . . . . .	Gold . . . . .	Escudo . . . . .	.0442	By decree effective July 1, 1931.
Rumania . . . . .	Gold . . . . .	Leu . . . . .	.0060	
Russia (U.S.S.R.) . . .	Gold . . . . .	Ruble . . . . .	.5146	10 gold rubles = one Soviet chervonetz.
Salvador . . . . .	Gold . . . . .	Colon . . . . .	.5000	
Siam . . . . .	Gold . . . . .	Baht (Tical) . . . . .	.4424	
Spain . . . . .	Gold . . . . .	Peseta . . . . .	.1930	Valuation is for gold peseta; currency is notes of the Bank of Spain.
Straits Settlements . . .	Gold . . . . .	Dollar . . . . .	.5678	
Sweden . . . . .	Gold . . . . .	Krona . . . . .	.2680	
Switzerland . . . . .	Gold . . . . .	Franc . . . . .	.1930	
Turkey . . . . .	Gold . . . . .	Piaster . . . . .	.0440	(100 piasters equal to the Turkish £.)
Uruguay . . . . .	Gold . . . . .	Peso . . . . .	1.0342	Currency: Inconvertible paper.
Venezuela . . . . .	Gold . . . . .	Bolivar . . . . .	.1930	
Yugoslavia . . . . .	Gold . . . . .	Dinar . . . . .	.0176	By law effective June 28, 1931.

There were no new by-product coke plants starting operation in the United States during 1931. There were, however, three new installations of ovens at existing plants as follows: In January the Consolidated Gas Company added 37 Koppers ovens to its equipment at Hunts Point, N. Y.; in the same month the Hudson Valley Fuel Corporation fired 31 new Koppers ovens at Troy, N. Y.; in November there were 25 Semet-Solvay ovens added to the plant of the Ironton By-Product Coke Company at Ironton, Ohio. The total number of ovens added by these operations was 93. In addition, 295 new ovens were completed at four of the existing plants, but not put into operation. No new ovens were under construction at the close of 1931. Including the new ovens completed in 1931, the potential coking capacity of by-product plants at the close of the year, at 100 per cent operation and with all conditions favorable, amounted to nearly 64,000,000 net tons. At this rate the plants in existence had a carbonizing capacity of 91,000,000 tons of coal. In 1931, 46 plants connected with iron furnaces produced 20,855,500 tons, or 64.3 per cent of the total by-product output. The remaining 42 non-furnace plants produced 11,599,100 tons, or 35.7 per cent of the total. Preliminary estimates on the recovery of by-products from coke-oven operations in 1931, obtained by assuming that the quantity of by-products recovered during 1931 bore the same relation to the known production of coke in 1931 as in 1930, give the following:

Tar .....	gallons.	431,646,000
Ammonia (sulphate equivalent of all forms) .....	pounds.	1,103,457,000
Gas .....	M cu. ft.	519,274,000
Crude light oil .....	gallons.	128,196,000

The indicated consumption of coke in 1931 was 31,917,126 tons, of which about 18,700,000 tons was consumed by blast furnaces in the manufacture of pig iron. The remainder was used in foundries, in smelting the non-ferrous metals, in the manufacture of water gas, in miscellaneous other industrial uses, and for domestic heating. In 1931 the quantity consumed for these purposes was about 13,217,126 tons, or 41.4 per cent of the total, as against 8,221,000 tons, or 18.1 per cent, in 1913. The consumption for house heating was probably as great as, or greater than, in 1930. In that year 7,886,432 tons of by-product and 141,391 tons of beehive coke were sold for domestic use, a total of 8,027,823 tons. For 1931 the consumption of raw coal required by the coke ovens of the United States was estimated at 48,631,600 tons, or 12.9 per cent of the entire production of bituminous coal.

In Canada coke production in 1931 amounted to 1,835,000 tons, a decline of 23 per cent from 1930, while the imports during the year amounted to 733,000 tons, a decline of about 30 per cent.

**COLDs, COMMON.** See **MEDICINE, PROGRESS OF.**

**COLE, TIMOTHY.** An American wood engraver, died in Poughkeepsie, N. Y., May 17, 1931. He was born in London, England, in 1852 and was brought to the United States five years later. After studying under Bond and Chandler, he established himself in Chicago, but his studio was destroyed in the great fire of 1871. Removing to New York City, he began in 1875 to contribute to the *Century Magazine* (then *Scribner's*) the series of wood-cut illustrations that

made him famous. In 1883 he was sent by his publishers to Europe to reproduce the works of the old masters, from the originals in European galleries. His first series, the "Old Italian Masters," finished in 1892, was followed by the Dutch and Flemish series in 1896 and the English series in 1900. The "Old Spanish Masters" series was completed in 1907 and the French series in 1910. From 1910 on he was engaged in reproducing the old masters in American public and private galleries. In addition to receiving the first class gold medal at the Paris Exposition in 1900 and the grand prix at the St. Louis Exposition in 1904, he was made a member of the National Academy in 1908 and of the American Academy of Arts and Letters in 1913 and was also an honorary member of the Society of Sculptors, Painters, and Engravers of London. Cole was considered by many critics the best of modern engravers. He was especially effective in his use of the white line and in reproducing textures, giving the intimate qualities of each school so that there was no mistaking one for another, and yet retaining his own individuality. He published, with his own illustrations, *Wood Engraving: Three Essays* (1916) and *The Magic Line: A Study of the Technique of Wood Engraving* (1917).

**COLGATE UNIVERSITY.** A nonsectarian institution for the higher education of men in Hamilton, N. Y., founded in 1819. In the autumn of 1931 there were 1005 students enrolled. The faculty numbered 93 members. The productive funds amounted to approximately \$6,500,000, and the income for the year was approximately \$500,000. The library contained 110,000 volumes. President, George Barton Cutten, Ph.D., D.D., LL.D.

**COLLECTIVE BARGAINING.** See **TRADE UNIONS.**

**COLLEGES.** See **UNIVERSITIES AND COLLEGES: EDUCATION IN THE UNITED STATES.**

**COLLOCHROME.** See **PHOTOGRAPHY.**

**COLLOIDS.** See **SOILS.**

**COLOMBIA.** A republic of northwestern South America, third in population and fourth in size among the countries of that continent; touching boundaries with Panama, Venezuela, Brazil, Peru, and Ecuador. Capital, Bogotá.

**AREA AND POPULATION.** The area of Colombia is variously estimated at from 444,200 to 447,536 square miles. The population according to the census of December, 1928, was 7,851,000, as compared with 5,855,077 in 1918. The total population was distributed as follows: whites, 20 per cent; Negroes, 5 per cent; Indians, 7 per cent; mulattoes, 18 per cent; mestizos, 50 per cent. Bogotá, the capital, had a population of 235,421 at the 1928 census. Other leading cities, with their populations in 1928, were: Barranquilla, 139,974; Cali, 122,847; Medellín, 120,044; Cartagena, 92,494; Manizales, 81,091; Ibagué, 56,333; Cucuta, 49,279; and Bucaramanga, 44,083. Immigration is negligible. Foreigners in the country in 1928 numbered 35,251, including 1607 citizens of the United States and 14,743 Venezuelans.

**EDUCATION.** Of the population over 10 years of age, 51.57 per cent were literate in 1928, compared with 32 per cent at the census of 1918. Education throughout the Republic is centralized under the Minister of Education, elementary education being free but not compulsory. Primary and secondary schools in 1927 numbered 7531,

with 449,111 pupils. There were in addition 25 industrial schools, 6 art schools, and 17 normal schools. National or departmental universities are maintained at Bogotá, Medellín, Cartagena, Papayan, and Pasto. Roman Catholicism is the state religion and the Church exercises control of practically all the national or partly national secondary schools.

**PRODUCTION.** Although only a small part of the available soil is cultivated, Colombia is primarily an agricultural country, with coffee as the chief factor in the national economy. Due to its mild flavor, the price of Colombian coffee is largely unaffected by Brazilian overproduction. Coffee normally accounts for about 60 per cent of the total value of exports and more than 80 per cent of the coffee crop is consumed annually in the United States. Coffee production in 1930 was 467,667,000 pounds, compared with 417,996,000 pounds in 1929. However prices in the New York market were lower, and the value of 354,114,023 pounds shipped to the United States in 1930 was \$72,460,940, compared with \$78,810,950 received for 311,518,400 pounds in 1929. Crude petroleum and bananas are the other leading export products. Banana exports for 1929 and 1930 totaled about 11,200,000 stems each year. Other crops include tobacco, cotton, cacao, sugar, vegetable ivory, rubber, rice, wheat, and maize, besides a great variety of fruits.

In 1930 Colombia was one of the world's largest producers of emeralds and platinum; among the South American countries it was the largest producer of gold and ranked second to Venezuela in the production of petroleum, with an output of 20,346,000 barrels. Copper, lead, mercury, cinnabar, manganese, coal, iron, and salt are also mined. Coal resources are estimated at 27,000,000,000 metric tons and production is about 35,000,000 tons annually. Forests cover about 150,000,000 acres. There are valuable pearl fisheries under government control. The economic depression in Colombia became more acute during 1931, as prices for export products continued to decline, and there was a general decrease in all classes of revenues. Petroleum production in 1931 declined to about 18,000,000 barrels.

**COMMERCE.** Official statistics for 1930 placed the value of Colombian exports at 112,709,000 pesos, compared with 126,872,000 pesos in 1929, and the value of imports at 62,841,000 pesos, compared with 126,377,000 pesos the previous year (1 peso exchanged at \$0.9655 in 1929). Colombia purchased from the United States goods to the value of \$24,677,613 in 1930 (\$48,070,000 in 1929) and exported to the United States goods totaling \$97,139,000 (\$103,525,000 in 1929). Although the volume of exports of coffee and petroleum increased, as compared with 1929, the value declined as a result of low market prices. Coffee exports in 1930 totaled 3,118,000 bags (1 bag equaled 132 pounds), valued at 63,598,000 pesos, while the 1929 exports of 2,836,000 bags were valued at 70,885,000 pesos. Crude petroleum exports in 1930 totaled 19,113,000 barrels (of 42 gallons), valued at 26,300,000 pesos; 1929 exports, 18,803,000 barrels, valued at 27,016,000 pesos. The favorable balance of trade was 49,867,458 pesos in 1930, compared with 494,955 pesos in 1929.

During 1931, the value of imports continued to decline while that of exports remained fairly even, due to large coffee exports. The United States maintained its relative position in Colom-

bia's foreign trade, purchasing about 80 per cent of the exports and supplying nearly 50 per cent of the imports.

**FINANCE.** According to the comptroller's report covering fiscal operations during 1930, the year opened with a Treasury deficit of 17,993,003 pesos (1 peso equals \$0.9733 at par). Expenditures during 1930, including 12,604,000 pesos reserved for obligations contracted, totaled 61,991,755 pesos. Revenues amounted to 49,357,917 pesos, leaving a budgetary deficit for the year of 12,633,838 pesos. When the deficit from 1929 was added, the cumulative deficit on Dec. 31, 1930, was 30,626,841 pesos. Through the issuance of Treasury notes, the deficit at the end of 1930 was reduced to 25,633,408 pesos. The deficit was covered by short-term loans aggregating \$20,000,000 raised in the United States, a Treasury issue of 6,000,000 pesos, and receipts from other sources.

The budget for 1931, as voted by Congress Dec. 15, 1930, was estimated to balance at 51,739,925 pesos. Revenues continued to decline, however, and although the budget was subsequently revised downward to approximately 48,000,000 pesos, the year ended with a deficit provisionally estimated at between 2,000,000 and 2,500,000 pesos. The budget for 1932, signed on Dec. 22, 1931, by the Minister of Finance, was based on estimated revenues of about 37,150,000 pesos, exclusive of income from the national railways calculated at about 8,500,000 pesos.

The comptroller's report for 1930 placed the debt of the National government on Dec. 31, 1930, at 95,526,221 pesos, including the internal debt of 20,913,370 pesos, the external debt of 66,151,380 pesos, loans of gradual amortization amounting to 530,762 pesos, and paper money in circulation aggregating 7,930,709 pesos. In addition, there was an excess of current liabilities over current assets of 25,633,408 pesos, representing the accumulated deficit. Outstanding long-term loans of the National government, the departments, municipalities, and the Agricultural Mortgage Bank totaled about 176,902,494 pesos, compared with 181,701,738 pesos at the end of 1929, according to calculations of the *Banco de la Republica*. This sum did not include foreign borrowings of Colombian banks, totaling 42,416,943 pesos on June 30, 1930. About 88 per cent of the foreign debt was floated in the United States. For the financial problems of the National government in 1931, see under *History*.

**COMMUNICATIONS.** Railways in operation during 1930 reported about 1750 miles of line, divided into 11 national and 3 British-owned systems, the government-owned lines comprising more than half of the total. Construction of a 152-mile line from Bogotá to Sogamozo (Sugamuxi), sacred city of the Chibchas Indians, was under way during 1931. Effective Feb. 18, 1931, a board of five members to manage on a commercial basis all railways owned by the National government was established by act of Congress. Most of the lines serve as feeders to the Magdalena River, which is navigable for 900 miles and offers the main traffic route from the Caribbean to the interior. A contract for further dredging of the mouth of the Magdalena at Barranquilla was signed Nov. 18, 1931.

In 1930, there were 19,261 miles of highways, of which 2340 miles were motor roads; the re-



mainder were graded and were used chiefly for other types of traffic. Air lines linked the ports of Barranquilla and Buenaventura, connecting also with Girardot, Bucaramanga, and other interior points. In 1930, air-mail planes flew 726,263 miles and carried 4791 passengers. A new air route between Medellín and Aruba was authorized by the government in 1931, and a direct air service between Bogotá and the United States was inaugurated. Medellín was linked with the All American Cables system Nov. 7, 1931, and the government-owned wireless telegraph station at Cartagena was reopened March 4.

**GOVERNMENT.** Executive power is vested in a president elected for four years by direct popular vote, and ineligible for reelection until four years after the expiration of his term. Legislative power rests with a Congress of two Houses, the Senate and House of Representatives. Senators are elected for four years by the departmental Assemblies, under a new law promulgated Nov. 20, 1930, there being one for every 120,000 inhabitants. Deputies are elected for two years by direct suffrage in the proportion of one to every 50,000 inhabitants. Previous to the election of 1931 (see under *History*) there were 48 members in the Senate (33 Conservatives and 15 Liberals) and 112 members in the House of Representatives (75 Conservatives and 37 Liberals). President in 1931, Dr. Enrique Olaya Herrera (Liberal), elected for the term expiring Aug. 7, 1934.

#### HISTORY

**POLITICAL DEVELOPMENTS.** Three separate elections kept Colombia in a state of intense political agitation and turmoil throughout 1931. The Liberal gains, manifested in the election of President Olaya Herrera in 1930 after a half century of Conservative dominance, were continued in elections to the department legislative assemblies (February 1), the National House of Representatives (May 2), and in the municipal elections (October 4). Violent encounters between political factions marked the electoral campaigns.

In the bitter campaign previous to the departmental elections, 50 persons were killed and many wounded, while the election day casualties were 32 killed and 58 wounded, the highest toll in the recent history of the Republic. Of the 828,000 votes cast, the Liberals won a majority of about 50 per cent but captured only 6 of the 14 departments. This result was attributed to gerrymandering, on the part of Conservatives controlling the election boards. In the elections to the National Senate, which took place in the department assemblies in March, the Conservative majority in the Senate was cut from 18 to 16. Liberal gains were more spectacular in the elections of May 2 to the National House of Representatives, the membership of which had been increased to 118. The previous Conservative majority of 38 was virtually eliminated and with the aid of a group of Conservatives led by Senator Roman Gomez, the Liberals were able to organize both Houses when the new Congress convened July 20. The Liberals claimed victory in every municipality except Pasto in the popular municipal elections of October 4. In Tunja, capital of the department of Boyaca, the Liberals ousted a Conservative administration which had been in office 30 years. Elections clashes resulted

in 19 deaths and injuries to more than 50. A number of Communist outbreaks also were reported during the year.

The major problems facing President Olaya Herrera during the year were political and financial. His political leadership aroused general approval. He continued his policy of dividing Cabinet posts between the two major parties with considerable success but the attempt to apply it in his appointment of the Governors of the 14 departments aroused much opposition. In his message to the newly convened Congress on July 20, the President called for a constitutional amendment in order to separate the judiciary from politics. He urged more intelligent budgeting, Congressional limitation of public expenditures, elimination of national subsidies to the departments, enactment of additional financial recommendations of the Kemmerer Commission of 1930, the reform of the civil code to improve the status of women, and increased efficiency in municipal governments. Congress on October 17 enacted a new judicial code, which became effective Jan. 1, 1932.

Reorganization of the Cabinet took place July 28, following the resignation of the former Ministry July 24. The new Cabinet was headed by Gen. Augustin Morales Olaya, Conservative leader, as Minister of Government. Other members were: Foreign Relations, Roberto Urdaneta Arbelaez; Finance, Jesus Maria Marulanda; War, Carlos Adolfo Urueta; Education, Julio Carizosa Valenzuela; Communications, Alberto Pumarejo; Public Works, Alfonso Araujo; Industries, Francisco Chaux. Dr. Urueta (*q.v.*) died September 13. He was succeeded by Carlos Arango Valez. On November 27 Esteban Jaramillo succeeded to the Finance portfolio.

President Olaya Herrera's financial policies aroused more opposition than did his political moves. Despite dwindling revenues, necessitating drastic economies and salary reductions, he vigorously opposed the growing agitation for a moratorium on foreign debt payments and for the abandonment of the gold standard. Congress on September 24 gave the President virtually dictatorial financial power to combat the economic depression, and on the same day he barred the export of gold from the country. These emergency steps were precipitated by the suspension during the same week of gold payments by the Bank of England. By subsequent decrees the President restricted the export of gold to the *Banco de la Republica*, limited foreign exchange operations, and ordered Colombian banks to invest all their capital, reserves, and deposits in Colombia. Tariff rates were sharply increased and importation of luxury articles was forbidden in order to redress the adverse balance of international payments. Control of exports was established to prevent the export of capital in the form of marketable products. Another decree of November 28 further restricted foreign exchange operations to a point which virtually suspended payments on private foreign debts due after Sept. 24, 1931, including the service on \$16,000,000 of bonds of private mortgage banks outstanding in the United States.

Before adjourning November 24, Congress extended to July 31, 1932, the law conferring emergency financial powers upon the President. He was also authorized to establish a match monopoly, negotiations for which had been opened with a Swedish match company, and to adjust na-

tional, but not departmental and municipal, taxes. Congress extended aid to hard-pressed agriculturists in the form of an agricultural credit institution, with an authorized capital of \$10,000,000, of which the government was to subscribe \$2,000,000 immediately. Unable to raise a foreign loan on satisfactory terms, President Olaya Herrera announced on December 9 that the government would negotiate a loan from the *Banco de la Republica*. In October, a group of official bankers were induced to extend until Dec. 31, 1931, short-term loans aggregating about \$18,500,000.

**PETROLEUM LEGISLATION.** A new petroleum law, signed by the President Mar. 4, 1931, declared the petroleum industry to be a public utility and regulated the activities of all operators. It provided that operators must submit to the government all data of a scientific, technical, economic, or statistical nature, that qualified Colombian citizens be preferred for administrative positions in all petroleum companies, and that Colombian laborers be preferred to foreign laborers except in special instances. Foreign companies were required to accept Colombian law and court decisions on all matters concerning the industry. Petroleum exports were to be duty exempt during the first 30 years of exploitation of a concession. Concessions were limited to an area of from 5000 to 50,000 hectares (hectare equals 2.47 acres) for each person, and the transfer of any concession to a foreign government was prohibited.

Following passage of the law, the Sinclair Exploration Company and the Texas Company, both American concerns, withdrew from Colombia on the ostensible ground that the law was inequitable. The Standard Oil interests, on the other hand, maintained that the law was equitable. The 50-year concession contract of the Gulf Oil Company, also American, for petroleum development of national lands in the Catatumbo region, superseding the Barco concession of 1905, was finally approved by Congress July 17. Congressional action on the measure followed one of the most intense public debates in a generation.

**FOREIGN RELATIONS.** The renewal of diplomatic relations with Ecuador, a cardinal point in President Olaya Herrera's inaugural message, was consummated Aug. 18, 1931. Relations were broken off in 1925 after Colombia had ratified a treaty recognizing Peruvian sovereignty over several thousand square miles of territory in the Amazon valley which Ecuador had previously ceded to Colombia. The Ecuadorean government held that Colombia had no right to dispose of the territory except by recession to Ecuador. In his message to Congress of July 20, 1931, President Olaya Herrera announced that three boundary commissions were engaged in demarcating Colombia's boundaries with Brazil and Venezuela as agreed upon by treaties, thus bringing to an end disputes more than a century old. Good relations with the United States remained a cardinal point in the President's policy. In June, 1931, Dr. Fabio Lozano, former Foreign Minister of Colombia, assumed the duties of Minister to Washington. Consult James F. Rippey, *The Capitalists and Colombia* (New York, 1931).

**COLONIAL EXPOSITION.** See EXPOSITIONS.

**COLONIAL NATIONAL MONUMENT.** See PARKS, NATIONAL.

**COLON ISLANDS.** See ECUADOR.

**COLORADO. POPULATION.** According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 1,035,791; in 1920, it was 939,629. Its composition, by origin, in 1930, was: Native white, 875,711; foreign-born white, 85,406; Negro, 11,828; Mexican, 57,676; Japanese, 3213; Indian, 1395; also, smaller numbers of Chinese, Filipinos and others. Of 402,894 persons listed as having gainful occupations, 106,234 were workers in agriculture, 58,532 being farmers. Manufacturing and mechanical industries furnished an occupation to 68,783; trade, to 67,130; professional service, to 36,238; domestic and personal service, to 39,292; mineral industries, to 20,045; transportation, to 42,859.

Denver, the capital city, had 79,879 inhabitants (1930); 61,916 (1920). Pueblo, 12,360 (1930); 10,484 (1920). Colorado Springs, 10,048 (1930); 8332 (1920).

**AGRICULTURE.** The following table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod Bu.	Value
Hay, tame ..	1931	1,258,000	1,647,000 <sup>a</sup>	\$12,517,000
	1930	1,292,000	2,215,000 <sup>a</sup>	20,378,000
Wheat .....	1931	1,894,000	16,552,000	7,176,000
	1930	1,632,000	23,356,000	12,420,000
Sugar beets ..	1931	226,000	2,537,000 <sup>a</sup>	.....
	1930	242,000	3,312,000 <sup>a</sup>	22,873,000
Corn .....	1931	1,836,000	19,278,000	7,711,000
	1930	1,732,000	38,970,000	24,161,000
Potatoes ...	1931	101,000	9,595,000	2,828,000
	1930	92,000	17,480,000	10,438,000
Barley .....	1931	458,000	7,099,000	2,201,000
	1930	572,000	12,298,000	4,919,000
Dry beans ..	1931	320,000	826,000 <sup>b</sup>	1,487,000
	1930	432,000	2,592,000 <sup>b</sup>	5,832,000
Oats .....	1931	148,000	3,404,000	1,021,000
	1930	195,000	6,045,000	2,176,000

<sup>a</sup> Tons    <sup>b</sup> 100-lb. bags.

**MINERAL PRODUCTION.** Coal preserved its rank as the State's chief mineral product, despite a marked decline in output. There were mined, in 1930, 8,180,000 short tons of coal, as against 9,290,741 tons, by value \$26,254,000, in 1929. From coal were made, chiefly in by-product ovens, 458,443 short tons (1930) of coke, conspicuously less than the 721,457 tons of 1929. Second in rank, the State's production of the metals gold, silver, copper, lead and zinc also fell off in 1930, as the prices obtainable, except for the ores' gold content, discouraged activity. Gold production was 218,258 fine ounces (1930) and 220,285 (1929); in value, \$4,511,800 (1930) and \$4,553,700 (1929). That of silver, \$1,867,855 for 1930 as against \$2,363,642 for 1929, represented an actually greater quantity, 4,851,571 fine ounces, mined in 1930, than the 4,415,838 fine ounces of 1929, but the market price in 1930 averaged much lower. The smelter output of copper, likewise, was high, being 12,943,857 pounds for 1930 as against 10,519,784 for 1929; but the value of the product of 1930 was less than the \$1,567,293 of 1929. The production of zinc, for which the latest figures available were those of 1929, was 29,431 short tons, in value \$3,884,820. The production of lead, similarly for 1929, was 24,445 short tons, in value \$3,180,064. The quantity of petroleum produced, 1,657,000 barrels for 1930, was much below the 2,358,000 of 1929; the value of the petroleum was \$1,500,000 (estimated) for 1930 and \$2,380,000 for 1929. Clay products (1929) were \$3,117,064. The value of all mineral products was \$55,331,911 for 1929; for the year 1928, it was \$58,594,688.

The output of gold, silver, copper, lead, and zinc from Colorado ores and gravels in 1931 in terms of recovered and estimated recoverable metal was estimated at 230,574 ounces of gold, 2,074,591 ounces of silver, 13,457,000 pounds of lead, 7,722,000 pounds of copper, and 31,975,000 pounds of zinc, by the U. S. Bureau of Mines. These figures are to be compared with 218,470 ounces of gold, 4,290,587 ounces of silver, 45,535,000 pounds of lead, 9,787,000 pounds of copper, and 72,557,000 pounds of zinc in 1930. Compared with 1930 figures, gold shows an increase of \$250,192, silver a decrease of 2,215,996 ounces, lead a decrease of 32,078,000 pounds, copper a decrease of 2,065,000 pounds, and zinc a decrease of 40,582,000 pounds. The gross estimated value of the output of metals in Colorado in 1931 was gold \$4,766,388, silver \$601,631, lead \$511,366, copper \$640,926, zinc \$1,215,050, or a total of \$7,735,361, as compared with \$13,199,868 in 1930.

**MANUFACTURES.** Federal Census data obtained in 1930 and covering 1929 gave the number of the State's manufacturing establishments as 1645. These employed, in 1929, 32,735 wage earners, or 2.3 per cent more than were employed in the manufactures of the State in 1927. There were paid in 1929, \$43,249,074 in wages. Materials used in manufacture cost \$108,895,151. The fuel and purchased electricity used cost \$13,557,366. The manufactured product of the year was valued at \$304,654,661. The value added to goods or materials by the process of manufacture was reckoned at \$122,202,144. The value of the product of 1929 was some \$26,400,000 above that for 1927 and showed a much greater increase than did the cost of materials, fuel, and electricity. About half of the manufacturing activity was concentrated in Denver, where in 1929, 781 establishments employed 16,235 wage earners to whom were paid \$20,910,625 in wages, while the manufactured product totaled \$144,664,746.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$12,974,651 (of which \$799,896 was for local education); for interest on debt, \$438,547; for permanent improvements, \$5,465,787; total, \$18,878,985 (of which \$7,986,853 was for highways, \$3,278,767 being for maintenance and \$4,708,086 for construction). Revenues were \$20,497,808. Of these, property and special taxes furnished 34.4 per cent; departmental earnings and compensation to the State for officers' services, 10.9; sale of licenses, 39.8 (in which was included a gasoline sale tax that produced \$5,787,172). Funded debt outstanding on June 30, 1930, totaled \$9,018,086; of which \$6,750,000 was for highways. Net of sinking-fund assets, the debt was \$8,110,990. On an assessed valuation of \$1,586,462,903 the State collected in the year ad-valorem taxes of \$5,806,454.

**TRANSPORTATION.** The total number of miles of railroad line in operation on Jan. 1, 1931, was 4972.27. Additions to the mileage of line in the year preceding had totaled 6.69 miles and abandonments 1 mile. In 1931 the only additional building reported was that of 0.09 mile of first track.

**EDUCATION.** Efforts were under way in 1931 to bring about legislation that would give the local school systems greater State support, through a

plan to reorganize the financing of public education.

**POLITICAL AND OTHER EVENTS.** The effort to place the charges for the issue of \$8,750,000 of the supplemental bonds of the Moffatt Tunnel District on the leaseholder of the Tunnel, the Denver and Rio Grande Western Railroad, met with its final defeat on April 20. The U. S. Supreme Court declined to review the case, which the Tenth Circuit Court of Appeals had determined against the District. There remained litigation undertaken with the purpose to relieve the population of the District of the obligation of the bonds, on the ground that the issue was illegal. The U. S. District Court of Denver, in this litigation, held on June 26 that the issue was a valid charge upon the district. Land owners in the State felt aggrieved at the course of the Federal Land Bank in pressing debtors in the State for payments. They appealed to Governor Adams in August to demand that the Bank declare a moratorium. He acceded to the extent of asking that the Federal Government cause the Bank to cease making "exacting demands" on the debtors.

**OFFICERS.** Governor, William H. Adams; Lieutenant-Governor, Edwin C. Johnson; Secretary of State, Charles M. Armstrong; Treasurer, Joseph P. Jackson; Auditor, William D. MacGinnis; Attorney-General, Clarence L. Ireland; Superintendent of Public Instruction, Inez Johnson Lewis.

**JUDICIARY.** Supreme Court: Chief Justice, John T. Adams; Associate Justices, Haslett P. Burke, John Campbell, John H. Denison, Charles C. Butler, Julian H. Moore, Benjamin C. Hilliard.

**COLORADO, UNIVERSITY OF.** A coeducational, State institution of higher learning in Boulder, Colo., founded in 1876. The number of students enrolled for the autumn of 1931 was 3311; the summer session enrollment was 3842. There were 339 faculty members, exclusive of assistants. The total income for general maintenance from State tax fees, tuition, etc., was estimated at \$1,610,500, while \$515,000 was received for the operation of hospitals, including fees. The library contained 238,210 volumes, 18,000 pamphlets, and 3300 maps. President, George Norlin, Ph.D., LL.D.

**COLORADO METHODISTS.** See **METHODIST EPISCOPAL CHURCH, COLORED.**

**COLORUMS.** See **PHILIPPINES** under *History*.

**COLOSSEUM.** See **PHILOLOGY, CLASSICAL.**

**COLUMBIA UNIVERSITY.** A nonsectarian institution for the higher education of men and women in New York City, founded as King's College in 1754. At Morningside Heights, Broadway and 116th Street, are located: Columbia College (for undergraduate men); Barnard College (for undergraduate women); Teachers College, including the departments of education and practical arts; the professional schools of law, engineering, architecture, journalism, business, library service, and optometry; and the non-professional graduate faculties of political science, philosophy, and pure science. The College of Physicians and Surgeons and the School of Dental and Oral Surgery are on West 168th Street, the College of Pharmacy on West 68th Street, Seth Low Junior College in Brooklyn, N. Y., and St. Stephen's College at Annandale-

on-Hudson, N. Y. In addition, through university extension classes and the summer session, courses are offered for resident students at Morningside Heights; and other courses are offered at Camp Columbia, as well as at several extramural centres.

On the basis of the enrollment on Nov. 1, 1931, the total number of resident students for the year was estimated at 35,778, distributed as follows: Undergraduates, 3602, of whom 1810 were in Columbia College, 1046 in Barnard College, 333 in Seth Low Junior College, 127 in St. Stephen's College, and 286 in other schools; and graduate students, 3371. The distribution of professional students was as follows: Law, 566; medicine, 422; engineering, 258; architecture, 127; journalism, 164; business, 508; dental and oral surgery, 241; pharmacy, 564; optometry, 48; library service, 274; and Teachers College, 7094; 7053 students were enrolled in university classes and 274 were unclassified. Of the 10,900 non-resident students, 8000 were registered in home-study courses and 2900 in special and extramural courses. There were 14,016 students registered for the summer session of 1931. The grand total is exclusive of 2804 duplicate registrations.

The faculty and officers of administration in 1931 numbered 2853, of whom all but 48 were in active service. This number was distributed as follows: Professors, 340; associate professors, 145; assistant professors, 245; associates, 129; instructors, 413; lecturers, 88; assistants, 252; curators, 4; associates, instructors, lecturers, and assistants in Teachers College, 224; instructors and lecturers in the College of Pharmacy, 21; instructors in extension and home study, not included above, 607; instructors in summer session, not included above, 531; officers of administration, 63.

Among the professorial appointees for the year 1931-32 were: Carl W. Ackerman, dean of the school of journalism; W. Emerson Gentzler, secretary of appointments; Nicholas McD. McKnight, associate dean of Columbia College; Boris A. Bakmeteff, civil engineering; Eugene H. Byrne, history; Clarence O. Cheney, clinical psychiatry; Louis Cons, French literature and director of the *Maison Française*; Carter Goodrich, economics; Harold Hotelling, economics; Robert S. Lynd, sociology; Leo Wolman, economics; Erwin Brand, biological chemistry; William C. Casey, sociology; Frederick L. Fitzpatrick, natural sciences; Jan Schilt, astronomy; Ramon J. Sifre, hygiene and public health; Cecil C. Briggs, architecture; Henry L. Mason, mechanical engineering; Lewis R. Stone, dentistry; Daniel E. Ziskin, dentistry.

The visiting professors appointed for the year 1931-32 were: Brand Blanchard, Swarthmore College; Mario Casella, University of Florence; Arthur L. Corbin, Yale University; William Morris Davis, Harvard University; Alexander Stewart Ferguson, University of Aberdeen; George Alexander Johnston, International Labor Office, Geneva; Edgar Wallace Knight, University of North Carolina; Alfred L. Kroeber, University of California; Piero Misciatelli, University of Siena; Charles W. Pipkin, Louisiana State University; Charles E. Spearman, University of London; Karl Vietor, University of Giessen; Florian Znaniecki, University of Posen.

Important events of the year included the formal celebration in October of the fiftieth anniversary of the founding of the School of Political

Science, marked by the last public appearance of Prof. John W. Burgess (q.v.), whose vision and courage brought the school into existence; the generous gift from Edward B. Harkness to meet the cost of erecting a library building on Morningside Heights, designed to house ultimately 4,000,000 volumes and the school of library service; the formal incorporation into the university's educational system of the National Institute of Public Administration; the affiliation between the university and the New York Post-Graduate Medical School; and the selection of the university by the trustees of the estate of the late Edwin B. Parker of Washington, D. C., as the seat of a graduate school of international affairs. There was also established a Japanese culture centre, and provision was made for a Casa de las Espanas as the seat for the study of Spanish history, literature, and institutions. At the Medical Centre, Bard Hall, a residence for university officers and students, was completed, and at Teachers College there was to be established under the direction of the college a new institution for demonstration and experiment in the training of teachers. The Theodore Roosevelt Professorship of American History and Institutions, the work of which was inaugurated by Professor Burgess in 1906 and which was discontinued in 1914 on the outbreak of the World War, was re-established at the University of Berlin. Ceremonies were held at Christ Church, Stratford, Conn., on May 15, 1931, attendant on the formal presentation by the university of gates to the graveyard in which the bodies of Samuel Johnson, first president of King's College, and of his son, William Samuel Johnson, first president of Columbia College, are buried. There was also held in September a special university convocation in honor of the foreign guests of the American Bar Association and the members of the International Law Society, upon which occasion the degree of Doctor of Laws, *honoris causa*, was conferred upon ten of the distinguished visitors from Great Britain, Germany, and France. See BAR ASSOCIATION, AMERICAN.

During the year there were published the first volumes of the series of 18 which are to constitute the Columbia University edition of *The Works of John Milton*, the first complete edition ever made. There were also established under the editorship of Dr. Francis Carter Wood, director of the Institute of Cancer Research, the *American Journal of Cancer Research*, as a continuation of the journal of the American Association for Cancer Research and the American Society for the Control of Cancer, and under the editorship of Dr. Oliver S. Strong, of the department of neurology, a new *Bulletin of the Neurological Institute of New York*. The trustees adopted a new and improved method for the administration of athletic sports and intercollegiate athletic contests.

The capital endowment in 1931, excluding value of plant (including Barnard College, Teachers College, College of Pharmacy, and St. Stephen's College), was \$80,380,470; the estimated total resources as of June 30, 1931 (including Barnard College, Teachers College, and College of Pharmacy), were \$140,138,152; and the annual budget for 1931-32 (including Barnard College, Teachers College, College of Pharmacy, and St. Stephen's College) was \$17,577,519. During 1930-31 the university received gifts in money representing a total of \$4,139,980. The chief additions

to special endowments were the gift of \$1,300,000 from Edward S. Harkness toward the construction and equipment of Bard Hall; \$600,000 from Edward S. Harkness for the Edward S. Harkness endowment fund for the department of surgery; \$100,000 from the estate of Charles H. Ditson for the Charles H. Ditson endowment fund; \$75,000 from the estate of George W. Ellis for the George W. Ellis fund; \$69,813 from the estate of James Brander Matthews for the James Brander Matthews fund for the dramatic museum; \$53,000 from the estate of Ellen C. Harris for the Ellen C. Harris fund; \$50,000 from the estate of Madeleine L. Ottmann for the Madeleine L. Ottmann fund; and substantial gifts from many donors for various research projects. Gifts to income totaled \$1,168,054. The library contained 1,305,596 volumes. President, Nicholas Murray Butler, Ph.D., Hon.D., LL.D., Litt.D. To President Butler was awarded a Nobel Prize for Peace in 1931, the honor being shared with Jane Addams. See NOBEL PRIZES.

**COMETS.** See ASTRONOMY.

**COMMISSION PLAN.** See MUNICIPAL GOVERNMENT.

**COMMODITY PRICES.** See BUSINESS REVIEW; FINANCIAL REVIEW.

**COMMONWEALTH FUND.** See UNIVERSITIES AND COLLEGES.

**COMMUNISM.** The international Communist movement gained decided impetus during 1931, the most striking gains being registered in Germany and China. Intensification of the worldwide economic depression, financial crises in most countries of the world, increasing unemployment and want, and disturbed political conditions contributed to its growth. It was significant, however, that the growth was largely confined to areas in which political unrest originated in grievances not directly attributable to the economic depression. Thus Communist activity was most noticeable in countries or territories lacking a truly popular government and in which the laboring classes were suffering from a chronically inadequate standard of living. Conversely, in Western Europe (excluding Germany), the United States, the British dominions, and the most progressive of the Latin American states, the Communist gains were either nil or relatively unimportant.

**THE COMMUNIST INTERNATIONAL.** The eleventh session of the executive committee of the Third (Communist) International, held in Moscow in the spring of 1931, was attended by delegates from 49 countries, who reported a total contributing membership of 2,518,637 persons. The total excluded, of course, the numerous non-official Communist factions in various countries whose activities also were directed toward social revolution. A financial statement submitted for the preceding year showed receipts of \$1,090,000, of which \$641,000 was expended for propaganda purposes. William Z. Foster, leader of the official Communist group in the United States—the Workers' party of America—was one of the 30 delegates elected to the presidium of the Third International. The adjustment of the Third International's world policies to the exigencies of the Soviet Union's foreign relations was a striking feature of its development during the year. There was a marked let down in those exacerbations to foreign hostility against the Soviet Union which had marked the activities of the Red International in previous years. Observers pointed

out that the Soviet Union was vitally dependent upon foreign markets, foreign machinery, and technical experts for the completion of the Five-Year Plan and that Russian interests would be best served by harmonious relations with the great industrial nations (see UNION OF SOVIET SOCIALIST REPUBLICS under *History*).

On the eve of the 14th anniversary of the October (Bolshevist) revolution, the executive committee of the International issued an appeal to the "workers and oppressed people of all the capitalistic world" to support actively the "Chinese proletariat" in their struggle with Japan in Manchuria. For the development of the Chinese Communist movement during 1931, see CHINA under *History*.

**COMMUNISM IN THE UNITED STATES.** Public interest in the Communist movement in the United States during 1931 centred chiefly in: (1) The report of the Fish committee to the House of Representatives; (2) the intervention of Communist agitators in the Harlan County, Ky., labor disorders and the Scottsboro, Ala., case; and (3) the Communist-directed "hunger march" to Washington for the opening of Congress December 7.

The report of the Fish committee was submitted January 17 after eight months' investigation of Communist activities in all parts of the country. The majority offered 14 recommendations for anti-Communist legislation, with Representative John Edward Nelson of Maine dissenting. According to the report, there were in the United States 12,000 dues-paying members of the Communist party and between 500,000 and 600,000 active sympathizers, all working under the direction of the Third International in Moscow to overthrow the American political and economic systems and to overthrow established religions. Nevertheless, the report asserted that communism had made little headway in either the American Federation of Labor, the public schools, the colleges and universities, or among the Negro population, or the personnel of the army and navy. No proof had been uncovered of the authenticity of the so-called "Whalen documents" or of the alleged connection between the Amtorg Trading Corporation, business agent of the Soviet Government, and subversive activities in the United States (see 1930 YEAR BOOK). The Soviet Government was charged, however, with dumping lumber, pulpwood, manganese, and other products extracted by convict labor to disorganize the American market.

The committee's majority recommendations called for cancellation of the citizenship of members of the Communist party, deportation of all alien Communists, prevention of further naturalization of Communists, and the exclusion of Communist publications from the mails. Opposing these recommendations, Representative Nelson stated that they were not warranted by the facts. He urged that communism be combated by such social and industrial reorganization as would assure labor a full share in the economic life of the country.

The intervention of Communists in the coal strikes in Harlan County intensified the already bitter and violent struggle between miners and operators but won some converts through aid and food supplied to the strikers. The Scottsboro case, involving eight Negro youths sentenced to death for alleged assault upon two white women, offered an opportunity for propaganda among Negroes

that the International Labor Defense, a Communist organization, was not slow to seize. As a result of its activities the International Labor Defense was denounced by leaders of the National Association for the Advancement of Colored People, who charged that the Communists were more interested in promoting their propaganda than in saving the lives of the eight youths. See KENTUCKY and ALABAMA under *Political and Other Events*.

The "hunger march" on the national capital attracted nation-wide newspaper publicity, but resulted in little violence. Starting several weeks earlier from St. Louis, Chicago, Buffalo, Boston, and other points some 1200 men and women in 71 trucks and motor cars converged on Washington on December 6 demanding cash relief and Federal unemployment insurance. Met on the outskirts of the city by a police escort, they were fed and sheltered in the Salvation Army Headquarters and the Marine barracks overnight. Their request to present their demands directly to Congress and the President was rejected. The demonstrators marched peaceably past the Capitol, reiterated their demands at a mass meeting, and then left Washington (December 8) after a breakfast served by merchants and relief organizations. At many of the cities visited en route to the capital, the demonstrators were fed and housed; at others they were hustled through and forbidden to stop to hold meetings. Fourteen members of the vanguard were arrested November 27 for unlawfully parading before the White House and were sentenced to six months in jail or \$100 fine by a District of Columbia police court judge on December 1.

Communist agitation among the Negroes of Chicago stirred up a riot on August 3 in connection with the eviction of a Negro tenant. The police fired on a menacing crowd of 5000, killing three men and seriously wounding others. In New York and other American cities, meetings were held under Communist auspices August 1 as part of world-wide demonstrations for "the defense of the Soviet Union against imperialistic war." On September 19, the *New York Times* reported that an outlaw radio station in Manhattan, believed to have been operated by Soviet agents, had been communicating in code with Moscow for nearly a year.

**COMMUNISM IN OTHER COUNTRIES.** Communist activities increased noticeably in southeastern Europe, particularly in Austria, Hungary, Bulgaria, and Rumania. In the Bulgarian national elections during the year, the Communists registered important gains. Vienna police on November 4 reported the discovery of a large workshop for the forgery of passports and other governmental documents. It was asserted that the shop supplied Communist agitators with the documents required to undertake subversive activities in virtually every country in the world. The following day, the Bulgarian police announced the discovery of a system of Communist cells and the arrest of a special emissary of the Third International.

In Rumania a general round-up of Communists during the summer netted about 1000 prisoners, while the Greek cities of Athens and Saloniki were reported as fast becoming important centres of Communist propaganda. There were numerous arrests of alleged Soviet spies in southeastern Europe during the year, the most sensational of these being that of the Polish army officer, Maj. Piotr Demkowski, who was executed July 18. The

Communist-sponsored anti-war meetings, held throughout the world on August 1, resulted in a number of riots and clashes with the police in European cities. In the French local elections of October 18, however, the Communists made no impression upon the voters; nor did they in the British general election. There was some evidence of the growth of Communist influence in the Irish Free State during the year.

Orthodox communism played a much less important rôle in the Spanish revolution and its aftermath than had been generally anticipated. Spanish Communists affiliated with the Third International comprised an insignificant minority. The ultra-radical movement in Spain found its chief expression in the *Sindicato Único*, an independent syndicalist labor organization with a semi-communistic programme. See SPAIN.

The Canadian Government took active steps to suppress Communist organizations, arresting eight alleged "key men" in various cities. At their trial in Toronto early in November, Sergeant John Leonard of the Royal Canadian mounted police told from the witness stand of having posed as a Communist for seven years in order to keep in touch with the workings of their organization. Elected secretary of the Regina branch of the party, he sat in the inner circle of officers. He testified that the Third International supplied \$3000 to start the Canadian movement, but ended its subsidy when the party membership grew to 5000. As the party was illegal in Canada, seven of the accused received sentences of five and two years concurrently, and one a sentence of two and one years concurrently. In Australia, Communist agitators attempted to extend their activities from the large cities to the unemployed in the country districts of New South Wales and Victoria. In many instances, however, they were forcibly evicted from farming communities by organized local groups.

The vigorous repressive measures of a number of South American Governments during the year indicated considerable alarm at the spread of Communism and allied types of radicalism. Communist doctrines found a particularly fertile breeding ground among the illiterate and exploited Indians and mestizos of the Andean republics. The major Communist outbreak in Latin America occurred in Chile (q.v.), following the overthrow of President Ibañez, who for more than four years had maintained a close rein upon radical activities. In Peru, Bolivia, and Ecuador the economic depression and unstable political conditions encouraged Communist agitators, many of them foreigners, to expand their efforts among the poorer classes. Peru during 1931 deported many such agitators, while Bolivian officials chased Communists active in their country into the vast southeastern wilderness of the Chaco, where mere existence was difficult.

Communists were charged with raiding a number of Colombian towns and engaging in skirmishes with citizens and police. In Argentina, Brazil, and Venezuela the dictators continued to repress Communist agitators with a firm hand. In Uruguay, police and Communists clashed at Rocha during the anti-war demonstrations of August 1 and a large Communist demonstration in front of the Congressional Palace in Montevideo aroused fears of an uprising. It was important to remember, however, that in South America, as in many other regions, government officials frequently labeled all their political opponents as Com-



munists, regardless of their true political color, and treated them accordingly.

Communist agitation and resulting unrest continued among the native tribes in many regions of South Africa. The Belgian Government during the year took measures to prevent the spread of the movement in the Belgian Congo, where an attempt was made to establish headquarters for Communist activities. In India, Burma, and French Indo-China Communism was linked with the nationalist movements, as it had been earlier in China. On June 2, Minister of Colonies Paul Reynaud disclosed before the Colonies Commission of the French Chamber of Deputies details of a Communist plot for a general uprising in French Indo-China. He said that intensive Soviet propaganda had been widespread in Indo-China for some time, but that it had led to menacing developments only in northern Annam. During an uprising there on May 1, 175 rebels were killed in an attack upon a Government post, M. Reynaud said.

In June, 1931, British agents in Singapore arrested Joseph Ducroix, a French Communist, believed to have been the brains of the Communist movement in interior Provinces of China. In a notebook found in his office was listed the names of Communist agents scattered throughout the Far East. Ducroix was sentenced to 18 months' imprisonment and police in Hong Kong, Shanghai, and Hankow utilized the information obtained from him to make a general round-up of Communist agents in those cities. See *ECUADOR*, *JAPAN*, *ESTONIA*, *FINLAND*, and *CUBA* under *History*.

Communism in the Union of Soviet Socialist Republics, China, Germany, Chile, and most of the other countries mentioned in this article is discussed further in the separate articles on each country under *History*. For an able discussion of the Communist intervention in the Scottsboro, Ala., case, consult Walter White, "The Negro and the Communists," *Harper's Magazine*, December, 1931; consult also "Communism in China," *Foreign Affairs*, January, 1931.

**COMMUNITY CHESTS.** See *WELFARE WORK*.

**COMORO ISLANDS.** See *MAYOTTE AND COMORO ISLANDS*.

**COMPENSATION LAWS.** See *WORKMEN'S COMPENSATION*.

**COMSTOCK, JOHN HENRY.** An American entomologist, died in Ithaca, N. Y., Mar. 20, 1931. He was born in Janesville, Wis., Feb. 24, 1849, and was graduated from Cornell University in 1874. After a year of graduate study at Yale University he became an instructor in entomology at Cornell, assistant professor in 1877, and professor in 1882. From 1879 to 1881 he was entomologist of the U. S. Department of Agriculture, and in 1891 became nonresident professor of entomology at Leland Stanford Junior University. His investigations dealt with the morphology, classification, and economic relations of insects, in which he was ably assisted by his wife, Anna Botsford Comstock. He retired as professor emeritus in 1914. His important publications include *Report on Coiton Insects* (1879); *Introduction to Entomology* (1888); *Evolution and Taxonomy* (1893); *A Manual for the Study of Insects* (with his wife, 1895); *The Wings of Insects* (with J. G. Needham, 1897); *Insect Life* (1901); *How to Know the Butterflies of the Eastern United States* (with his wife, 1904); and *The Spider Book* (1912).

**CONCERTS.** See *MUSIC*.

**CONCILIATION, INTERNATIONAL.** See *ARBITRATION, INTERNATIONAL*.

**CONCRETE BRIDGES.** See *BRIDGES*.

**CONGO, BELGIAN.** A Belgian colony in Central Africa, formerly the Congo Free State, which was annexed to Belgium in 1908. Area, estimated at 918,000 square miles; the native (Pantu) population in 1930 was 9,584,936. On Jan. 1, 1930, the white population numbered 25,679, including 17,676 Belgians, 1008 English, 1582 Portuguese, 1490 Italians, 544 Americans, and 717 French. The chief city and former capital is Boma; by a royal decree of 1923, the capital was transferred to Leopoldville (population, 39,330). Other important towns are Elizabethville (25,595), Stanleyville, and Coquilhatville. The mission schools were attended by about 228,650 children in 1930.

Primitive agriculture is developing under Government supervision. Palm nuts, palm oil, white copal (resin), rubber, coffee, and cacao are the principal products. Cattle thrive in the highlands of Katanga, Ituri, and Kivu. The Katanga district is also one of the world's most important sources of copper, the production in 1930 reaching 146,700 tons. Gold, diamonds, radium, cobalt, coal, and tin also are mined and iron, platinum, palladium, vanadium, zinc, and bauxite are known to exist. Important helium supplies were discovered in 1930. Imports in 1930 were valued at 1,581,000,000 francs (1,943,000,000 francs in 1929) and exports at 1,512,000,000 francs (1,444,000,000 francs in 1929). One Belgian franc equals \$0.0278 U. S. Due to the fall in prices of colonial products, the 1930 budget showed a final deficit equivalent to \$2,000,000. Estimated revenues and expenses were 690,810,000 and 690,732,121 francs, respectively.

**COMMUNICATIONS.** Extension of the Benguela Railway from Luao, on the eastern frontier of Angola, to Tenke, 335 miles distant in the Katanga Province of the Belgian Congo, was completed on Mar. 1, 1931. The connection with the Katanga Railways at Tenke constituted the final link in the first trans-African railway line. The Katanga Railways connect in turn with the Rhodesian system (British) and with Cape Town, Durban, Delagoa Bay, Beira, and other ports on the Indian Ocean. The Benguela line extends from Lobito Bay on the west coast, and provides the Katanga mining district with a shorter outlet to world markets. In 1931, railways in the Belgian Congo extended 2500 miles, highways 16,746 miles, telegraph lines 3538 miles, telephone lines 3360 miles. Steamers provide means of transport along the navigable stretches of the Congo and its branches. The chief administrative centres are connected by air lines.

**GOVERNMENT.** A governor-general and several vice governor-generals administer the colony on behalf of the Belgian King and the budget is voted by the lower house of the Belgian Parliament. The colony is divided into four Provinces which are in turn divided into 22 administrative districts. There is a military force of 14,300 natives officered by 431 Europeans and a territorial police of 5800 men. Governor-General in 1931, Lieut.-Gen. Tilkens, appointed in 1927.

**RUANDA-URUNDI.** The districts of Ruanda and Urundi, formerly in German East Africa, were turned over to Belgium as mandatory of the League of Nations and in 1925 were united ad-

ministratively with the Belgian Congo; the capital is Usumbura.

**HISTORY.** Demands for a degree of autonomy were presented in 1931 in the form of a memorandum to the Belgian Colonial Secretary by the Association of Belgian Colonists in Katanga. The association urged among other things the creation of a provincial parliament for Katanga, to be elected by vote of Belgian colonists. Although the colonists pay heavy taxes, they are deprived of all civic rights, according to the memorandum, which was published in Belgian newspapers of May 11, 1931. The Government in the same year inaugurated measures to prevent the spread of Communism among the natives, the *London Times Weekly* of May 14, 1931, reported. General Pilkens, Governor-General of the Belgian Congo, was recalled to Brussels in 1931 to confer upon emergency measures required to relieve the serious economic crisis in the colony. See **BELGIUM**.

**CONGO, FRENCH.** See **FRENCH EQUATORIAL AFRICA**.

**CONGO FREE STATE.** See **CONGO, BELGIAN**.  
**CONGREGATIONAL AND CHRISTIAN CHURCHES, THE GENERAL COUNCIL OF THE.** The General Council of the Congregational and Christian Churches was instituted at Seattle, Wash., June 26, 1931, when the National Council of the Congregational Churches in the United States and the General Convention of the Christian Church merged their activities in this new organization. The formal existence of the former organizations, however, was continued for the time being against possible legal necessities.

Congregationalism was founded in the United States by the Pilgrims in Plymouth, Mass., in 1620 under the leadership of Brewster, Bradford, and Winslow. The origin of this movement lay in the Separatist activity in England. The Puritans of Massachusetts Bay followed a similar tendency and, as a result, the essential elements of Separatism and Puritanism were combined in Congregationalism. In this denomination each church holds the right to frame its own statement of belief, and the policy of the denomination, as a whole, represents adaptation to conditions rather than accord with a theory of church government.

The Christian Church originated in three religious movements: that of the Rev. James O'Kelly of Virginia, who in 1792 withdrew from the Methodist Episcopal Church; that of Abner Jones, who withdrawing from the Baptist denomination organized a separate church in Lyndon, Vt., in 1801; and that of a group of Kentucky Presbyterian ministers who formed a new denomination in 1804. These groups eventually united, all holding that minor differences in opinion should be subordinated to Christian brotherhood.

The general council, by which the administrative affairs of the churches are carried on, has no ecclesiastical authority, but includes delegates, both ministerial and lay, elected by the State conferences, district associations, and similar bodies for purposes of fellowship, advice, and coöperative endeavor. It meets biennially, the session in 1931 being held in Seattle, Wash., June 25-July 3. The principal feature of this meeting was the institution of the council by the adoption of constitution and by-laws, based upon the plan of union adopted in 1929 by the National Council of the Congregational Churches

and the General Convention of the Christian Church.

The plan of union provides for representation in the general council by appointment of State and local bodies, whether Congregational, Christian, or Congregational and Christian in their makeup. This makes it possible for a State or district body, consisting entirely of Congregational churches or entirely of Christian churches, to have representation in the national body on the same terms with such associations or conferences as may have merged former Congregational and Christian bodies. In other words, it follows the democratic principle of leaving to the local constituency the form of its own organization. Provision is also made for the common administration of benevolent activities, including home and foreign missions, religious education, and the like. Both bodies throughout their histories have been democratic in organization, and the plan of union provides for full local autonomy in the individual church and in groups of churches associated together. The next meeting of the general council was to be held in Cleveland, Ohio, in the spring or early summer of 1933.

Statistics for the Congregational churches as of Jan. 1, 1931, showed 5381 churches, 5609 ministers, and a church membership of 943,509. There were 3095 young people's societies, with a membership of 159,025. The Sunday school enrollment was 709,639. The total raised for all benevolences was \$4,052,135, and the home expenses of the churches \$20,186,066.

Statistics for the Christian churches as of Jan. 1, 1931, showed 1132 churches, 971 ministers, and a church membership of 108,188. There were 299 young people's societies, with a membership of 8372. The Sunday school enrollment was 79,120. The total raised for all benevolences was \$138,025, and the home expenses of the churches \$1,049,434.

The American Board of Commissioners for Foreign Missions is the oldest foreign missionary society in America, having been organized June 29, 1810. On Jan. 1, 1931, there were 17 missions under 12 different flags; the stations connected with these missions numbered 94 and the out-stations 1655. The missionaries holding life appointments numbered 649 and included 148 ordained men, 76 unordained men, 214 wives, and 210 single women. There were also 52 associates serving for shorter periods, bringing the total number of missionaries up to 701, while native workers numbered 5281. Religious services were conducted in 2688 places. The organized churches numbered 695, with 105,442 communicants. The total church constituency numbered 288,458; Sunday schools, 1340; theological seminaries and training schools, 27, with an attendance of 1634 students; colleges, 10, with 4914 students; secondary schools, 72, and primary and elementary schools, 1236, with a total enrollment of 91,221. There were 30 hospitals and 52 dispensaries, with a staff of 47 physicians and 32 foreign nurses. Total expenditures of the board for the year ending Aug. 31, 1930, were \$2,151,766.

The field of the American Missionary Association included Negroes, Indians, and mountaineers in the South and Southwest; Orientals and Indians in the West; Porto Ricans, and Mexicans. Statistics of the association showed that in 1929-30 there were 232 churches with 9773

members and 24 schools with an enrollment of 1575 pupils. Expenditures during the same period amounted to \$1,103,520. The Congregational Home Missionary Society with its affiliate, the Congregational Sunday School Extension Society, organizes schools and churches and assists in the commissioning and support of pastors in four-fifths of the territory of the United States. In the remainder of the country similar work is done by independent State conferences. In 1930 these societies helped to maintain 614 churches and preaching stations, having a total membership of 30,617, and received 2848 persons into church membership; 471 home missionaries, including student summer workers, were enrolled. Expenditures amounted to \$495,644, and total receipts to \$495,176.

The Annuity Fund for Congregational Ministers was reported to have assets totaling more than \$10,000,000; the membership was 2612; and annuity payments amounted in 1930 to \$226,750. The Congregational Church Building Society received \$529,464 in 1930 for current use and voted 146 church grants and loans and 20 parsonage loans amounting to \$413,380. Among the theological seminaries with which the Congregational denomination was affiliated were: The Chicago Theological Seminary; Divinity School of Yale University; Hartford Seminary; Oberlin Graduate School of Theology; Atlanta Theological Seminary Foundation; Union Theological College (Chicago); and Pacific School of Religion. In addition there were 41 colleges which have had some historical relation to Congregationalism, although a number of them are now undenominational. The Christian denomination had affiliation with Elon and Defiance Colleges.

The accompanying table, reprinted from the *Congregational Year Book* for 1930, gives statistics of international Congregationalism:

## INTERNATIONAL CONGREGATIONALISM

Countries	Churches, Chapels, and Stations	Members of Churches	Members of Sunday Schools
Africa <sup>a</sup> .....	1,569	57,510	35,353
Australia and New Zealand .....	525	22,661	32,713
Brazil .....	157	3,997	3,586
Bulgaria <sup>a</sup> .....	40	1,443	2,207
British Guiana <sup>b</sup> .....	46	4,319	4,752
Canada <sup>a</sup> .....	7,402 <sup>c</sup>	650,845 <sup>c</sup>	615,687 <sup>c</sup>
China <sup>a</sup> .....	898	34,290	7,897
Czechoslovakia <sup>a</sup> .....	132	3,671	800
England and Wales .....	4,528	449,497	556,717
India and Ceylon <sup>a</sup> .....	1,350	44,605	53,968
Ireland .....	41	2,198	4,075
Jamaica .....	34	3,315	3,212
Japan <sup>a</sup> .....	275	29,116	24,871
Madagascar <sup>a</sup> .....	924	45,942	40,645
Mexico <sup>a</sup> .....	37	749	1,050
Micronesia <sup>a</sup> .....	76	3,137	4,083
Newfoundland .....	4	250	350
Papua <sup>a</sup> .....	94	4,125	7,186
Philippines <sup>a</sup> .....	52	3,844	2,202
Scotland .....	164	38,337	18,518
South Seas <sup>a</sup> .....	292	20,571	17,543
Spain <sup>a</sup> .....	8	319	800
Turkey, Greece and Syria <sup>a</sup> .....	81	4,119	7,056
United States .....	5,381	943,569	709,639
Total .....	24,110 <sup>d</sup>	2,372,429 <sup>d</sup>	2,154,410 <sup>d</sup>

<sup>a</sup> Includes reports of London Missionary Society and American Board.

<sup>b</sup> Repeated from last Year Book.

<sup>c</sup> United Church. Comprises the former Presbyterian, Methodist, and Congregational churches.

<sup>d</sup> Includes United Church of Canada as noted above.

The headquarters of the General Council of the Congregational and Christian Churches are at 287 Fourth Avenue, New York City, with a regional office in the Christian Publishing Association Building in Dayton, Ohio. The Congregational Publishing Society maintains branches at 14 Beacon Street, Boston, and at 418 South Market Street, Chicago. The officers of the general council for 1931-1933 are: The Moderators, the Rev. Carl S. Patton, Los Angeles, Calif., and the Rev. Frank G. Coffin, Columbus, Ohio; secretary, the Rev. Charles E. Burton, New York City; associate secretary, the Rev. Frederick L. Fagley, New York City; assistant secretary, the Rev. Warren H. Denison, Dayton, Ohio; treasurer, William T. Boulton, New York City.

CONGRESS, UNITED STATES. See UNITED STATES.

CONNECTICUT. POPULATION. According to the Fifteenth Census, the population of the State on Apr. 1, 1931, was 1,606,903; in 1920, it was 1,380,631. According to origin, the population in 1930 was composed of 1,193,802 native whites, 382,871 foreign-born whites, 29,354 Negroes and 876 of other colored races. As to sex the population of 1930 was marked by the predominance of females, numbering 805,600, over males, who numbered 801,303. As to occupations, 677,292 persons reported in 1930 as gainful workers in all industries were divided chiefly into the following groups: manufacturing and mechanical industries, 336,386 (this group consisted chiefly of those engaged in manufacture, but included also 48,132 in the building industries); trade, 112,623; professional service, 50,239; domestic and personal service, 61,845; transportation, 48,150; agriculture, 36,687.

The cities having the largest populations were:

	1930	1920
Hartford, the capital .....	164,072	138,030
New Haven .....	162,655	162,537
Bridgeport .....	146,716	143,555
Waterbury .....	99,902	91,715
New Britain .....	68,128	59,316

AGRICULTURE. The following table shows the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod Bu.	Value
Hay, tame ...	1931	250,000	323,000 <sup>a</sup>	\$ 5,491,000
	1930	259,000	340,000 <sup>a</sup>	6,888,000
Tobacco ....	1931	22,500	29,295,000 <sup>b</sup>	7,763,000
	1930	23,400	32,409,000 <sup>b</sup>	12,024,000
Corn .....	1931	51,000	2,142,000	1,499,000
	1930	51,000	2,142,000	2,249,000
Potatoes ....	1931	12,000	1,920,000	1,248,000
	1930	11,000	1,925,000	2,214,000
Apples .....	1931	.....	675,000	742,000
	1930	.....	1,615,000	1,454,000

<sup>a</sup> Tons. <sup>b</sup> Pounds.

MINERAL PRODUCTION. The mineral output showed diminution for 1929, chiefly because of smaller production of clay products and of stone. The clay products of 1929 attained a value of \$2,038,530; those of 1928, \$2,558,384. Stone produced in 1929 amounted to 2,621,260 short tons (sandstone excluded); in 1928, to 2,852,980 tons (sandstone included). In value these totals represented \$3,496,520 (1929) and \$3,743,572 (1928). The production of lime attained \$386,855 for 1929, but was reduced to \$215,000 for 1930. The total value of the mineral production of the State was \$7,053,408 for 1929; for 1928, \$7,599,655.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 gave the number of the State's manufacturing establishments as 3121. These employed 253,468 wage earners or 5.3 per cent more than in 1927. The wages paid them in 1929 totaled \$339,653,944, and were about 11 per cent above the wage total of 1927. Materials used in manufacture in 1929 cost \$634,738,824, while fuel and purchased electricity cost \$35,363,508; these non-labor costs exceeded by some 12 per cent the like total for 1927. The manufactured product of 1929 was valued at \$1,495,635,453, or some 16 per cent more than the total for 1927. Value added by manufacture in 1929 was estimated at \$825,530,121. New Haven led the manufacturing centres in point of the number of wage earners, 27,141, and the total of wages paid, \$42,899,091; the value of its product was \$135,894,115. Three other cities, though inferior as to number of wage earners or totals of wages paid, surpassed New Haven in the value of their product of 1929; they were: Bridgeport, with 30,577 wage earners, wage payments of \$39,309,730 and product of \$176,258,794; Hartford, with 24,744 wage earners, wage payments of \$36,023,307 and a product of \$157,241,974; Waterbury, with 24,396 wage earners, wage payments of \$32,093,421 and a product of \$157,587,994.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were, for maintenance and operation of governmental departments, \$20,704,769 (of which \$1,577,106 was for local education); for interest on debt, \$656,865; for permanent improvements, \$13,300,663; total, \$34,675,862 (of which \$12,665,743 was for highways, \$2,778,433 being for maintenance and \$8,887,310 for construction). Revenues were \$38,920,756. Of these, property and special taxes formed 26.6 per cent; departmental earnings and remuneration to the State for its officers' services, 6.6; sales of licenses, 55.5 (including taxes of \$4,337,551 on sales of gasoline). The States' funded debt outstanding on June 30, 1930, was \$16,291,000. Net of sinking-fund assets, it was \$1,241,525. On property bearing an assessed valuation of \$3,009,930.177 were levied in the year State taxes of \$1,678,263.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 968.67. No important change in this total had taken place during the year preceding. No building of new line or trackage was reported in 1931.

**EDUCATION.** The Legislature of 1931 codified the State's school laws. According to State Superintendent Butterfield, a move was made, by legislation, toward equalizing high-school and trade-school opportunities and toward establishing more effective school supervision.

**LEGISLATION.** The regular session of the Legislature, ending on May 27, made for the ensuing two-year period appropriations totaling \$65,313,582, the largest amount that had been appropriated by any session in the State. A rural demand for better secondary highways was met by the provision of \$6,000,000 for the improvement of the earth roads. The sum of \$1,582,290 was appropriated for the construction of additional hospital accommodation for the State's tubercular patients. The State Senate defeated the Meaney bill for the repeal of the State Prohibition enforcement measure. Both branches,

however, later passed a bill calling for a popular referendum, to be held in November of 1933, on the proposal to petition Congress to submit to the several States an Article XX of the Federal Constitutional amendments repealing Article XVIII and restoring to the States the power to regulate or prohibit intoxicating liquors, except with regard to interstate commerce.

Governor Cross, a Democrat, made numerous recommendations to the Republican Legislature, but in the main it did not act on them. It on the contrary removed from the Governor the power, vested in that officer for 30 years, to nominate judges of the Court of Common Pleas. The Governor's programme for strengthening the Public Utilities Commission was killed, his nominee to the commission was rejected, and the law requiring the New York, New Haven & Hartford Railroad system to eliminate one grade crossing a year was repealed.

The 12 per cent tax penalty was reduced to 9 per cent. A proposal for a constitutional amendment providing for absentee voting was passed. It was rendered a crime to throw away a lighted cigarette in such a way as to start a fire. Amateur sports under permit of municipal or park authorities were rendered lawful on Sundays. Provision was made for a water supply for Hartford, to be obtained from the east branch of the Farmington River by a dam flooding the site of the town of Hartland. The statute enabling 100 citizens to require precedings by the attorney general to oust the Public Utilities Commission, which had figured in the political proceedings of the year before, was repealed over the Governor's veto. Provision was made for abolishing the Borough of Greenwich and consolidating it with the Town of Greenwich.

**POLITICAL AND OTHER EVENTS.** Artificial silk mills in Putnam went through an extensive strike of employees in July. Although the State law forbidding public clocks to show daylight-saving time remained in force, Hartford and some other cities again made the general change to summer time (an hour ahead of Eastern Standard) for business, church, and private reckoning. The High Rock tract, of some 2000 acres, near Beacon Falls, was presented to the State as a park by the Whittemore family of Naugatuck. In the municipal elections of November 3 Democratic mayors were elected by exceptional majorities in New Haven, Hartford, and Bridgeport. In the latter city the Socialist candidate for mayor outran the Republican by about 5 to 3 and made second place.

**OFFICERS.** Governor, Wilbur L. Cross; Lieutenant Governor, Samuel R. Spencer; Secretary of State, William L. Higgins; Treasurer, Roy C. Wilcox; Comptroller, F. M. Salmon; Attorney-General, Warren B. Burrows.

**JUDICIARY.** Supreme Court of Errors: Chief Justice, W. M. Maltbie; Associate Judges, F. D. Haines, G. E. Hinman, John W. Banks, Christopher L. Avery.

**CONNECTICUT COLLEGE.** A liberal college of arts and sciences for the higher education of women in New London, Conn., chartered in 1911 by the State of Connecticut. The enrollment for the autumn of 1931 was 569. The faculty numbered 64 members. The productive funds amounted to \$1,343,125, and the budget for the year, not including building operations, was more than \$575,568. There were 45,000 volumes in the library. In 1931 the college received ap-

proximately \$105,000 from Mr. and Mrs. George S. Palmer for wings to the library, and also \$16,600 in miscellaneous smaller gifts. President, Katherine Blunt, Ph.D.

**CONSERVATION.** See **FORESTRY**.

**CONSTRUCTION.** See **BUILDINGS**; **ARCHITECTURE**.

**CONSUMERS' SOCIETIES.** See **COÖPERATION**.

**CONTRACT BRIDGE.** It was in 1931 that Contract Bridge really advanced out of the evening entertainment class into a position of national prominence. The card game, developed slowly from the whist and auction of other days, grew into a mammoth business, the leaders of which took their places alongside important men in other professions. For with the amazing growth of the game that had taken the United States and Europe by storm, came the inevitable experts with their different, highly publicized systems, their own methods of getting the same results. The difference in the systems brought about discussions concerning the respective merits of the systems and their advocates. At the end of the year there were three recognized systems in vogue—among the experts and among the thousands who read avidly the daily journalistic contributions of these experts who had discovered a gold mine in contract bridge.

The three systems were: (1) The approach-forcing system, sponsored by Ely Culbertson, the brilliant young cosmopolite, which was originally devised by players at the Cavendish Club, New York City. The basic tenet of this Culbertson system, as it is widely known, is that a bid of two, denotes unusual strength and that a game should be made from the cards of the declarer. (2) The "official" system, sponsored by Sidney Lenz, and said to have been devised by a committee of experts. The only appreciable difference between this system and Culbertson's was that the bid of three here means what the bid of two means in the Culbertson method. (3) The one-over-one system, sponsored by George Reith and devised by players at the Knickerbocker Whist Club, New York City. This system contends fundamentally that a response is guaranteed to the partner's bid. The consistent publicity accorded the systems brought about new books as well as many revised editions on the subject so that at the end of the year the book markets were flooded with bridge books, and Culbertson's *Blue Book of Bridge* had taken a tenacious hold on the best seller's list, and Lenz's *Official System of Bidding* was also being sold in huge quantities. More discussion, with the attendant and more or less stimulated publicity, created the demand for a test of the systems of Culbertson and Lenz. The match was arranged, to be of 150 rubbers played over six weeks in New York City, with Culbertson wagering \$5000 against Lenz's \$1000, the entire sum to go to charity, and at the end of the year, after 125 rubbers, Culbertson and his partner,—his wife—Mrs. Josephine Culbertson, were leading, through the use of their approach-forcing system, by a margin of 15,000 points over Lenz and his partner, Oswald Jacoby, using the "official" system.

Other experts who professed one or the other of the different systems and who were considered as good if not better bridge players than either the highly publicized authors—Culbertson and Lenz—were Hal Sims, Jacoby, John Matheys, David Bernstine, Gratz Scott, Edwin Wetziar,

Willard Karn, Sherman Stearns, and George Reith. Sims, Jacoby, Bernstine, and Karn composed the Four Horsemen team which won both the Eastern and National championships in 1931. The only defeat suffered by this quartet was at the hands of the Knickerbocker team in the Vanderbilt Cup play.

Early in the year Mr. and Mrs. Culbertson toured Europe meeting all comers, and in the course of quite a long trip to all the large cities in the continent, only one match was lost—to an Austrian team. The English team, led by Colonel Buller, was defeated at London, but nevertheless numerous challenges for an international match with the British were received by the Culbertsons throughout the remainder of the year.

**COOKE, RICHARD JOSEPH.** An American clergyman, died in Athens, Tenn., Dec. 25, 1931. He was born in New York City, Jan. 31, 1853. Entering the ministry of the Methodist Episcopal Church in 1873, he was ordained in 1876. He later attended the East Tennessee Wesleyan University, from which he was graduated in 1880. From 1889 to 1912 he was professor of New Testament exegesis and historical theology at Chattanooga University. He was also vice chancellor in 1893 and acting president in 1897. He exerted a great influence in the Methodist church as editor of the *Methodist Advocate Journal* from 1891 to 1912 and as book editor of the church from 1904 to 1912. Elected bishop in the latter year, he was resident bishop in Portland, Ore., until 1916 and in Helena, Mont., until 1920 when he retired. During this period he was a member of the commissions on unification of the Methodist Episcopal Church and the Methodist Episcopal Church, South, and the Federation of Episcopal Methodism. His works include: *Doctrine of the Resurrection* (1884); *Reasons for Church Creed* (1888); *Christianity and Childhood* (1891); *The Historic Episcopate* (1896); *Christ and the Critics* (1898); *The Incarnation and Recent Criticism* (1907); *The Wingless Hour* (1911); *Freedom of Thought in Religious Teaching* (1913); and *Religion in Russia under the Soviets* (1924).

**COOKE, WALTER PLATT.** An American lawyer and financier, died Aug. 4, 1931, in Buffalo, N. Y., where he was born Apr. 28, 1869. On completing the law course at Cornell University in 1891 he established himself in Buffalo, where at the time of his death he was senior member of the firm of Kenefick, Cooke, Mitchell and Bass and chairman or director of numerous financial and industrial organizations. During 1920-22 he was acting Chancellor of the University of Buffalo, and was also chairman of the Council, the governing body of that institution. In 1925, by joint agreement between the German government and the Reparation Commission, he was appointed president, at The Hague, of the Arbitral Tribunal of Interpretation, which decided all controversies arising out of operation of the Dawes Plan. He resigned from this office in April, 1926, to become United States citizen member of the Reparation Commission, serving in this capacity for a year and a half and residing in Paris. In 1930, on invitation of various governments, he became a member of the London Arbitration Board, set up under the Young Plan to deal with various matters pertaining to reparations; he also was elected its president but never assembled a meeting. He was made an officer of the French Legion of

Honor, of the Order of Leopold (Belgium), and of the Order of Saints Maurice and Lazare (Italy). In 1926 he received the Chancellor's Gold Medal, awarded by the University of Buffalo for distinguished civic service.

**COÖPERATION. INTERNATIONAL COÖPERATIVE ALLIANCE.** This organization, at the beginning of 1931, had members in 41 countries, with a total of 229,890 societies and 70,000,000 persons belonging to them. These societies did a combined annual business in 1930 amounting to more than \$17,610,000,000; had a share capital of \$960,000,000, and reserve funds of \$548,600,000. The largest single group in the Alliance was the Russian coöperative movement with an annual business of \$14,938,000,000, share capital of \$310,800,000, and reserve funds of \$362,000,000. The membership of 229,890 societies belonging to the Alliance was divided up as follows: In the consumers' societies there were 48,233,000 members; in productive societies there were 136,200 members; in agricultural societies there were 22,403,000 persons. In addition, the Alliance regarded as affiliates 32,300 credit societies with a total membership of 14,985,000 persons.

**BRITISH COÖPERATIVE WHOLESALE SOCIETY.** In 1929, this organization was employing 248,736 persons or nearly 45,000 more than in 1925. Of the total number of people on its payroll, the British Coöperative Wholesale Society was employing 34,000 workers in its production de-

# DEVELOPMENT OF COÖPERATIVE SOCIETIES IN GREAT BRITAIN, 1928 AND 1929, BY TYPE OF SOCIETY

Item	1928	1929	Per cent of change
Wholesale societies:			
Number . . . . .	2	2	.....
Sales . . . . .	\$501,291,036	\$523,324,396	+4.5
Capital . . . . .	\$237,154,278	\$259,944,098	+9.6
Value of goods manufactured	\$174,839,607	\$187,288,238	+7.1
Workers' societies:			
Number . . . . .	88	84	-4.5
Membership . . . . .	30,732	31,768	+3.4
Sales . . . . .	\$18,326,972	\$18,580,297	+1.3
Capital . . . . .	\$10,229,383	\$7,998,330	-22.8
Value of goods manufactured	\$17,113,563	\$17,110,127	.....
All types of societies:			
Number . . . . .	1,383	1,358	-1.8
Sales . . . . .	\$1,530,166,885	\$1,592,310,293	+4.1
Capital . . . . .	\$855,769,159	\$919,773,368	+7.5
Value of goods manufactured	\$380,019,384	\$394,541,098	+3.8

GERMANY. In 1930, in Germany, there were 52,853 coöperative societies as compared with 34,579 such societies in 1914. Of the 52,853 such organizations in 1930, 21,900 were credit societies. The accompanying table shows the membership and sales of German consumers' societies and the German Coöperative Wholesale Society in 1930.

## MEMBERSHIP AND SALES OF GERMAN CONSUMERS' SOCIETIES AND COÖPERATIVE WHOLESALE SOCIETY, 1930

[Conversions into United States currency on basis of mark = 23.8 cents]

Society and year	Number of societies	Number of members	Amount of business		Number of persons employed
			German currency	United States currency	
Consumers' societies affiliated to Central Union:			Marks		
1929 . . . . .	968	2,859,516	1,176,294,809	\$279,958,165	55,597
1930 . . . . .	974	2,940,308	1,240,327,868	295,198,033	57,463
Coöperative Wholesale Society:					
1929 . . . . .	...	885*	501,378,122	119,327,993	(*)
1930 . . . . .	...	909*	495,257,404	117,871,262	7,165

\* Affiliated societies.

• No data.

partment. This well known coöperative organization carries on manufacturing activities in a large number of businesses, the value of the output of its productive and service departments reaching the sum of \$150,000,000 in 1929. Among the more important productive activities of the Society at the end of 1929 were the following: flour mills, employing 1625 workers; cracker and confectionery factories, employing 1331 workers; a margarine factory, employing 1059 workers; preserve factories, employing 1867 workers; drugs and chemical factories, employing 1263 workers; a hosiery mill, employing 1006 workers; clothing factories, employing 5609 workers; boot and shoe factories, employing 4056 workers; furniture factories, employing 1345 workers; soap factories, employing 1823 workers; printing and bookbinding plants, employing 2419 workers; building and engineering plants, employing 2332 workers.

The accompanying table shows the status of the coöperative societies in Great Britain in 1928 and 1929, by types of societies. It is apparent that despite unemployment and depression, the British coöperative movement showed real progress in 1929 as compared with the earlier year.

RUSSIA. In 1931, the total membership of the Russian consumers' coöperative societies was 56,000,000 persons. Of the whole group, women made up 26 per cent as compared with 14.4 per cent in 1928. A Russian authority noted the increasing rôle being played by women in the administration of these societies. In the towns, in 1929-30, women made up 31 per cent of the membership of directing boards and 26 per cent of the membership of auditing committees; in the rural communities the proportions were 19 per cent and 16.7 per cent respectively. Many of the women were engaged in social service activities on a coöperative basis. Thus, in one region women organized 128 crèches, coöperatively operated. In another area, the original coöperative union organized eight medical clinics for women, 300 child-caring institutions and 125 dressmaking classes.

According to a census taken by the State Planning Commission, 60 per cent of the 7,481,700 industrial workers were employed in small-scale industries. About 25 per cent of the workers in these small industries belong to coöperative societies, known legally as "kustar" industries. These "kustar" societies take the following forms: workers' productive societies work-



ing on a common-work job; societies for the purchase of materials and marketing of product; credit societies; and societies partly artisan and partly agricultural in character. On Oct. 1, 1930, there were in the Soviet Union 18,363 "kustar" societies having 2,000,000 members, of whom 46 per cent belonged to groups working coöperative factories or workshops. See UNION OF SOVIET SOCIALIST REPUBLICS under *Production*.

ITALY. Previous YEAR BOOKS have commented on the strength of the workers' productive societies in this country. These societies are formed mainly among the navvies and laborers in the building trades and take contracts for public works, such as the construction and maintenance of roads, bridges, and canals, and drainage, reclamation, and irrigation projects. The law permits such groups to combine and to assume contracts subject to the value of 5,000,000 lire (\$263,000). At the end of the year 1929 there were in Italy 1300 such coöperative labor societies with a combined membership of 105,453. Some of these groups have within single years carried out sizable projects. Thus, the Union of the Province of Modena, formed in 1915 and including 40 such societies, in 1929 fulfilled contracts totaling \$705,000 and in 1930 was engaged on contracts valued at more than \$1,000,000. In 1927, these societies carried out construction work to the value of \$9,577,000, reclamation to the value of \$2,391,000, and road maintenance work to the value of \$595,000.

PALESTINE. It is interesting to observe that the coöperative movement in Palestine is entirely Jewish, only one Arab society having been formed and this ending in failure. At the end of May, 1930, there were 249 Jewish coöperative societies registered of which 173 were actually in operation. Of the latter, 39 were agricultural societies, 52 were credit societies, 27 were industrial productive organizations, 34 were land and construction societies, 7 were societies of various other types and 14 were coöperative communities. Detailed information was obtained for 134 organizations which reported a membership of 33,436 persons, a working capital of \$1,630,000 and members' deposits amounting to \$3,462,000. The agricultural societies included a variety of types and through them the farmers were finding it possible to make purchases, sell their produce, insure their cattle and receive agricultural credits. The "Pardess" society of orange growers during 1930 handled 40 per cent of the total crop grown by the Jewish farmers. Among its other activities this society was operating a packing house with a capacity of 60,000 cases. Another society made up of the grape growers of the country was manufacturing and selling 90 per cent of the wine produced in Palestine. The Jewish Federation of Labor was giving particular attention to the promotion of workers' productive societies. At the end of May, 1930, there were 40 such groups but their total membership was only 507. These societies, in addition to employing their own members, carried on their payrolls 235 hired workers and apprentices.

PERU. In 1930, there was enacted a law making compulsory the organization of farmers into agricultural societies. The law's objective was "to make use of these legally recognized agricultural organizations for guiding the farming class toward higher voluntary forms of coöperative marketing, amalgamation of farm undertakings, and joint contract, the rise and de-

velopment of all of which would otherwise without this basis of legal recognition, be much delayed." The purposes of the societies were: to further advance methods of cultivation and irrigation; the organization of agricultural co-operatives including marketing, purchasing of farm machinery and supplies; the safeguarding of members' lives; and the supervision of the performance of their duties; assignment of a legal representative to speak for them in all dealings with the government on all questions relating to agriculture.

COÖPERATIVE MARKETING. See AGRICULTURE; HORTICULTURE.

COOPERITE. See MINERALOGY.

COPLAND PLAN. See AUSTRALIA under *Finance and History*.

COPPER. The world production of copper in 1931 was estimated at 1,460,000 short tons, of which the United States supplied 470,000 tons; Chile and Peru, 285,000; Africa, 180,000 tons, and Canada, 150,000 tons. There were reduced amounts for all of the countries of the world with the possible exception of Russia and Japan, the total comparing with 1,740,972 tons in 1930 and 2,127,104 tons in 1929, the latter year production being the greatest on record. The 1931 production was the smallest since 1923 when 1,280,940 tons were produced.

In fact the preliminary statistics of copper output, stocks, and other trade factors in 1931 indicated continuation of the depressed conditions of the copper industry, according to the U. S. Bureau of Mines. Smelter output from domestic ores declined about 25 per cent in 1931 following a drop of 30 per cent in 1930. Refinery output from foreign and domestic ores in 1931 was 30 per cent below 1930. Imports of unmanufactured copper dropped 31 per cent following a decline of 16 per cent in 1930, and exports of metallic copper were 24 per cent less in 1931 than in 1930. The extent to which production was curtailed was not sufficient to offset the greatly reduced demand for copper. As a result, reports indicate that stocks of refined copper rose to a record figure at the end of 1931. Stocks of blister showed a considerable decline from 1930, but total stocks of blister and refined copper were about 8 per cent higher than the previous record reserves at the end of 1920. Withdrawals of copper on domestic account, as estimated below, showed a drop of 28 per cent in 1931 following a decline of 29 per cent in 1930, and were approximately the same as stocks of refined copper at the end of the year.

The average monthly quoted price of copper (electrolytic, New York refinery equivalent) was 9.91 cents a pound in January, advanced to a high for the year of 10.02 cents in March, and then began a decline that continued through November. An advance in price in the latter part of December permitted the average for that month—6.68 cents—to barely exceed the low price recorded for November—6.67 cents.

In view of the lowest price on record prevailing in 1931 it is of interest to follow the general trend of copper for some years. The annual average in 1897 was 11.29 cents from which by 1899 the price had risen to 16.67 cents. There was a decline for several years followed by a rise, so that in 1907 an average of 20.004 cents was attained. Again there was a reaction broken by one increase in 1912, with a decline in 1914, the year of the War. From that point copper ap-

preciated until in December, 1916, a maximum of 31.89 cents was attained, a price never realized subsequently, although in 1929, copper did reach, in March, 21.257 cents. From this point in 1929 and 1930 the decline was rapid and the values during 1931 were as stated, with a minimum of 6.025 cents in the last week of November.

The smelter production of copper from domestic ores in 1931, as estimated by the Bureau of Mines, was 1,049,000,000 pounds, compared with 1,394,000,000 pounds in 1930. The 1931 production was 25 per cent lower than that of 1930, and was the smallest production recorded since 1922. The production of new refined copper from domestic sources, determined in the same manner as smelter production, was about 1,046,000,000 compared with 1,391,000,000 pounds in 1930. The output of new refined copper from domestic and foreign sources in 1931 amounted to about 1,504,000,000 pounds, compared with 2,157,000,000 pounds in 1930—a decrease of 653,000,000 pounds or 30 per cent. The production of secondary copper by primary refineries dropped from 280,500,000 pounds in 1930 to about 135,000,000 pounds in 1931. Thus the total primary and secondary output of copper by the refineries in 1931 was 33 per cent below the preceding year—a production of about 1,639,000,000 pounds being reported for 1931 as compared with 2,437,500,000 pounds in 1930.

The imports of unmanufactured copper into the United States during the calendar year 1931, amounted to 585,892,098 pounds or a monthly rate of 49,000,000 pounds. This compared with total imports of 817,154,236 pounds for the year 1930 or a monthly rate of 68,000,000 pounds. The total imports for 1931 showed a decrease of approximately 231,000,000 pounds for the year, or a drop of about 29.5 per cent. The exports of copper from the United States in 1931 totaled 557,873,744 pounds valued at \$54,747,810 as against 733,294,022 pounds valued at \$105,342,050 in 1930. The copper exports of 1931 included refined copper in ingots, bars, or other forms, 405,396,132 pounds valued at \$38,098,529; old and scrap, 66,551,996 pounds valued at \$5,438,358; rods, 58,872,186 pounds valued at \$6,182,446; and wire, 6,851,949 pounds valued at \$859,879.

Refineries reported that at the end of 1931 approximately 905,000,000 pounds of refined copper were in stock, a 47 per cent increase over the reserve of 615,000,000 pounds at the end of 1930. It was estimated that stocks of blister copper at the smelters, in transit to refineries, and at refineries, and materials in process of refining, were about 312,000,000 pounds on December 31, compared with 450,000,000 pounds at the end of 1930, a decrease of 138,000,000 pounds or 31 per cent. Total smelter and refinery stocks at the end of 1931 were 1,217,000,000 pounds, representing an increase of 152,000,000 pounds, or 14 per cent, over stocks at the end of 1930, and were 93,000,000 pounds higher than the various record stocks of 1920. The quantity of new refined copper withdrawn on domestic account during the year was about 909,000,000 pounds, compared with 1,265,000,000 pounds in 1930, a decrease of 356,000,000 pounds or 28 per cent. The method of calculating domestic withdrawals is shown in the accompanying tabulation.

In the Dominion of Canada copper production in 1931 was estimated at 200,581,122 pounds, valued at \$23,772,000, a decrease of 4 per cent in

**NEW REFINED COPPER WITHDRAWN FROM  
TOTAL YEAR'S SUPPLY ON DOMESTIC  
ACCOUNT, 1930-1931, IN POUNDS**  
[U. S. Bureau of Mines estimates]

	1930	1931
Refinery production of new copper from domestic sources .....	1,391,000,000	1,046,000,000
Refinery production of new copper from foreign sources .....	766,000,000	458,000,000
Imports of refined copper (December, 1931, estimated) .....	86,000,000	165,000,000
Stocks of new refined copper on January 1 .....	306,000,000	615,000,000
<b>Total .....</b>	<b>2,549,000,000</b>	<b>2,284,000,000</b>
Exports of refined copper (ingots, bars, rods, or other forms) (December, 1931, estimated) ..	669,000,000	470,000,000
Stocks December 31 .....	615,000,000	905,000,000
<b>Total .....</b>	<b>1,284,000,000</b>	<b>1,375,000,000</b>
<b>Total withdrawn on domestic account ..</b>	<b>1,265,000,000</b>	<b>909,000,000</b>

quantity from the previous year, but because of the lower prices the total value of the output was less by 37 per cent. Corresponding estimates for 1930 were 303,350,644 pounds valued at \$37,990,226. See METALLURGY.

**COPYRIGHT.** Registrations for the fiscal year 1930-31, according to the report of the U. S. Register of Copyrights, numbered 164,642, as compared with 172,792 for the preceding year. Of these, 59,553 were classed as books, but included pamphlets, leaflets, and contributions to periodicals, those printed in the United States numbering 54,016, those printed abroad in a foreign language, 4339, while the remainder, 1198, were English books registered for *ad interim* copyright. The chief classes of the remaining registrations, in the order of numerical importance, were: Periodicals, 42,415 numbers; musical compositions, 31,488; prints and pictorial illustrations, 5813; photographs, 3618; dramatic or dramatico-musical compositions, 5784; works of art, including models or designs, 2551; maps, 2940; drawings or plastic works of a scientific or technical character, 1993; motion-picture photoplays, 940; and motion pictures not photoplays, 986. The renewals numbered 5998, as compared with 5937 in the preceding year. The fees applied during the year amounted to \$309,414. The total number of articles deposited during the fiscal year ended June 30, 1931, was 262,690.

The gross receipts of the Register's office for the fiscal year were \$312,865; the total expenditure for salaries, \$233,133, and for supplies, \$1444. The year's business was not quite so large as that of the previous year, due no doubt to the general depression affecting all lines of business. No new copyright proclamations were issued extending to nationals of other countries the privilege of securing copyright in the United States in exchange for a like privilege accorded to American authors by those countries.

**CORN.** As reported by the International Institute of Agriculture the estimated yields of corn in 1931 of 19 countries amounted to 3,327,041,000 bushels as compared with 2,733,191,000 bushels in 1930. The production of the southern hemisphere and of the Soviet Republics was not included in these estimates. The yield of the 19 countries reporting was 21.7 per cent above the

yield of the preceding year and 1.4 per cent below the annual average of the five years 1925-29. The area devoted to corn in these countries in 1931 was reported as 136,452,000 acres which was 4 per cent above that of 1931 and 5.9 per cent above the average annual area of the five-year period. The production of the leading corn producing countries in 1931 not including the United States was estimated as follows: Rumania 236,211,000 bushels, Yugoslavia 126,688,000 bushels, Italy 72,578,000 bushels (not including the early and quick ripening crop known as "cinquantino"), Manchuria 67,418,000 bushels, Hungary 57,605,000 bushels, Bulgaria 39,256,000 bushels, and Spain 23,428,000 bushels. The average annual yield of the Soviet Republics for the five years 1925-29 was estimated at 141,275,000 bushels produced on 8,386,000 acres and the area planted in 1931 was reported as 9,742,000 acres, or about 16 per cent above the five-year average. Data on the production in Argentina, other than on the crop of 1929-30 estimated at 249,156,000 bushels, were not available. The production of Canada in 1931 was reported as 5,643,000 bushels on 139,000 acres, the crop being 3.1 per cent below the yield of 1930 and 14.7 per cent below the five-year average and the corresponding reductions in acreage, 13.7 per cent and 20.2 per cent.

As reported by the Department of Agriculture the 1931 corn crop in the United States of 2,556,863,000 bushels was 24 per cent larger than the very short crop of 2,060,000,000 bushels in 1930 and 1 per cent larger than the 1929 crop of 2,535,000,000 bushels. The acreage of 104,970,000 was 4.2 per cent above that of 1930 and 7.3 per cent above that of 1929. The estimates of production included the acreage utilized for husking, silage, fodder or hogging down, the yield being expressed in equivalent bushels of ear corn. The average yield per acre in 1931 was 24.4 bushels or 4 bushels above the acre yield in 1930 and 1.5 bushels below this yield in 1929. The yields per acre in 1931 were materially higher in 1931 than in 1930 in the drouth area of that year but lower in the Western States. The acre yields were also higher in 1931 than in 1929 east of the Rocky Mountains except in the important corn States of Iowa, Nebraska, South Dakota, Minnesota, and Wisconsin where hot and dry weather and in some parts grasshopper damage reduced the crop. The value of the crop on the basis of the average farm price on December 1, 36 cents per bushel, the lowest since 1900, was \$920,142,000, also the lowest total value since 1900. The total yearly value of the corn crop on this same basis had stood continuously above one billion dollars from 1904 to 1930 inclusive.

The yields of the leading corn-growing States including all methods of harvesting were reported as follows: Iowa 389,940,000 bushels, Illinois 339,845,000 bushels, Nebraska 172,346,000 bushels, Missouri 170,000,000, Indiana 168,535,000 bushels and Ohio 160,920,000 bushels. In average yield per acre of the areas harvested for grain these States ranged from 45.5 bushels for Ohio to 17 bushels for Nebraska. The range for all States on the same basis was from 49.5 bushels for Pennsylvania to 8.2 bushels for South Dakota. The following States reported the largest areas devoted to the crop: Iowa 11,640,000 acres, Nebraska 10,138,000 acres, Illinois 9,185,000 acres, Kansas 6,505,000 acres, Missouri 6,184,000 acres, and Texas a total of 5,236,000 acres.

The production of corn for silage reported in terms of bushels of ear corn was 32,860,000 bushels in 1931, 29,899,000 bushels in 1930 and 29,342,000 bushels in 1929. As a rule the acreage cut for silage increases in years of low yields and decreases in years of high yields. The yield per acre of silage was 7.34 tons in 1931, 6.3 tons in 1930 and 7.3 tons in 1929. Wisconsin, a leading dairy State, cut the largest area, 1,095,000 acres, for silage in 1931. Minnesota, ranking next, cut 528,000 acres, New York 346,000 acres, Iowa 328,000 acres and Pennsylvania 317,000 acres. The corn cut for silage ranged in average yield of ear corn per acre from 11.3 bushels in Vermont to 2.4 bushels in South Dakota. The average yield per acre for all States was 7.34 bushels. The acreage cut for fodder, hogged down or grazed was 11,626,000 acres in 1931, 11,453,000 acres in 1930, and 10,589,000 acres in 1929. For these years the largest areas were harvested in this way in South Dakota, Iowa, and Minnesota and in 1931 the acreage so harvested were 2,340,000, 1,351,000, and 1,252,000 acres respectively.

A study by the U. S. Department of Agriculture indicated that the cost of producing the 1930 corn crop on 3616 farms was 89 cents per bushel. Although the acre costs were generally lower in 1930 than in 1929 the cost per bushel, owing to the low yields of the year, was 16 cents higher. The stocks of corn held on farms as of November 1, 1931, was reported as 92,837,000 bushels, the largest since 1928. The corn exports of the United States for the fiscal year ended June 30, 1931, amounted to 2,529,000 bushels as compared with 9,354,000 bushels in 1930. In addition to the grain 197,000 barrels of corn meal, 3,255,000 pounds of corn breakfast food, 8,259,000 pounds of hominy and grits and 915,000 pounds of corn oil were exported during the same period. The eighth National Corn Husking Contest was held Nov. 13, 1931, near Grundy Center, Iowa, and Orville Welch of Illinois won the national title by husking 31.38 bushels in 80 minutes.

**CORN BORER.** See ENTOMOLOGY, ECONOMIC.  
**CORNELL UNIVERSITY.** A nonsectarian institution for the higher education of men and women in Ithaca, N. Y., founded in 1865. There were 6136 students enrolled in the autumn session of 1931, distributed as follows: Graduate school, 955; law school, 154; medical college, the main division of which is in New York City, 239; arts and sciences, 1963; architecture, landscape architecture, and fine arts, 170; engineering, 1034; veterinary medicine, 194; agriculture, 881; and home economics, 594, including 189 enrolled in a four-year course in hotel administration. Of these students 1390 were women. The registration for the 1931 summer session was 2440. The faculty, composed of 1250 members, had 320 professors, 222 assistant professors, 16 lecturers, 385 instructors, and 307 assistants.

The board of trustees created the office of provost of the university to relieve the burden on the president's office and promoted to the new office Albert R. Mann, dean of the State colleges of agriculture and home economics, appointing Cornelius Betten acting dean of those colleges. Additions to the staff of professors included George H. Sabine in philosophy, Edwin Nungezer in English, John H. Parker in plant breeding, and William C. Ruediger in education. The faculty lost by death John H. Comstock, professor of entomology, emeritus; Irving P.

Church, professor of applied mechanics and hydraulics, emeritus; Whitman H. Jordan, professor of animal nutrition, emeritus; Lucius L. Van Slyke, professor of dairy chemistry, emeritus; George T. Elliot, professor of clinical medicine, department of dermatology, emeritus; Herbert J. Davenport, professor of economics, emeritus; Veranus A. Moore, professor of veterinary pathology, emeritus; Pierre A. Fish, professor of veterinary physiology and dean of the veterinary college; Harold E. Santee, professor of clinical surgery; and David F. Hoy, registrar; and, by retirement, Charles H. Hull, professor of American history, and Walter F. Willcox, professor of economics and statistics. Visiting lecturers in chemistry on the George Fisher Baker foundation were Prof. N. V. Sidgwick of Oxford University and Prof. Cecil H. Desch of the University of Sheffield.

Announcement was made in October that Dr. Jacob Papish of the department of chemistry had extracted from the mineral samarskite a chemical element which he had identified as No. 87, one of the two heretofore unknown elements of the periodic system. The university dedicated its War Memorial, a group consisting of twin towers and a connecting cloister incorporated in the men's dormitory system, and virtually completed Myron Taylor Hall, to house the law school and its library. New York State laid the foundations of two large buildings on the campus, one for the college of home economics and the other for the department of farm management in the college of agriculture. Construction was far advanced on the medical centre, to be occupied jointly by the New York Hospital and the Cornell Medical College in New York City Sept. 1, 1932. There was also under construction at the close of the year another men's dormitory, Mennen Hall, the \$100,000 gift of William G. Mennen and his sister, Mrs. Elma Mennen Williams.

The productive funds of the university on June 31, 1931, were \$24,020,872. The income applicable to current expenses of the fiscal year 1930-31 was approximately \$8,000,000, including \$2,986,222 of State and \$438,596 of Federal appropriations. Gifts amounting to \$1,333,032 were received during the fiscal year. The lands and buildings were valued at \$10,800,000, and the equipment at \$4,700,000. The library contained 830,000 volumes. President, Livingston Farrand, M.D., L.H.D., LL.D. See AGRICULTURAL EXPERIMENT STATIONS.

**CORNWALLIS, SURRENDER OF.** See CELEBRATIONS.

**CORSICA.** An island in the Mediterranean, situated about 100 miles southeast of the French coast at Nice, constituting a department of France. With an area of 3367 square miles, it had a population of 289,890 in 1926. In November, 1931, the French Government sent a force of 1500 soldiers and special police to the island to wipe out banditry, which had long flourished in the wild and mountainous interior.

**COSACH (CHILEAN NITRATE COMPANY).** See CHILE under *Production and History*.

**COSMIC RAYS.** See PHYSICS.

**COSMOLOGY.** See ASTRONOMY.

**COSTA RICA,** *kos'ta rêkă.* A republic of Central America lying between Nicaragua and Panama, and bounded by the Caribbean Sea on the east and the Pacific Ocean on the West. The city of San José, located inland on the central plateau, is the capital of the republic.

**AREA AND POPULATION.** The area is estimated at 23,000 square miles. The population was 741,524 at the 1927 census, as compared with 243,205 at the census of 1892. The estimated population in 1930 was 516,000. Births in 1929 numbered 22,662, deaths 11,829, marriages 3098; the excess of immigration over emigration was about 500. Estimated populations of the chief cities in 1929 were: San José, 52,555; Alajuela, 8866; Heredia, 7900; Puntarenas, 7854; Limón, 7757; and Cartago, 7313. Roman Catholicism is the state religion but religious liberty is guaranteed by the Constitution. About 75 per cent of the population is of European descent, 10 per cent mestizo, 10 per cent Negro, and 5 per cent Indian.

**EDUCATION.** Elementary education is free and compulsory. Registration in the schools in 1929 was divided as follows: Public primary schools, 46,527; private schools, 3481; secondary schools, 2106. There were 478 public elementary schools, with 46,675 pupils, in 1930.

**PRODUCTION.** Costa Rica is primarily an agricultural country, with coffee and bananas, the chief commercial crops, accounting for about nine-tenths of the export trade. Large areas not yet cleared for cultivation contain cedar, balsa wood, and large and virtually untouched stands of cabinet woods. The area under cultivation in 1929 totaled 1,155,000 acres, of which 127,728 acres were planted to coffee, and 92,133 acres to bananas. The other leading crops, ranking according to the area planted, were corn, cacao, sugar cane, beans, rice, potatoes, tobacco, and manioc.

Since Costa Rican prosperity hinges directly upon the price received for the coffee crop, the collapse of coffee prices in 1930 and 1931, together with the lower prices received for bananas, cacao, and other exports, placed the country in a precarious financial situation by the end of 1931. The coffee crop for the 1930-31 season totaled 52,525,650 pounds, or 5 per cent less than the 1929-30 crop. Banana production in 1930 was 5,418,416 stems; cacao (exports), 11,908 metric tons. Both banana and cacao shipments declined in 1931 as compared with 1930. Gold and silver mining is important on the Pacific slope. In 1929, there were 6532 small factories and industries.

**COMMERCE.** Exports in 1930 totaled \$16,330,604, as against \$18,198,000 in 1929, a decline of 10 per cent. Imports, on the other hand, fell to \$10,846,590 from \$20,166,666 in 1929, a decrease of about 46 per cent. The trade balance was thus favorable by \$5,484,014, as compared with an unfavorable balance of \$1,968,666 in 1929. Coffee accounted for about two-thirds of the 1930 exports. Of the 1930 imports, the United States supplied nearly 50 per cent, Germany 12.28 per cent, Great Britain 12.13 per cent, and other countries 25.8 per cent. Purchases from the United States were valued at \$4,554,000 (\$8,261,000 in 1929) and exports to that country were \$4,812,722 (\$5,202,597 in 1929). Coffee, bananas, cacao, hides and skins, pineapples, and timber were the principal exports. In the five-year period 1926-30, Costa Rican exports were valued at an average of 72,947,894 colones (the colon was stabilized at \$0.25) annually, compared with an annual average of 39,819,894 colones for the period 1911-15 and with 20,245,849 colones for the period 1891-95.

**FINANCE.** Ordinary revenues in 1930 totaled 27,468,499 colones, or 3,750,000 colones less than budget estimates and nearly 8,000,000 colones less

than in 1920. Expenditures amounted to 32,513,819 colones—a figure believed not to include amortization of the public debt—which was 5,045,320 colones in excess of revenues. Of the total expenditures, the President stated in his annual message that 5,385,427 colones represented extraordinary expenditures for roads, schools, and water mains. The 1931 budget, as signed by the President, Apr. 1, 1931, estimated revenues at 26,906,000 colones and expenditures at 24,078,084 colones. The preliminary budget for 1932, as submitted to Congress, balanced at 28,290,000 colones, of which between 9,000,000 and 11,000,000 colones represented required interest and amortization payments on the public debt. Foreseeing a possible deficit of 11,000,000 by the end of 1931, the Government on Aug. 6, 1931, imposed a 10 per cent emergency customs surtax on all except food imports. By another emergency measure, Congress authorized the payment of November and December (1931) salaries of Government employees on a basis of 60 per cent cash and 40 per cent in notes of the Government.

The public debt at the end of 1930 totaled 94,094,752 colones, of which 25,753,562 colones represented the internal and 68,341,190 colones the external debt. A year earlier the total stood at 87,770,536 colones. Congress in April authorized the flotation of a new loan of 10,000,000 colones (\$2,500,000) to convert the internal floating debt, but the Government was unable to obtain the money on the terms provided for. An American bank in 1931 accepted short-term notes in payment of \$700,000 which the Costa Rican Government owed it as the balance of a \$1,000,000 loan obtained in September, 1930.

**COMMUNICATIONS.** In 1930 there were 413 miles of railway line, of which 81 miles (the Pacific Railway) were government owned. There were about 161 miles of motor highways. A reconnaissance survey of a section of the proposed Pan American Highway from Cartago to Canas Gordas on the Panama frontier was made during 1931 under the direction of an American engineer. Air-mail service between San José and Puntarenas was established in 1930; at Puntarenas connection is made with the Pan American Air lines. In 1929, 630 ships of 1,290,844 tons entered the ports and 628 ships of 1,293,799 tons cleared.

**GOVERNMENT.** The executive power is vested in the President who is elected for four years and legislative power in a chamber of representatives, called the Constitutional Congress, with 43 deputies, elected for four years, one-half retiring every two years. Voting for President, deputies, and municipal officers is secret, direct, and free. President in 1931, Don Cleto Gonzalez Viquez, who was elected on Feb. 12, 1928, for the term 1928-32. The Nationalist Union (government party) following the election of February, 1930, controlled 29 of the 43 seats in Congress.

**HISTORY.** Increased political activity in preparation for the Presidential election scheduled for Feb. 14, 1932, became evident early in 1931. The leading candidate to emerge was Ricardo Jimenez, twice President of the Republic. His opponents sought to present a coalition candidate, but Dr. Leon Cortes, former Minister of Public Works and Agriculture, and Dr. Ricardo Moreno Canas, who had also announced their candidacies, both refused to withdraw. The return to San José early in June of Manuel Castro Quesada, Minister to Washington, to participate in the campaign resulted in the resignation of the Cabinet,

June 14. The collapse of the Cabinet followed Señor Quesada's refusal to resign his Washington post while participating in the campaign. President González Viquez accepted four of the resignations offered him and filled three of the vacancies, but the Finance portfolio was still vacant at the end of June. On December 14, it was announced that members of both the National Army and of the Communist party would be barred from voting in the Presidential election.

The financial and economic condition of the country remained the Administration's chief problem. Besides the steps to balance the budget listed under *Finance*, Congress on May 29, 1931, authorized the President to establish a monopoly on the importation and sale of gasoline. Government monopolies on insurance and alcohol had been previously established. A decree of August 20 established a national financial and economic council to advise Congress on proposed legislation. Another law signed by the President in December established the first income tax in the history of the country. A prominent political figure passed from the scene with the death at San José, Jan. 28, 1931, of Bernardo Soto Alfaro, President of the Republic from 1885 to 1900.

Strong opposition to the political and economic activities of United States citizens affecting Costa Rica was reported from San José during 1931. In connection with the survey by American engineers of a proposed Pan American Highway through Costa Rica, the San José papers were reported as lukewarm or hostile to the project on the ground that it would result in further control of Central American affairs by the United States Government. The *New York Times* correspondent in Panama on September 8 reported a wave of extreme nationalism in Costa Rica, taking the form of anti-foreign and particularly of anti-American propaganda. See PANAMA.

**COTTON.** The Crop Reporting Board of the U. S. Department of Agriculture estimated on Dec. 8, 1931, that the cotton crop of the United States for 1931 would amount to 16,918,000 bales of 500 pounds, compared with 13,932,000 in 1930, and 15,268,000 bales, the 1925-1929 average ginnings. The estimated crop was the second largest produced, the record being 17,977,000 bales in 1926. The yield of lint per acre was estimated to average 200.1 pounds as compared with 147.7 pounds in 1930, and 154.4 pounds, the average for the period 1920-1929. Of 40,954,000 acres in cultivation July 1, 1.1 per cent were abandoned and 40,495,000 left for harvest. The farm value of the lint was estimated at \$485,611,000 and of the 7,523,000 tons of cottonseed \$78,581,000 or a total of \$564,192,000 for the crop.

The world carry-over of American cotton on Aug. 1, 1931, was the largest since 1921, amounting to 8,768,000 running bales compared with 6,377,000 bales in 1930 and 4,564,000 in 1929. There were 2,481,000 bales of Indian cotton, 914,000 of Egyptian, and 1,176,000 bales of sundries, totaling 13,339,000 or 18.7 per cent over 1930. The New York Cotton Exchange estimated the carry-over of all cotton at 13,948,000 bales and production in 1931 at 27,000,000 bales. H. G. Hester of the New Orleans Cotton Exchange estimated the carry-over of American cotton at 9,130,000 bales. The supply for the 1931-32 season, according to the U. S. Department of Agriculture, was well above the previous record sup-

ply of 1926-27 and more than twice as large as the world's consumption of American cotton in 1930-31.

The areas planted to cotton in 1931 in important cotton growing countries amounted to 73,869,000 acres or about 5.4 per cent less than in 1930. Production in 1931 in the countries (reporting) was estimated to be for the United States 16,918,000 bales; U. S. S. R. (Russia), 2,000,000; China, 1,800,000; Egypt, 1,280,000; Brazil, 600,000; Mexico, 211,000; and Chosen (Korea), 136,000 bales.

The world's production of commercial cotton in 1930 was estimated by the U. S. Bureau of the Census to be 25,304,000 bales, of which the United States produced 13,756,000 (running) bales; India, 4,800,000; U. S. S. R. (Russia), 1,550,000; Egypt, 1,661,000; China, 1,590,000; Brazil, 493,000; Peru, 240,000; Mexico, 169,000; and all other countries 1,045,000 bales. The International Institute of Agriculture reported the 1930 crops of the principal cotton-growing countries to be, for the United States, 13,932,000 bales; India, 4,033,000; Egypt, 1,675,000; U. S. S. R. (Russia), 1,549,000; Mexico, 178,000; Chosen, 152,000, and Uganda, 156,000. Anglo-Egyptian Sudan produced 106,000 bales from 387,000 acres.

The cotton crop of the United States for 1930, as reported by the Bureau of the Census, the estimated crop for 1931, and the quantity reported ginned to Dec. 13, 1931, are shown in the accompanying table.

UNITED STATES COTTON CROP, 1930-31

States	Crop, 1930 500-lb. bales	Estimated crop, 1931 500-lb. bales	Reported ginned Dec. 13, 1931 Running bales
United States . . .	13,931,597	16,918,000	15,358,405
Alabama . . . . .	1,473,287	1,430,000	1,374,133
Arizona . . . . .	155,409	119,000	62,769
Arkansas . . . . .	874,355	1,855,000	1,521,986
California . . . . .	263,766	181,000	144,258
Florida . . . . .	50,306	43,000	43,086
Georgia . . . . .	1,592,539	1,995,000	1,864,828
Louisiana . . . . .	714,529	865,000	830,577
Mississippi . . . . .	1,464,311	1,725,000	1,553,307
Missouri . . . . .	150,955	270,000	212,566
New Mexico . . . . .	98,462	98,000	70,450
North Carolina . . . . .	774,734	775,000	750,271
Oklahoma . . . . .	853,584	1,220,000	1,108,036
South Carolina . . . . .	1,000,892	1,015,000	988,279
Tennessee . . . . .	376,912	605,000	520,752
Texas . . . . .	4,039,136	5,270,000	4,764,386
Virginia . . . . .	41,952	43,000	40,845
All others . . . . .	6,467	9,000	8,076

The table includes for 1931, under the ginning report, 535,337 round bales counted as half bales and also 7925 bales of American-Egyptian cotton, practically all grown in Arizona. The 1931 crop of Arizona was estimated to include 15,000 bales of American-Egyptian cotton. The crop of Lower California, usually marketed through California, was estimated at 28,000 bales, not included in the totals.

Oil mills in the United States, during the cotton year ended July 31, 1931, crushed 4,715,148 tons of cottonseed. The products of the seed included 823,944 bales of lint, 1,303,504 tons of hulls, 2,164,820 tons of cake and meal, and 1,441,881,530 pounds of oil.

Exports of cotton and lint for the year ended July 31, 1931, amounted to 6,759,927 bales of cotton and 111,969 bales of lint or a total of 6,871,896. Mills in the United States consumed

in this period 5,262,974 bales, versus 6,105,840 in the previous year. The principal exports were to Germany, 1,639,947; United Kingdom, 1,053,774; France, 914,223; Italy, 476,508; other European countries, 708,999; and Japan, 1,228,410 bales. During the same period there were imported from Egypt, 22,902 bales; Peru, 2373; China, 31,177; Mexico, 15,126; British India, 34,218; and from other countries, 1733 bales.

Most of the cotton used by American mills was consumed in the cotton-growing States, 4,155,148 bales versus 936,678 in New England, and 179,122 in other States. Of 32,326,526 spindles in place Dec. 31, 1931, 24,637,864 were active during December, of which 16,855,940 were located in cotton States, 6,791,252 in New England, and 990,672 in other States. The number of active spindle hours averaged in cotton States 240, in New England 100, and elsewhere 127, and the percentage of idle spindles was highest in New England.

The world's consumption of cotton (exclusive of linters in the United States) for the year ended July 31, 1931, according to the U. S. Bureau of the Census, was about 22,402,000 bales. The International Federation of Master Cotton Spinners' and Manufacturers' Associations reported it to be 22,483,000 bales compared with 25,209,000 in the previous year. Compared with 1929-30, mill consumption in 1930-31 of American cotton showed a decline in all countries of 2,100,000 bales or 16.2 per cent; Indian cotton, 3.7 per cent; Egyptian, 9.1 per cent; and sundries, 5.8 per cent. The total of all cotton consumed was less in all important countries except China and India with the greatest declines in Italy, Great Britain, and Germany. The relative gain in consumption of foreign cotton during recent years, as viewed by the U. S. Department of Agriculture, reflects the severe competition that these cottons have offered in world markets, the greater severity of depression in countries that consume American cotton mostly, and to some extent, a turning of mills to cheaper cottons in order to meet price competition at the expense of quality.

Middling  $\frac{7}{8}$ -inch cotton at the 10 spot markets averaged 9.61 cents per pound during the year ended July 31, 1931, compared with 15.79 cents in 1929-30, and 18.67 cents in 1928-29. For August, 1931, the price averaged 6.57 cents, September 5.83, October 5.75, November 5.95, closing on December 31, at 6.50 New York, 6.31 New Orleans, and 6.35 at Galveston. The average price being paid to producers on Dec. 1, 1931, was 5.7 cents per pound for lint and \$10.45 per ton for cottonseed, compared with 9.5 cents and \$21.61 respectively, on Dec. 1, 1930.

Severe declines in cotton prices in the last two years resulted from greatly reduced demand and large supplies of cotton, and more general conditions causing a depression of international commodity price levels. The world business depression and falling consumer incomes reduced both the price of cotton and the quantities consumed. The world production of cotton was not reduced in line with the declining consumption and large stocks accumulated. Reduction of cotton acreage in the United States in 1931 did not suffice to strengthen the market nor did reduced expenditures make the crop profitable. Hundreds of proposed cotton surplus relief plans, advocated after the August 1 cotton forecast disclosed a bumper crop which would add to existing large



supplies, were not satisfactory. The drastic measure of destroying one-third of the current crop was rejected in the cotton-growing States. In several Southern States, legislative proposals were made to reduce acreage sharply in 1932. The Federal Farm Board and southern bankers in October, 1931, approved a plan to hold about 7,000,000 bales of cotton off the market until July 31, 1932 in an effort to prevent further shrinkage of price during the current season.

Recommending the adjustment of cotton production to market requirements, Secretary of Agriculture Hyde stated that there was no question of withdrawing from the foreign market. American growers could compete with foreign producers, and cotton was generally more profitable or less unprofitable than other crops that could be grown in the South. The United States had demonstrated its ability to hold its place in spite of the boll weevil, and in the face of increasing foreign competition. The immediate need, he indicated, was more attention to means of reducing production costs and improving the quality of the crop, while at the same time its volume should be adjusted more nearly in harmony with the world's demand. Land that cannot grow cotton profitably under average conditions should be eliminated from cotton growing. Efforts should be continued to improve the staple and the spinning qualities of cotton.

The cotton crop season of 1931 was described by the U. S. Department of Agriculture as extraordinarily favorable for cotton production. Conditions during the growing season were good, few fields were abandoned due to lack of or excess of moisture, and because of the scarcity of cash, abundance of labor and unusually favorable weather during the harvest period, very little cotton was left in the fields. Planting conditions generally were favorable and spring weather held back the boll weevil. The condition on August 1 approximated 75 per cent of normal and weevil infestation was much below average. Growing conditions during August in general were favorable except in the Delta sections of Arkansas and Mississippi, where excessive stalk growth was accompanied by poor fruiting and greater weevil infestation, yet abandonment was reported as less than average. September proved exceptionally favorable, particularly in Arkansas and Mississippi; hot dry weather kept down weevil damage and hastened maturity of the cotton. Weather in October was also much more favorable than usual; the high temperatures aided opening of the bolls, there was a general absence of injurious rains, picking went on with little interruption, and field loss was held to a minimum. November was about average in its influence upon cotton picking. The weather continued favorable early in the month but was not so good in the latter part of November.

The pink bollworm, established only in rather small areas in southwestern United States, still constituted a serious threat. Eradication was undertaken where practicable and efforts were made in infested areas to prevent its spread to the main cotton-growing regions, where no infestation has been discovered. The non-cotton zones created in the Salt River Valley of Arizona to eradicate the worm were not the success hoped for, infestation being found over much wider areas. In 1931, these zones were replaced by State regulation of planting dates and cultural methods in certain areas to reduce the

population of pink bollworms to a point where eradication may again be undertaken. Gin trash machines showed this pest to be present in all of the older areas of infestation from Midland County, Texas, to eastern Arizona, except in the Duncan Valley. Outside the regulated areas, the machines were operated in California, Arizona, Texas, and New Mexico, with negative results. The initial infestation of the boll weevil in 1931 was comparatively small, and hot dry weather at intervals in spring and summer resulted in less than average damage although greater than in 1930. Control agencies gave the usual attention to the boll weevil, *Thurberia weevil*, bollworm, cotton leaf perforator, and cotton flea hopper. See ENTOMOLOGY, ECONOMIC.

Cotton of the 1931 crop ginned prior to Dec. 1, 1931, was higher in grade and longer in staple than ginnings before Dec. 1, 1930, according to a report based on the 15,016,820 bales of American upland cotton reported by the Census Bureau as ginned prior to that date. Estimates were that 92 per cent was white in color, 78.5 per cent was white, middling and better, and 5.7 per cent cotton other than white and extra white. In staple length, 5.6 per cent was estimated to be shorter than  $\frac{7}{8}$  inch; 82.9 per cent,  $\frac{7}{8}$  to  $1\frac{1}{32}$  inches, inclusive, and 11.5 per cent,  $1\frac{1}{16}$  inches and longer. Of a total of 14,016,700 bales, or 93.3 per cent tenderable, 12,293,800 bales, ranged in staple from  $\frac{7}{8}$  to  $1\frac{1}{32}$  inches, inclusive, and 1,722,900 bales stapled over  $1\frac{1}{32}$  inches.

The International Universal Cotton Standards Conference held its fourth biennial session in Washington in May, 1931, and approved copies of the universal standards for American cotton for use of the U. S. Department of Agriculture and European organizations during the two-year period beginning August 1, 1931.

The International Cotton Congress, held in Paris, June 23-25, 1931, centred its deliberations around the causes of the depression in the world's cotton industry and the suggested remedies. Other subjects dealt with were the market situation, the sale of cotton, the factors affecting price trends, and mass production in the United States. The next congress was planned to be held in 1933 at Prague.

The cotton crops in 1929-1930 in the principal producing countries in the British Empire, excluding India, were estimated to be for Anglo-Egyptian Sudan, 139,000 bales; Uganda, 100,000; Nigeria, 36,492; Tanganyika, 23,251; Union of South Africa, 13,485; Australia, 11,000; West Indies, 4000; Iraq, 3851; Nyasaland, 5098; and Cyprus, 2946. In India, 4,191,000 bales were reported for 1930-1931, and 3,910,000 for 1929-1930, and the total area planted in 1930-1931 was estimated to be 20,500,000 acres. The crop expected from the acreage planted to December 1, was forecast at 3,428,000 bales.

The production estimated for 1929-1930 in other political divisions of the world, besides the major cotton countries, was for Argentina, 150,000 bales; Paraguay, 18,000; Colombia, 4000; Spain, 3000; Algeria, 8000; Dahomey, 8025; French Sudan, 12,822; Italian Somaliland, 5083; Mozambique, 7192; Syria and Lebanon, 14,000; French Indo-China, 4654; and Dutch East Indies, 4061 bales.

Egypt produced in 1930-31 a crop estimated at 1,661,000 bales, compared with 1,768,000 in 1929-30. Of about 1,637,000 bales of the 1930-31 crop, reported by the International Institute of

Agriculture as ginned by July 1, 1931, around 400,000 bales or 24 per cent was Sakellarides. The 1931-32 crop was estimated at 1,286,000 bales, with 37 per cent less of Sakellarides and 18 per cent less of other varieties produced than in the previous year. The Egyptian Government appropriated funds which were to be used for an extensive campaign for the promotion of the sale of Egyptian cotton.

Russia, according to late estimates, produced about 2,000,000 bales in 1931 as compared with 1,550,000 in 1930. The area was reported at 5,824,000 acres compared with 3,870,000 in 1930, an increase of 50.5 per cent. Up to December 1, 58 per cent of the raw cotton procuring plan was procured compared with 62 per cent in 1930, although the actual quantity was reported as about 22 per cent above 1930. These conditions were variously attributed to poor organization, reduced yields due to poor field work, overestimation of the crop, etc. The new cotton producing regions in 1931 constituted about 18 per cent of the total area in cotton.

**BIBLIOGRAPHY.** Consult also *Cotton Literature*, and *World Cotton Prospects* (both U. S. Department of Agriculture); *New York Cotton Exchange—Cotton Yearbook, 1931*; E. S. Moulton, *Cotton Production and Distribution in the Gulf Southwest* (Washington, 1931); J. A. Todd, *The World's Cotton Position—An Annual Review* (New York, 1931); *Cotton Yearbook, 1931*, (Manchester, England, 1931); *Indian Cotton Facts* (Bombay, 1931); *Official Report of the XV International Cotton Congress Held in Paris* (International Cotton Bulletin, vol. ix, no. 36, 1931, pp. 480-654, 735-752); *Empire Cotton Growing Review* (London); *Coton et Culture Cotonnière* (Paris).

See also **AGRICULTURE**, especially under *Federal Farm Bureau*, *Cooperative Marketing*, and *Stabilizing Operations*; **EGYPT**, **AGRICULTURAL EXTENSION WORK**, **ENTOMOLOGY**, **ECONOMIC**, **TEXTILE INDUSTRY**; **UNITED STATES** under *Administration*.

**COTTON, JOSEPH POTTER.** An American lawyer, died in Baltimore, Md., Mar. 10, 1931. He was born in Newport, R. I., July 22, 1875, and was graduated from the Harvard University Law School in 1900. He practiced in New York City until 1929, being associated with Cravath, Henderson and de Gersdorff (1907-08), Spooner and Cotton (1910-19), McAdoo, Cotton and Franklin (1919-21), and Cotton and Franklin (1921-29). He was recognized as an authority on corporation law and participated actively in many important organizations, reorganizations, mergers, and receiverships. After 1915 he served as counsel to the New York State Commission on Workmen's Compensation, and was consulting counsel of the Federal Reserve Board and of the U. S. Shipping Board. He was chief of the meat division of the U. S. Food Administration in December 1917, and the following year was European representative of the Federal Food Administration. During the War he was also a member of the Inter-Allied Finance Council. In 1929 he was appointed by President Hoover Under-Secretary of State. He edited *Constitutional Decisions of John Marshall* (1906).

**COUNCIL-MANAGER PLAN.** See **MUNICIPAL GOVERNMENT**.

**COUNTRY LIFE.** See **AGRICULTURE**.

**COURT GAMES. RACQUETS.** For the tenth time since 1915 Clarence C. Pell, of New York,

won the national racquets championship in 1931. After losing to his doubles partner, Stanley G. Mortimer, of Tuxedo, in the final of the Gold Racquet tournament at Tuxedo Park, Pell exhibited some of the best play he had ever shown in the national and downed Mortimer in the final. Together these two veterans won the national doubles crown. Charles Williams, of Chicago, the world's professional racquets champion, was not called upon to defend the title he won in 1930.

**COURT TENNIS.** William C. Wright of Philadelphia, who had seen plenty of first-class court tennis play as the doubles partner of Jay Gould, was the sensation of the 1931 season, triumphing in the national tournament when Lord Aberdare of England, 1930 winner, did not defend his crown. Wright and Gould regained their doubles laurels when they defeated Edward M. Edwards and John C. Bell, Jr., of Philadelphia, in the final after the beaten pair had surprised by decisively downing the defending champions—George W. Wightman and Frank P. Frazier of Boston. Pierre Etchebaster of France, world's professional titleholder, did not receive any challenges of his supremacy during the year.

**SQUASH RACQUETS.** Both squash racquets and squash tennis benefited in 1931 by the adoption of a standard court that may be used for both games. It was possible for the adherents of both games to use the courts in clubs where their use was formerly limited to one game or the other, thus opening them to wider use and aiding the general economic spirit. J. Lawrence Pool, of the Harvard Club of New York City, was the individual star of the squash racquets season, regaining the national amateur title as well as winning the Metropolitan crown. In the national championship Pool dethroned Herbert N. Rawlins Jr., of the Racquet and Tennis Club. Beekman Pool, brother of the national champion, captured the first intercollegiate tournament ever held, at the University Club in New York and completed a successful year by winning the Gold Racquet at the Rockaway Hunting Club in December. Miss Ruth Hall of Philadelphia won the women's national title and the team title went to the same city, breaking the Boston grip on the laurels. New York, which had gained permanent possession of the Lockett Trophy in 1930 by its third victory in the team matches with Philadelphia and Boston, continued its success by gaining the first leg on the new trophy in 1931. Canada won the Lapham Trophy when the United States team, including few of the ranking players, bowed, 6 to 5, at Quebec.

In other divisions of the game, Harvard University won the national team championship, Neil R. Sullivan and Roy R. Coffin of the Germantown Cricket Club paired to win the Lockett Doubles Trophy, Jack Summers, coach at Massachusetts Institute of Technology captured the professional title, the Racquet and Tennis Club won the Class A Metropolitan team laurels and Class B team Metropolitan honors fell to the Harvard Club. F. Morgan Palmer of the Princeton Club gained the Class B Metropolitan individual championship.

**SQUASH TENNIS.** All three leaders in squash tennis successfully retained their titles in 1931. Harry F. Wolf, of the N. Y. Athletic Club, national champion, Dr. Harold R. Mixsell of the Princeton Club, perennial national veterans' champion, and Frank Ward of the City Athletic

Club, world's open champion and likewise national professional king. Ward was invincible, as he has been since the retirement of the former titleholder, Walter A. Kinsella, and turned back a spirited bid by the capable Rowland Dufton in the open final in February.

Wolf turned back his old rival, Rowland B. Haines of the Columbia University Club, in the final of the national amateur tournament, and Mixsell scored his sixth consecutive triumph in the veterans' play, defeating John C. Neely, also of the Princeton Club in the final. This veterans' tourney was inaugurated in 1926 when it was won by Charles M. Bull Jr., but Mixsell has won it every year since besides earning a national ranking in the first ten each season.

The New York Athletic Club team, led by Wolf, won the Metropolitan League Class A race, while Class B honors went to the Columbia University Club and the Crescent Athletic Club won Class C laurels. Frank R. Hanson of the Columbia Club broke through a fine field to win individual Class B. honors and the Class C championship went to Crosby Allison of the Crescent A. C.

**COURTS.** See CRIME; LAW, PROGRESS AND DEVELOPMENT.

**COURT TENNIS.** See COURT GAMES.

**COWLEY, SIR ARTHUR ERNEST.** A British scholar and librarian, died Oct. 12, 1931, in London. Born in 1861, he attended St. Paul's School and Trinity College, Oxford. After acting as assistant master at Sherborne School (1885-89) and Magdalen College School, Oxford (1890-95), he was appointed assistant sub-librarian of the Bodleian Library, Oxford. He was promoted to sub-librarian in 1900 and librarian in 1919, retiring in 1931. In 1912 he was Sandars reader in bibliography at Cambridge University. He was also a Fellow of Magdalen College, Oxford.

He is known chiefly for reviews and reference works on Hebrew language and literature and cognate topics and published: *The Original Hebrew of a Portion of Ecclesiasticus* (with A. Neubauer, 1897); *Gesenius' Hebrew Grammar* (trans. from the German, 1898); *Aramaic Papyri* (with A. H. Sayce, 1906); *Catalogue of Hebrew Manuscripts in the Bodleian Library* (vol. ii, 1906); *The Samaritan Liturgy* (2 vols., 1909); *Judith, in Charles' Apocrypha* (1914); *Jewish Documents of the Time of Ezra* (1919); *The Hittites* (Schweich lectures, 1920); *Aramaic Papyri of the Fifth Century B.C.* (1923); and *Catalogue of Hebrew Printed Books in the Bodleian Library* (1929).

**COWS.** See DAIRYING.

**CREAM.** See DAIRYING.

**CREDIT.** See BANKS AND BANKING; BUSINESS REVIEW; FINANCIAL REVIEW.

**CRETE.** Fourth in size among the islands of the Mediterranean and the site of an ancient civilization, Crete was ceded to Greece by Turkey, May 30, 1913. It lies 150 miles southeast of Greece. Area, 3326 square miles, population (census of 1928), 386,427. The capital, Canea, had 26,604 inhabitants (1928); Candia, the largest city, 33,404. Although two-thirds of the island consists of barren, mountainous region, agriculture is the sole industry, the chief products being currants, grapes, wine, olive, citrus fruits, some cereals, and garden products. In 1928 exports were valued at \$2,922,000 and imports at \$2,498,000. Extensive improvements to the port

of Candia were completed in 1931. The island is an intermediate station on the London-India air-mail line. Crete is administered as a department of Greece. See GREECE; ARCHAEOLOGY.

**CRICKET.** The Westchester County Cricket Club of Yonkers captured the 1931 cricket honors in the United States, winning the championships of the New York, New Jersey, and Metropolitan Cricket Associations. In addition the team won the first cup competition of the newly organized United States Cricket Association. The Westchester team led Brooklyn by one point in the Metropolitan League standing, in which the Fowler Cup was at stake. The two teams met in the U.S.C.A. final. After a tie in the first match, the Westchester County team won the second. Yorkshire was the county champion of England. H. Sutcliffe was the batting champion and S. Larwood the bowling leader. A. Ratcliffe of Cambridge made 203 runs in one individual inning for high score of the season.

**CRIME.** WICKERSHAM COMMISSION. On August 23, the National Commission on Law Observance and Enforcement issued its final report and terminated its activities after a two years' study of the subject of law observance and enforcement in the United States. (See previous YEAR BOOK.) In all, a total of 14 reports were submitted comprising 4023 printed pages and including some 1,600,000 words. The reports were as follows: (1) Preliminary Report on Observance and Enforcement of Prohibition, in which recommendations were made for the transfer of prohibition enforcement from the Department of the Treasury to the Department of Justice, together with certain changes in court procedure to handle dry law cases more expeditiously. (2) Report on the Enforcement of Prohibition, in which the Commission as a whole recommended the further trial of the Prohibition law. However, in appended individual statements, the majority of commissioners expressed their doubts concerning the possibility of adequate enforcement and suggested changes in the present system. (3) Report on Criminal Statistics, in which it was found that no adequate statistics were available on the subject of crime.

(4) Report on Prosecution, in which it was found that the prosecution arm of the law enforcement system the country over was hampered by petty politics and patronage. (5) Report on the Enforcement of Deportation Laws of the United States, in which there was presented a record of "dark age cruelty" on the part of the Federal Bureau of Immigration. (6) Report on the Child Offender in the Federal System of Justice, in which it was found that the Federal system of criminal justice had no proper machinery with which to deal with the child offender. The major recommendation called for the turning over of this problem to the States entirely. (7) Report on the Federal Courts, which pointed to congested conditions. (8) Report on Criminal Procedure, in which it was stated that both in Federal and State jurisdictions criminal procedure in the United States was antiquated and ruled by politics. (9) Report on Penal Institutions, Probation and Parole, in which there was charged that inhuman methods of handling persons still existed in the United States. (10) Report on Crime and the Foreign Born, in which the foreign born were exonerated from responsibility for a disproportionate share of the commission of crime in the country. (11) Report on

Lawlessness and Law Enforcement, in which there was incorporated a strong indictment of police officers and their use of third degree methods. (12) Report on the Cost of Crime, in which the nation's annual crime bill was said to reach far above \$1,000,000,000. (13) Report on the Causes of Crime, in which the Commission admitted that the underlying factors in the present era of lawlessness were too diverse to permit of simple statement. (14) Report on Police, in which the Commission found that apprehension of criminals by police was being hampered by corrupt politicians and antiquated police methods.

Extended discussions of reports Nos. 1 and 2 (relating to Prohibition) will be found in the article of that name in this YEAR BOOK. A discussion of Report No. 6 (relating to the Child Offender) will be found in the article CHILD WELFARE in this volume. The more important of the remaining reports are summarized herewith.

**CRIMINAL PROCEDURE.** In Report No. 8, filed with the President by the National Commission on Law Observance and Enforcement in July, there was to be found an elaborate examination of the faults inherent in the administration of justice in the United States through the courts. The Commission concerned itself largely with the country's inferior or magistrates' courts, and found that "arbitrary methods, incompetent magistrates, tribunals governed by petty politics and slovenly proceedings, at the point at which the great mass of the population come in contact with law enforcement, give a bad impression of the administration of justice as a whole and most seriously affect respect for and observance of law generally." The Commission emphasized the fact that a change of attitude was necessary by both the legal profession and the public as to the mode of choice, tenure, and personnel of the bench, particularly as regards the magistrates' courts.

The Commission's report contained 14 recommendations calling for reforms of a procedural nature. These included a wider use of administration, rather than arrest and prosecution, with respect to police regulations. The bad physical surroundings of the court rooms, the confusion and the want of decorum, seriously needed remedying. The fact that cases were frequently tried in the press raised a difficulty as to the employment of the jury system in criminal cases and made the obtaining of impartial panels a real problem. The Commission also suggested a wider use of summonses instead of arrest, elimination of "double appeal" and retrial as a matter of course, adoption of the system of "short indictments," examination of prospective jurors by the court rather than counsel, legislation by the States to allow waiver of jury trial in criminal cases, and elimination of the motion for "arrest of judgment."

Incorporated in the body of this report was to be found a passing reference to the judicial procedure attending the famous Mooney-Billings case. It will be recalled that Mooney and Billings had been held imprisoned in California jails for their alleged participation in the bomb explosion in the Preparedness Day parade in San Francisco in 1916. In discussing the faults inherent in California's criminal procedure as bearing on this case, the Commission said:

Motions for new trials upon the ground of after-discovered evidence, or upon evidence of perjury committed by material witnesses on the trial discovered after

judgments, in some jurisdictions have been held to be inadequate to prevent injustice.

This was peculiarly manifest in the famous Mooney case in California where, upon appeal to the Supreme Court of the State from the judgment of conviction of murder and an order of the trial court denying motion for a new trial, that court held that a new trial could not be granted upon matter not appearing in the record, even tho the new matter consisted of evidence charging perjury on the part of a material witness for the State, and altho the Attorney-General stipulated that the motion might be granted.

Further application made to the trial court in the nature of an application for common-law writ of *coram nobis* upon the ground that the prosecuting attorney had been guilty of fraud in withholding from the trial court information impeaching the testimony of certain witnesses for the State also was denied upon the ground that under the California practice the court had no power to grant such a motion.

The Supreme Court of that State held that there was no judicial remedy open in such case. The only remedy was the exercise of executive clemency.

Such a state of the law is shocking to one's sense of justice.

**PENAL INSTITUTIONS, PROBATION, AND PAROLE.** Report, No. 9 issued by the Wickersham Commission, criticized the present system of penal institutions in the United States as being generally antiquated, inadequate, unsanitary in health conditions, inefficient in administration, and unequal to the task of preparing the inmates for life in the community. The report recommended improvements in official personnel; a new system of prison industry which should provide for the payment of wages to prisoners as an incentive to good work; development of a better programme of character education, vocational education, and the leisure-time interests of prisoners; extension under adequate safeguards of the indeterminate sentence; the broadening of probation with central supervision; well staffed, well financed and properly organized system of parole. Among other things the report says:

The prison has failed as an educational institution. No one claims that the men who are released are better equipped to accept an honest rôle in the world than they were before commitment. The prison has failed as a disciplinary institution. The riots, the fires, the use of cruel and brutal measures of punishment, the persistent recurrence of murder within the prison, the presence of narcotics, the frequent atmosphere of hate and bitterness, are sufficient evidence.

The Commission found that there were more than 3000 Federal and State prisons, reformatories, workhouses, prison farms, chain gangs and county and city jails, most of them being overcrowded, Federal institutions in 1930 showing a population of 65.9 per cent greater than capacity. In its conclusion the Commission declared:

We are convinced that a new type of penal institution must be developed, one that is new in spirit, in method, and in objective. We consider it both unwise and unnecessary for the States to spend large sums of money in the construction of maximum security, congested prisons of the Auburn, New York, type. Experience has amply demonstrated that only a small proportion of the prison population requires fortresslike buildings. With proper classification of the prison population, the present overcrowded conditions can be relieved by housing a large number of the inmates in simple and inexpensive buildings of the minimum and medium security type.

**THE FOREIGN BORN.** In Report No. 10 of the National Commission on Law Observance and Enforcement, there was to be found a complete exoneration of the foreign born of the country for the major blame in the commission of crime. In fact, according to the Commission, the foreign born in proportion to their numbers committed considerably fewer crimes than the native born. The Report further declared that the nationals

of other countries residing in the United States "approach the record of the native born most closely in the commission of crimes involving personal violence, and that in crimes for gain the native born greatly exceed the foreign born. Accepting Dr. Edith Abbott's conclusions that the country's crime record could not rightly be charged against immigrants and that an inefficient and corrupt system of police and an outworn system of criminal justice were at the heart of the difficulty, the Commission declared its belief that the future immigration policy of the United States could safely be determined on general economic and social grounds to the disregard of the heretofore commonly held crime factor.

Discussing further this important point, the Commission submitted that because of differences in race, religion, speech, and habits the foreign born had been driven into segregated minorities which were easily but many times erroneously charged with social misconduct. In the case of native born children of foreign parents, however, the commission was not prepared to enunciate a clear-cut judgment. On this point it said:

Whether or not the current impression of excessive criminal propensities among so-called foreigners generally can partially be justified by the existence of criminal propensities among children of foreign-born parents, it is impossible either to affirm or deny. Within the limits of the problem which it has been possible to study, we are now in a position to definitely say that any such impression as to the foreign-born is at variance with the facts.

"THE THIRD DEGREE." In Report No. 11 of the National Commission on Law Observance and Enforcement there was to be found a severe indictment of police methods employed in a group of 32 typical American cities over the past ten years. This report, prepared under the expert direction of Zechariah Chaffee, Jr., of the Harvard Law School, and Walter H. Pollak, and Carl S. Stern of the New York Bar, found that "third degree" methods were being illegally but systematically employed in most of the cities under examination. Such "third degree" methods included, according to the Commission: "punching in the face, especially a hard slap on the jaw; hitting with a billy; whipping with a rubber hose; kicking in the abdomen; tightening the necktie almost to the choking point." The police of New York City were found by the experts of the Commission to exceed all others in their use of "third degree" methods. Of the situation in that city the report declared: "Arrested persons come to station-houses or headquarters in good shape, and are seen, shortly afterward, in the Tombs with swollen faces, all sorts of bruises and cuts, and often with blood spots scattered over them."

THE POLICE. In Report No. 14, delivered in August, the National Commission on Law Observance and Enforcement found that political corruption, inefficiency, poor equipment, incompetent personnel and inadequate training of America's police forces were inherent in the country's inability to cope with crime. The Report in no uncertain terms declared that an unholy alliance existed between the police and corrupt politicians on one hand and criminal elements on the other. In discussing this "unholy alliance" the Report declared:

The well-known and often proven alliance between criminals and corrupt politicians which controls, in part, the police force of our large cities, might well be taken

as a primary cause of police inefficiency, since it rules the head and every subordinate, and lays a paralyzing hand upon determined action against such major criminals.

The latter are well known to the police, but, by reason of the sinister influence exerted by corrupt politicians over the chief and his force they are allowed to continue their criminal careers when, but for such influence, the police force would make a much better showing, defective as it is in the right personnel and in modern crime-detecting instrumentalities.

Among the results produced by this union between politicians and the police and the criminals the Commission noted the following: there was a general loss of public confidence in the police of the country because of their failure to detect and arrest criminals guilty of serious crime. The prevailing practice of appointing police chiefs for short definite terms or for indefinite terms without security of tenure had made the American police departments the playthings of crooked politicians. On this point the Report declared: "In cities where the chief must be blindly obedient to orders from the Mayor, and where that dignitary in some instances is the political creature of killers and crooks of every conceivable character, administration of police affairs must of necessity sink to the level of the controlling influences." The Commission pointed out that in the cities of Milwaukee, San Francisco, Cleveland, St. Louis, and Detroit were to be found commendable police systems divorced from politics. In the cities of Los Angeles, Kansas City, Minneapolis, and Denver, however, "the antithesis of proper policing exists."

NEW YORK STATE. By a resolution passed in March of the year, New York State's legislature appointed a legislative commission for the purpose of inquiring into the public affairs of New York City and voted \$500,000 to defray the expenditures of the investigating body. This commission, which was popularly known as the Hofstadter Committee, named after its chairman, employed Samuel Seabury as counsel and proceeded to an elaborate examination of the official and unofficial acts of many persons associated with the conduct of the government of New York State's metropolis. On April 20, the committee first assembled, on June 2, Mr. Seabury named his legal staff of 21 assistants; on June 6, assignments were made to these persons to investigate all leading city departments such as police, buildings, courts, docks, borough offices, health, education, etc.: From that time to the end of the year, by private and public hearings, the inquiry was pushed vigorously despite obstructionist tactics practiced by Democratic members of the committee.

Among the more important facts revealed as a result of this investigation were the following: The existence of large bank deposits made by Democratic and Republican district leaders; the existence of gambling in district club houses; the payment of large fees to persons prominent in politics by corporation and individuals desirous of obtaining exemption from the operation of the city's zoning ordinance for pier leases, and the like.

A definite body of achievement resulted from the magistrates' court inquiry conducted by Mr. Samuel Seabury. In fact, the study of city affairs by the Legislature was an outgrowth of this original inquiry which dated back to September, 1930. Among the more important achievements of this earlier investigation were the following: The ousting of two magistrates and

the resignation of three others who feared to face charges; the imprisonment of five members of the police force because of vice squad revelations; the bringing of charges against 40 other members of the police force for the framing of women, impersonating superior officers, assault, or conspiracy; the bringing of disbarment proceedings against 15 lawyers because of alleged unethical practices; complete reorganization of the magistrates' courts and the abolition of the police department's vice squad. Incidental to the inquiry was the freeing of a large number of girls who were illegally held in Bedford Reformatory, as well as a general clean-up of the bail bond situation. It was interesting to note that the Hofstadter Committee revelations elicited small public interest, the general feeling being, apparently, that bad men in politics (to use Lincoln Steffens's phrase) had their distinct uses and were entitled to their wages of labor.

**COST OF RACKETEERING.** The New York State Crime Commission, in its final report to the legislature, estimated that racketeering was costing the country somewhere between \$12,000,000,000, and \$18,000,000,000, annually. The Commission pointed out that a single racket in New York State alone, that of fake securities, was known to total approximately \$400,000,000 a year. In making this estimate, the New York Commission supplied a group of figures which the National Commission on Law Observance and Enforcement had made no efforts to present in its study of the cost of crime in the United States (Report No 12). The Wickersham Commission had estimated that the United States was spending \$1,000,000,000 a year in the war on crime. Other costs as summarized by the New York *Herald Tribune's* Washington bureau were the following:

Federal criminal law administration . . . . .	\$ 52,786,000
State police . . . . .	2,660,000
State penal and correctional institutions	51,720,000
Criminal law administration in 300 cities	247,700,000
Private industrial police in Pennsylvania	1,260,000
Private protective service in large cities	10,000,000
Private watchmen . . . . .	159,000,000
Armored-car service . . . . .	3,900,000
Private correctional treatment of criminals . . . . .	850,000
Insured losses due to crime . . . . .	47,000,000
Mail frauds . . . . .	68,000,000
Insurance against crime . . . . .	106,000,000
Safes, chests, vaults . . . . .	4,227,000
Bullet-proof glass . . . . .	311,000
Known incendiarism . . . . .	2,000,000
Burglary of banks . . . . .	1,800,000
Thefts from jewelers . . . . .	2,000,000
Railroad freight thefts . . . . .	1,100,000
Forgeries . . . . .	40,000,000
Indirect cost through loss of productive labor . . . . .	322,000,000
<b>Total . . . . .</b>	<b>\$1,124,314,000</b>

**SUICIDE.** Dr. Frederick L. Hoffman estimated that the annual loss of life by suicide in the United States ran between 18,000 and 20,000. In 1930, the death rate per 100,000 population from suicide was 20 as compared with 18.1 in 1929 and 15.4 in 1920. Doctor Hoffman's figures were based on 100 American cities having in 1930 a total population of 32,000,000. The highest rates for 1930 were returned from Little Rock, Ark., with 65.9 per 100,000 population and Davenport, Iowa, with 51 per 100,000 population. The suicide rates for the five largest cities of the country in 1930 were as follows: New

York City, for Brooklyn, 13.7, for Manhattan and the Bronx, 27.4; Chicago, 18.9; Detroit, 16.3; Philadelphia, 17.6; Los Angeles, 24.8. Doctor Hoffman found that America's suicide rate was about midway between a low of 1.7 for Greece and a high of 32.7 for Austria. According to him, the increased rate in 1930 "reflects the nation-wide industrial and business depression which invariably results in numerous suicides, although, in the aggregate, this cannot form a very large proportion of the huge total. . . . Half of these [total suicides], I feel sure could have been prevented and I speak in the light of 40 years of an active interest in the subject of self-destruction, believing that if timely aid and qualified advice were forthcoming at the right time many a valuable life might be spared."

**STERILIZATION OF CRIMINALS.** The new Oklahoma law not only provided for the sterilization of mental defectives (thus joining the company of 15 other States) but also called for the sterilization of third-term criminals. This law, which it was claimed was not purposed to act as a punishment for the criminal but as a protection for society, was passed on the assumption that criminal tendencies were hereditary. Administration was placed in the hands of the State Board of Affairs, which also controlled all State hospitals and prisons. Provision was to be made for the creation of medical boards to pass first on criminals and insane persons subject to the laws; appeal to the courts was permitted. This Oklahoma law received considerable attention from the public press, the New York *Sun* pointing out, for example, that the new statute could be criticized on a number of counts. Thus, it said:

If it were an act of Congress, it certainly would be open to attack as violating the Eighth Amendment to the Federal Constitution. This amendment, forbidding cruel and unusual punishment, applies only to powers of Congress and Federal courts. The Oklahoma statute may come before the Supreme Court of the United States on either the "due process of law" or the "equal protection of the laws" provisions of the Fourteenth Amendment.

Valid or not, this method of dealing with criminals is likely to offend the sensibilities of a considerable portion of the public.

In some States, as in Iowa for example, the sterilization law had been used; in others, as in Indiana, it has been held unconstitutional; in a few States, notably California and Minnesota, it has been much employed and with public approval. The Wisconsin law applied to feeble-minded persons in State institutions and to others with certain inherited diseases. Previous issues of this YEAR BOOK have pointed out that the U. S. Supreme Court had found sterilization laws as applied to the feeble-minded constitutional, Mr. Justice Holmes in commenting on them having said: "Three generations of imbeciles are enough."

**A PROGRAMME FOR IMMEDIATE ACTION.** In an atmosphere of debate that was marked by considerable loose thinking and by heated utterance, Prof. Raymond Moley, of Columbia University, contributed a refreshing piece of advice. (In the New York *Times*, Aug. 30, 1931.) Pointing out that it was difficult to determine whether or not a crime wave actually existed and that it is doubtful whether automatic or apt solutions could be found to the continued existence of crime, Mr. Moley questioned whether it was possible to discover fundamental causes of crime



and move for their immediate eradication. A round-up of known criminals by harried police officers produced small results. The feverish activity of district attorneys was equally futile. "The underworld will be burned in effigy, so to speak. A few criminals will be tried and convicted with a flourish so that every gangster may know that New York is in the throes of the greatest crime clean-up in its history." Mr. Moley dismissed those "expansive remedies" which, while they may be logical, are immediately unattainable, and pointed out that there was at hand a group of remedies that offered promise of nearby and substantial relief. He was skeptical that the near future would reveal for us rules of thumb by which potential criminals in schools may be discovered and methods devised for turning them away from a life of crime. On this point, the professor declared: "We cannot successfully stop crime by detecting criminals in childhood because we cannot, on the basis of any present ascertained scientific knowledge, know who the potential criminals are. The 'prognostic index' is still a shimmering mirage."

Mr. Moley was wise enough, further, to deny that there existed any immediate hope for an end to the economic wars between employers and unions, leading to the use of gangs and gang warfare. Nor could we hope to look for a cessation on the part of the professional criminal of imitating the methods of business and business men. Finally, it was impossible to hope that politics and the activities of political parties were likely to terminate. As he said: "These are firmly based upon the irrepressible and never-ending tendency of people to gain special privileges for themselves."

The situation was, however, not altogether beyond repair. Among the proposals advocated by Mr. Moley, which were likely to bring relief, were the following: (1) Keeping money out of public places. In other words to substitute for the payroll in cash the general use of payment by check. (2) The more efficient prosecution of criminals and, when convictions are obtained, the employment of discriminatingly severe sentences. On this point Mr. Moley declared:

Prosecuting agencies and courts have their part to play. It consists of hard work and the appointment of assistants and judges because they are qualified for the job of law enforcement rather than for getting votes. This is the burnt offering that the courts and the district attorneys may contribute to the crime "war."

(3) The necessity for organized action by private agencies with private means. It is true that a certain amount of caution is necessary in the employment of this method and that it calls for leadership by wise and forbearing persons. Nevertheless, Mr. Moley believes that organized effort on the part of business to help the ferretting out and the prosecution of crime would be of incalculable assistance to the public law enforcement officers. (4) It is imperative that economic groups renunciate the use of gangsters. This relates both to business associations and unions.

It is high time that all organizations engaging in legitimate business publicly avow and privately adopt a declaration of independence so far as these enemies of society are concerned. This is not to say that capital and labor should be down together like lambs. But it is a suggestion that they deny themselves the luxury of gangster mercenaries who, in fact, constitute a menace to all law and order.

(5) A renunciation by all political groups of the use of police and other law enforcement agencies as the source of political gain. Mr. Moley refused to believe that there actually existed a working alliance between crime and politics. Nevertheless, the police of the country were being constantly hampered by the countless annoyances relating to small favors to which police chiefs were being subject. On this point, he declared: "With one law, one chief, one purpose, the police could be trusted to do vastly better. They are not intrinsically indolent or subservient. For the most part they are men of spirit, of character. To serve in such a non-political dispensation might work wonders." Mr. Moley concluded his stimulating statement with these words: "These measures suggest no mere Utopia. They constitute, in the present troubled state of the city, a minimum of effective action. Whether they are achieved rests upon the somewhat doubtful question of whether we are witnessing genuine indignation or mere excitement." See LAW, PROGRESS AND DEVELOPMENT; PROHIBITION; CHILD WELFARE; LYNCHINGS.

**CRITICISM.** See LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE, etc.

**CROATIA** (krō-ā'shā) **AND SLAVONIA.** A former crownland of the Austro-Hungarian Empire, extending from the Adriatic Sea to the Danube River; from Dec. 1, 1918, to Oct. 3, 1929, a Province of Yugoslavia. The administrative reorganization of Yugoslavia on the latter date eliminated Croatia and Slavonia as a governmental unit. On Jan. 31, 1921, its area was 16,920 square miles; the population, 2,739,593. The former capital, Zagreb, or Agram, had 150,000 inhabitants in 1928. See YUGOSLAVIA.

**CROPS.** See AGRICULTURE; and articles on various crops such as CORN, OATS, TOBACCO, WHEAT, ETC.; also paragraphs on Agriculture under various States.

**CROSS COUNTRY RUNNING.** Surprising all by his strength and speed Dan Dean, representing the University of Pennsylvania, won the Intercollegiate A.A.A.A. cross country championship at Van Cortlandt Park, New York City, in 1931. Over the 6-mile course the Pennsylvania runner was brilliant and defeated such stars as the defending champion, Clark Chamberlain, of Michigan State, Joe McCluskey of Fordham, and George Barker of New York University in 29:23.6. The following week Chamberlain went to Ypsilanti, Mich. to win the national A.A.U. title. Barker won the Metropolitan Intercollegiate test as well as the Metropolitan A.A.U. crown over the stiff Inwood Hill Park course. Harvard won the Intercollegiate team title, and Manhattan won the intercollegiate freshman title because of the fine triumph of Frank Crowley, who won the race in record time. Paul Kanaly of Boston captured the national junior championship, and Peter Taylor, of Millrose A. A., the Metropolitan junior title. The University of Indiana team won team laurels in the Western Conference as well as in the national senior meet at Ypsilanti.

**CROWELL, JOHN FRANKLIN.** An American economist, died in East Orange, N. J., Aug. 6, 1931. He was born in York, Pa., Nov. 1, 1857, and was graduated from Yale University in 1883 and with the Ph.D. degree from Columbia University in 1897. After acting as principal of the Schuylkill Seminary in Fredericksburg, Pa., for

several years, he became president of Trinity College, Durham, N. C. (later Duke University), serving from 1887 to 1894. He was then appointed head of the department of economics and sociology at Smith College, where he remained until 1897. In 1900 he became associated with the U. S. Treasury Department as an expert agent of the Industrial Commission and also as an expert on internal commerce for the Bureau of Statistics. He was an editorial writer for the *Wall Street Journal* in New York City from 1906 to 1915, and during the World War period was successively executive officer of the Chamber of Commerce of the State of New York, economist and financial statistician in the Internal Revenue Office in Washington, research director in government war contracts for the Carnegie Endowment for International Peace, and director of the World Market Institute in New York City, retiring from the latter position in 1921. He was also president of the American Civic Alliance from 1910 to 1913. Among his publications are *Taxation in the American Colonies* (1893); *The Logical Process of Social Development* (1898); *Internal Commerce of the United States* (1902); *Report to War Department on Deepening the Mississippi River* (1903); *Trusts and Competition* (1915); *Social Insurance with Special Reference to Compulsory Health Insurance* (1917); and *Government War Contracts* (1920).

**CRUISER, NAVAL.** See NAVAL PROGRESS.

**CRYSTALS, CRYSTALLIZATION, CRYSTALLOGRAPHY.** See MINERALOGY.

**CUBA.** A republic of the West Indies consisting of the large island of the same name, the Isle of Pines, and small adjacent islands. Capital, Havana (Habana).

**AREA AND POPULATION.** The area is 44,164 square miles of which 41,634 are for the island of Cuba, 1180 for the Isle of Pines, and 2350 for the other islands. The population census taken September-November, 1931, showed a total of 3,544,921 inhabitants (provisional figure), compared with 2,889,004 at the previous census of 1919. The population was distributed among the several Provinces as follows:

POPULATION OF CUBA, BY PROVINCES

Province	Area, in square miles	1919 census	1931 census*
Pinar del Rio . . . . .	5,206	261,198	320,922
Havana . . . . .	3,170	697,583	986,336
Matanzas . . . . .	3,256	312,704	335,880
Santa Clara . . . . .	8,257	657,697	753,602
Camaguey . . . . .	10,064	228,913	362,175
Oriente . . . . .	14,211	730,909	786,006
Total . . . . .	44,164	2,889,004	3,554,921

\* Preliminary figure.

In 1931, the economic depression in Cuba reversed the normal surplus of immigration over emigration; in the first half of the year 69,736 passengers left the island while only 49,987 entered. Immigration from Spain, the chief source, declined steadily from 94,294 in 1924 to 4242 in 1930; in 1931 about 5000 indigent Spaniards were returned to their native land. Haitians entering Cuba in 1930 numbered 5126, but many of these returned to Haiti. Total immigration in 1929 was 17,179; in 1928, 27,314. The Government announced that its infant mortality rate of less than 1 per cent for 1930 was the lowest of any country in the world. Total births in 1929 numbered 60,441; deaths, 42,160. The

chief towns, with their estimated populations in 1930 are: Havana, 589,079; Santiago de Cuba, 144,975; Camaguey, 48,773; Matanzas, 46,717; Cienfuegos, 39,940; Marianao, 32,285; Cárdenas, 29,304.

**EDUCATION.** Education is free and compulsory and the percentage of literacy for persons over 10 years of age was raised from 62 in 1919 to about 80 in 1929. During the year ended June 30, 1930, there were 7375 public elementary schools, with 242,413 pupils; 84 night schools for working people, with 8377 pupils; 525 private schools, with 31,949 pupils, and a number of traveling schools, with 3458 pupils. Enrollment in the University of Havana in 1929-30 was 4795.

**PRODUCTION.** Cuba is primarily an agricultural country, in which sugar, the principal crop, dominates the economic situation. Sugar and its by-products normally comprised about 80 per cent of the value of all exports, while tobacco and its products accounted for 12 per cent. Cacao, cereals, coffee, potatoes, coconuts, and fruits are other leading products. As a result of the progressive decline in sugar prices, Cuba in 1931 underwent its seventh and most critical year of economic depression. As a result a major readjustment of the Cuban economic system was taking place, tending toward the development of other local industries. There were numerous business failures, hoarding of capital developed, governmental revenues steadily declined, and the Government was forced to initiate further drastic economies. Bank failures, widespread salary reductions, foreclosure sales, labor difficulties, and political disorders contributed to the depression.

The decline of the Cuban sugar industry is graphically illustrated by the accompanying table from the 1931 *Commerce Yearbook*.

CUBAN SUGAR PRODUCTION

Year	Mills grinding Number	Sugar production 1,000 long tons	Average price per pound Cents	Total value \$1,000
1921-22 to 1925-26, average . . . . .	182	4,383	3 26	308,424
1926-27 . . . . .	177	4,509	2 64	266,621
1927-28 . . . . .	172	4,038	2 20	198,984
1928-29 . . . . .	163	5,156	1 72	198,661
1929-30 . . . . .	157	4,671	1 41	147,536
1930-31 (estimated) . . . . .	...	3,122	1 12	78,324

The share received by Cuban planters and agricultural employees from foreign sales of sugar shrank from \$235,378,000 in 1924 to about \$38,151,000 in 1931. The effect was a sharp reduction in the purchasing power of a large section of the population. Exports of raw and refined sugar amounted to 7,197,000,000 pounds, valued at \$105,203,000, in 1930, as compared with 10,933,000,000 pounds, valued at \$204,840,000, in the previous year.

See AGRICULTURE under *World Agriculture*.

Passage of the Chadbourne sugar stabilization law toward the end of 1930 caused prices to strengthen somewhat. It provided for the segregation of 1,500,000 tons of sugar to be marketed over five years by the state-created National Sugar Export Corporation. A bond issue of \$42,000,000 was provided for to pay for the segregated sugar at the rate of \$4 per bag of 325 pounds. The production of molasses was 211,107,505 gallons in 1930, compared with 204,733,388

gallons in 1929. The 1930 tobacco crop amounted to about 82,117,000 pounds, compared with 65,398,000 pounds in 1929, and exports of tobacco shrank in value from \$37,879,000 in 1929 to \$33,541,000 (preliminary). The catch of the fisheries in 1930 was valued at \$1,442,949 (\$4,197,772 in 1929). The forests contain valuable cabinet woods.

Livestock in 1930 included 2,543,000 cattle, 591,000 swine, 135,000 sheep and goats, and 95,000 mules and asses. Mining is relatively unimportant, but iron, copper, chrome, and manganese ores are produced for export and some coal and petroleum are produced for local consumption. The large-scale reduction of low-grade manganese ores in Oriente Province was undertaken by an American firm in 1931, utilizing a newly developed process. Manufacturing is confined chiefly to the grinding of sugar and the making of tobacco products. Due to tariff protection and other forms of Government encouragement, there was a fairly rapid development after 1925 in the dairy and canning industries, and in the manufacture of clothing and footwear, furniture, textiles, paint, paper, glass, and cement. Unemployment increased during 1930 and 1931; wages for agricultural labor declined to 40 cents a day in 1930.

American direct investments in Cuba in 1930 were estimated by the U. S. Bureau of Foreign and Domestic Commerce at \$981,957,000, excluding government loans. Of this total \$544,012,000 was invested in the sugar industry and \$116,726,000 in railways.

COMMERCE. The value of Cuban general imports and exports in 1930 was \$162,452,000 and \$167,411,000, respectively, as compared with \$216,215,000 and \$272,440,000, respectively, in 1929. Exports had registered a steady decline since 1924, when they were valued at \$421,075,000; imports had declined since 1925, when they totaled \$297,324,000. The 1930 surplus of exports over imports was \$4,959,000, as against \$56,225,000 in 1929. According to Cuban statistics, exports to the United States, which had reached \$208,754,000 in 1929, declined in 1930 to \$116,074,000, of which \$73,963,000 were accounted for by raw and refined sugar. Exports to the United States constituted 69 per cent of the total as compared with 77 per cent in 1929. Imports from the United States during 1930 amounted to \$91,872,000, a decline of 28 per cent from the 1929 figure. Foodstuffs and finished manufactures continued to constitute the bulk of the trade. The United States supplied 56.5 per cent of total Cuban imports in 1930, as compared with 59 per cent in 1929. Cuba ranked third as a world market for American textile products, excluding raw cotton, in both 1929 and 1930.

The United Kingdom in 1930 supplied 5.5 per cent of Cuba's general imports (5.6 in 1929) and purchased 15.2 per cent of Cuban exports (12.6 per cent in 1929). Spain and France were the other leading participants in the Cuban trade. The principal exports, in order of value, were sugar, tobacco, molasses, cigars, copper ore, cattle hides, bananas, and pineapples. Leading imports were cotton manufactures, rice, machinery and accessories, iron and steel, vegetables, lard and substitutes, meats, wheat flour, and sugar bags. The balance of international payments is notably affected by the expenditures of American tourists in Cuba. For the

five-year period 1926 to 1930 inclusive, an average of 75,785 Americans visited the island annually.

FINANCE. Preliminary returns for the fiscal year ended June 30, 1930, showed regular budgetary revenues and expenditures of \$77,157,087 and \$81,112,733, respectively, as compared with the original budget estimates of \$85,450,000 and \$85,392,162, respectively. The public-works fund preliminary returns for the same year showed revenues and expenditures totaling \$18,121,289 and \$20,685,712, respectively. Special fund receipts were \$9,856,205, while charges against these funds aggregated \$16,096,070. The ordinary budget for 1930-31, as passed in June, 1930, authorized expenditures of \$76,754,617. Despite subsequent reductions in line with the progressive decline in revenues, the year ended with a deficit of about \$11,000,000. The 1931-32 budget, as promulgated by the President June 30, 1931, estimated ordinary revenues at \$60,385,000 and expenditures at \$60,381,400. Declining revenues again forced a reduction of expenditures, amounting to \$6,692,814, effective Oct. 1, 1931. It was authoritatively stated that additional heavy reductions would be required to balance the budget.

According to the President's message of Apr. 6, 1931, the public debt on Feb. 28, 1931, totaled \$171,626,000. This figure did not include the floating debt nor the potential indebtedness arising out of issuance of obligations under the Chadbourn sugar stabilization plan. Some estimates placed the total public debt as high as \$255,000,000. The funded debt on Feb. 28, 1930, consisted of \$8,964,000 of internal loans and \$71,554,000 of external loans, floated in New York. In addition there was in 1931 a debt of about \$100,000,000 in the form of short term "public-works serial certificates," held mostly by great New York banks. Despite great financial stringency, the Cuban Government made regular interest and amortization payments on the foreign debt up to Dec. 31, 1931.

COMMUNICATIONS. For the fiscal year 1929-30, there were 3064 miles of railway line in operation, all in private hands, which carried 16,305,000 passengers (17,531,000 in 1928-29) and 28,019,000 long tons of freight (30,481,000). Gross receipts for the year were \$30,438,000, compared with \$38,040,000 in 1928-29. The Central Highway of Cuba, traversing the island from Pinar del Rio on the west to Santiago on the east coast, was formally opened Feb. 24, 1931. The highway is 706 miles long and was built in four years at a total cost of \$101,123,000. At the beginning of 1931, there were 1990 miles of highways, of which 1323 miles were macadam. In 1929, 6453 vessels of 14,187,000 net registered tons entered the ports and 6445 of 14,192,000 tons cleared. The telegraph system, with 13,598 miles of wire, is government owned and operated, but the telephone system, with 255,140 miles of wire, is owned by a private company.

GOVERNMENT. The Constitution, as amended May 11, 1928, vests executive power in a president, elected for six years and ineligible for reelection; legislative power rests in a national congress of two houses, the Senate of 37 members elected for nine years and the Chamber of Representatives of 128 members, elected for six years. The Senate is renewed in part and the House is renewed by halves every three years. President in 1931, Gen. Gerardo Machado y

Morales (Liberal), who was inaugurated May 20, 1929, for a second term expiring May 20, 1935. The three parties represented in Congress had analogous programmes and fully supported the Machado Government. The Coalition Cabinet, including representatives of all three parties, was reorganized Dec. 5, 1930.

### HISTORY

**FAILURE OF THE REVOLT.** The long-smoldering political discontent in Cuba flamed into open revolt against the semi-dictatorship of President Machado early in August, 1931, only to be crushed effectively before the expiration of the month. The seriousness of the uprising became evident on August 9, when martial law was declared in the Provinces of Havana and Pinar del Rio and 17 prominent Cubans were arrested. The following day came the first skirmish between government troops and insurgents in Havana Province. Under emergency legislation rushed through Congress, the President immediately proclaimed a state of siege throughout the island; a severe censorship was placed on the press.

Several thousand men were reported to have rallied to former President Mario G. Menocal, who raised the standard of revolt. In the first four days following the declaration of martial law, rebel and government forces met in 22 armed clashes, in which the casualties were placed at 36 dead and 53 wounded. On August 13 Congress adjourned its sessions, all reserves were called to the government colors, and General Machado himself went to the front to direct operations. As predicted, the insurgents proved no match for Cuba's well-trained and disciplined army of some 12,000 men. The two leaders of the rebellion, former President Menocal and Col. Carlos Mendieta, were defeated and captured with a group of insurgents in Pinar del Rio Province on August 14. Heavy fighting continued in Santa Clara and Pinar del Rio Provinces, it was reported, until August 19, when the defeat of a filibustering expedition at the small port of Jibara broke the morale of the insurgents.

The Jibara expedition consisted of a small number of insurgents who landed 70 machine guns, 2500 rifles, and 2,500,000 rounds of ammunition to supply rebels in the interior. The arms were said to have been shipped from the United States, where headquarters of a revolutionary junta had been established in New York City and where on August 5 and 7, two groups of alleged insurrectionists were arrested by United States officials when about to embark for Cuba. Before the arms landed at Jibara could be moved, about 150 rebels guarding them were attacked by government land and air forces numbering between 600 and 700. The rebels were routed after a three-day engagement, in which about 13 were killed and 24 wounded. Sporadic fighting continued at various points until the end of the month, but on August 31, Dr. Mendez Penate, the last insurgent chieftain in the field, surrendered. It was officially stated August 27 that some 2000 political prisoners were held in Cuban jails.

**BACKGROUND OF THE REVOLT.** The political opposition to President Machado had assumed menacing proportions during 1930 (see 1930 YEAR BOOK). It was based primarily on the contention of his opponents that the constitutional

amendments of 1928, and consequently Machado's second term in the Presidency, were illegal. By vigorous suppression of opposition activities and the support of the army, the President was able to resist the demands for his resignation. The situation in Cuba at the beginning of 1931 was described by a correspondent of the *New York Times* as follows:

Martial law has been declared; public meetings have been suppressed, a censorship has been imposed and newspapers have been silenced; scores of the government's critics have been imprisoned; fatal riots have occurred in many parts of the island, and soldiers have charged the citizenry even on the magnificent Prado in the heart of Havana.

Political unrest was aggravated by the economic depression and the Government maintained these repressive measures in effect throughout most of 1931, with some relaxation of their severity following the failure of the August revolt. During January, the "unbearable" state of unrest and disorder caused President Machado to suspend publication of several Havana newspapers, including the *Havana American*, whose owner, John T. Wilford, an American citizen, was deported on January 15. A number of students in Havana University were arrested and a commission for the suppression of anti-Machado agitation was appointed by the President. Meanwhile bomb explosions, which had become common in 1930, continued with alarming frequency and fires of alleged incendiary origin destroyed large fields of sugar cane.

Virtually dictatorial powers to deal with public disorder were conferred upon the President by Act of Congress on February 5. Another bill, which had the effect of stifling the opposition, was passed by Congress February 10. It created the city of Havana a Federal district, with officers subject to appointment by the President. On February 23 a bomb was discovered on the roof of the Presidential palace; a private in the Cuban Army was subsequently sentenced to death by court-martial for this crime. A vigorous drive against terrorists and alleged Communists resulted in the discovery of several large deposits of bombs and other weapons.

Negotiations for a political truce, first offered by President Machado on March 28, were continued throughout April. Although approved in principle by the House of Representatives on April 22, the President's offer was rejected by his opponents April 23 on the ground that the Government had avoided or postponed action on all specific proposals for reform. The demands advanced by the opposition included: (1) Revision of the Constitution and restoration of the original provisions of May 20, 1922; (2) a new electoral census; (3) reorganization of the three government parties; (4) extension of the suffrage to women previous to the 1932 elections; (5) constitutional limitations on the terms of Congressmen elected on Nov. 1, 1930; and (6) new Presidential elections in November, 1932, at which Senators, Representatives and Mayors would also be chosen.

On May 4 and again on May 15, the Cuban Supreme Court made two rulings adverse to President Machado, without visible effect upon his régime. One declared unconstitutional the modification of the Constitution in 1928, which resulted in the extension of the President's term of office; the other ruled that his suspension of various normal schools and newspapers was

unconstitutional. In the same month (May 2) Maj. Arsenio Ortiz, former military supervisor of Oriente Province, was declared guilty of six political assassinations. In June, President Machado offered new concessions to his opponents, including extensive constitutional reform, but his offer was again rejected by the opposition, though provisionally accepted by the House of Representatives July 21. Apparently, the opposition had determined upon revolution as the only practicable means of ending General Machado's rule. It was estimated that more than \$1,000,000 was expended on the unsuccessful revolt which followed in August. The interval previous to the August rising was marked by the killing of Senator Rogerio Zayas Bazán of Camagüey Province in a political duel with Senator Modesto Maidique of the same Province on July 14. Suspicion that Senator Bazán had been killed by treachery during the course of the duel caused the Senate on July 21 to remove Senator Maidique's Parliamentary immunity. The latter escaped arrest by fleeing to Honduras.

**AFTERMATH OF THE INSURRECTION.** With the crushing of the revolt, President Machado on September 8 renewed his proposals for constitutional reform and they were once more approved by the House of Representatives nine days later. They included elections in 1932, retirement of President Machado in 1933 instead of in 1935, and the immediate appointment of a Vice President by the Supreme Court. Once more the opposition elements, through Dr. Cosme de la Torre, then in Washington, declared Machado's proposals unsatisfactory (September 22). Dr. de la Torre declared they were primarily intended to hoodwink public opinion in the United States, where Machado was contemplating the raising of new loans. The Cuban Senate on October 22 sidetracked the reform measures indefinitely, in order to discuss new economy proposals submitted by the President. Coincidentally, there was a renewal of terroristic activities; 10 bombs exploded in Havana between October 2 and October 24.

In the middle of November a contraband shipment of arms was seized off Havana harbor and other events indicated the continuance of unrest. Conditions were more stable than before the revolt, however, and the Government proceeded to gradually release some of the leaders and other participants in the August rebellion, upon pledges to abstain from further subversive activity. A new effort at compromise between the Government and its opponents was made with the arrival in Havana on November 30 of Dr. de la Torre. Other Opposition leaders repudiated the latter's right to speak for the revolutionary junta, still in existence in the United States. On December 22, however, President Machado ended the efforts toward a peaceful settlement by announcing that he would serve out his full term of office, ending in 1935.

**COMMUNISM IN CUBA.** President Machado and other government officials made repeated charges during the year that the numerous bombings and other terroristic activities were the acts of Communists and many prominent Cubans were arrested on charges of Communist activities. Following an attempt to blow up the Havana waterworks on Jan. 20, 1931, President Machado issued a manifesto attributing this and other conspiracies to a plot of the Third Inter-

national at Moscow to strike indirectly at the United States through organizing a Communist revolution in Cuba. Subsequently (February 11) Congress granted the President full powers to eradicate Communism in Cuba. The arrest, imprisonment, or deportation of alleged Communists continued throughout the remainder of the year.

**ECONOMIC DEVELOPMENTS.** In addition to its efforts to balance the budget by a drastic reduction of expenditures, the Government put into effect February 2, a newly enacted emergency economic law raising both taxes and Cuba's tariff wall to new high levels. The tariff and tax laws aroused much opposition among Cuban business men. On April 14, the Government announced that it had engaged Prof. Edwin R. A. Seligman of Columbia University to serve as its economic adviser. Strong opposition to the restriction of sugar production under the Chadbourne sugar stabilization law arose among sugar planters during the year. Fifteen hundred members of the National Association of Cane Planters, meeting at Santa Clara November 26, voted to work for the cancellation of the international sugar agreement.

**CUBAN-AMERICAN RELATIONS.** The United States Government, so far as could be ascertained, maintained a strict neutrality in both the political and armed struggle between the Cuban Government and its opponents during 1931. Secretary of State Stimson on Oct. 3, 1930, had stated that the Hoover Administration's policy was not to intervene in Cuba under the Platt Amendment except in case of virtual anarchy. This policy was reiterated by Assistant Secretary of State Castle on August 10, following the outbreak of the Cuban revolt. The Platt Amendment, and American policy in relation to it, however, again came in for severe criticism from both Cuban factions. Dr. Fernando Ortiz, Cuban editor and vice president of the rebel junta in New York City, was quoted by the *New York Times* of Nov. 8, 1931, as saying that the Platt Amendment since 1917 had served to maintain in power usurpatory governments, against the popular will.

President Machado, in a speech on October 28, attributed 80 per cent of Cuba's economic ills to the American tariff. His lead was followed by numerous Cuban politicians and newspapers, criticism of the American tariff policy centring upon the fact that the Cuban-American reciprocity treaty prevented Cuba from concluding advantageous commercial treaties with Great Britain and other nations. On November 4, President Machado reversed his statement, asserting that the U. S. tariff could no more be blamed for Cuba's plight than could the tariffs of other countries. He added, however, that "if no tariff barrier separated us from the American market, with its almost unlimited possibilities for consumption of our products, there would never have been any semblance of a crisis in Cuba." The so-called "Planet plan" of the Chilean Government for a Congress of the Latin-American states to permit of close collaboration in the face of the economic depression was favorably received in Cuban governmental circles and the Secretary of State was instructed (about June 25) to arrange for Cuba's participation. The plan later collapsed (see *CHILE* under *History*).

Consult Philip G. Wright, *The Cuban Situa-*

*tion and Our Treaty Relations* (The Brookings Institution, 1931).

**CUBRA** (KUFRA). See CYRENAICA.

**CULTURE, DEVELOPMENT OF.** See ANTHROPOLOGY; PHILOLOGY, MODERN.

**CUMBERLAND PRESBYTERIAN CHURCH.** A branch of the Presbyterian Church, originally the Cumberland Presbytery of Kentucky. It was formed in 1810, when the so-called anti-revival party of the church objected to the admission into the ministry of men, who were not up to the usual literary and theological standards, and to the doctrine of fatality as taught in the third and tenth chapters of the Westminster Confession of Faith. Its chief strength was in the Southern States, in consequence of which it was barely saved from disunion during the slavery dispute at the time of the Civil War. This situation led to the establishment of the Colored Cumberland Presbyterian Church. A general assembly which meets annually is the supreme judiciary. In 1931 the denomination comprised 10 synods and 61 presbyteries, and there were 1160 churches, reporting 736 ministers, and a church membership of 68,099. The Sunday-school enrollment was approximately 52,250. The property of the church was valued at \$3,411,802, not including \$500,000 endowment for education.

Missionary work was carried on among the Indians in the United States, and churches were maintained in China, where there was an organized presbytery in Canton with nine churches in South China. During the year mission work was opened up in South America. The denomination carried on educational work under the direction of the board of education and maintained Bethel College and the Cumberland Presbyterian Theological Seminary, both in McKenzie, Tenn. *The Cumberland Presbyterian*, published in Nashville, Tenn., is the official organ of the church. The 1931 national meeting was held in Evansville, Ind., May 21-27, and the 1932 meeting was announced for May 19-24 in Chattanooga, Tenn. The Rev. J. L. Elliott of Denton, Tex., was moderator of the general assembly, and the Rev. D. W. Fooks of Paducah, Ky., was stated clerk and treasurer.

**CURAÇAO**, koo'ra-sā'ō. A Dutch colony in the West Indies consisting of two groups of islands about 500 miles apart, one of them comprising the islands of Curaçao, Bonaire, and Aruba, and the other consisting of the southern part of St. Martin (the northern part belongs to France), St. Eustatius, and Saba. Area, 403 square miles; population, Dec. 31, 1929, 67,722, of whom 44,344 were on the island of Curaçao. The capital is Willemstad, on the island of Curaçao, with a population of 20,792. Registered births in 1929 numbered 2401; deaths, 1084; marriages, 724. In the same year there were 38 schools, with 9552 pupils. The chief products of the colony are maize, beans, pulse, cattle, salt, and phosphate of lime. The chief industry is the refining of crude oil imported from Venezuela and Mexico. Imports in 1929 were valued at 361,355,450 guilders and exports at 308,667,378 guilders (1 guilder exchanged at about \$0.40 in 1929). Vessels entering the ports in 1929 numbered 12,092, of 45,181,573 net registered tons. The revenue for 1930 was estimated at 7,385,325 guilders and the expenditures at 6,555,853 guilders. Authority to connect by cable the islands of Curaçao, Aruba, and Bonaire with each other, with the mainland, and also

with the All America Cables system was granted by the Netherlands Government in 1930. The colony is administered by a governor assisted by a council of four and a colonial council of 13 members, all nominated by the sovereign. Governor in 1931, Major B. W. T. van Slobbe (appointed Jan. 1, 1930). See NETHERLANDS, THE.

**CURLING.** Canada remained supreme in curling during 1931, winning the most important fixture of the season, the Gordon International Medal competition at Montreal in February. After twenty-one games the defending champions led the United States, 305 to 278, and kept the medal. The Caledonians of New York captured the Gordon National medal by downing Schenectady in the finals at Schenectady in March by 19 to 10.

**CURRENCY.** See COINS, VALUE OF FOREIGN; FINANCIAL REVIEW; MONEY; UNITED STATES.

**CURRICULUM.** See EDUCATION IN THE UNITED STATES; UNIVERSITIES AND COLLEGES.

**CURTISITE.** See MINERALOGY.

**CUSTOMS UNION, AUSTRO-GERMAN.** See under AUSTRIA, GERMANY, and FRANCE under *History*.

**CYCLING.** A new amateur bicycle sprint champion was crowned in 1931 when Arthur Rose, of the Acme Wheelmen, won the title after only one year's campaign with the fastest in the game. Rose died in the early part of December of pneumonia. Cecil Walker, that sturdy Australian, was the outstanding star in the professional ranks, carrying off the national professional sprint championship for the second year in a row and winning the national all-around title for the seventh consecutive time. The national professional motor-paced championship went to Charley Jaeger of Newark in a terrific duel with Franco Georgetti of Italy who had ruled for four seasons. After the regular series of 36 championship races the two men were tied for honors and Georgetti lost in a stirring finish.

The young French cyclists—Marcel Guimbretiere and Alfred Letourner—were the leaders in six-day racing. This pair won both the March and December races at Madison Square Garden, New York City, and finished second in both Chicago events. William Grimm of Newark, and Emil Richilli of Switzerland won the February Chicago race and Grimm teamed with Franz Deulberg of Germany to take the November event at Chicago.

Falck Hansen of Denmark won the world's professional sprint crown, dethroning Lucien Michard of France, who had held the title for four years. Helge Harder of Denmark won the world's amateur sprint crown and the world's motor-paced championship went to Walter Sawall of Germany while Learco Guerra of Italy captured the world's professional road title.

**CYPRUS**, si'prūs. Cyprus was ceded to Great Britain for administrative purposes by Turkey in 1878, formally annexed by Britain on Nov. 5, 1914, and given the status of a British colony May 1, 1925. Third in size among the islands of the Mediterranean, it is situated 40 miles south of the Anatolian peninsula and 60 miles west of the Syrian coast. The area is 3584 square miles and the population at the census of 1921 was 310,715, including 61,339 Moslems; the census population in 1931 totaled 347,959. Capital and chief trading centre, Nicosia (population 23,677 in 1931). The 1931 census showed 276,572 adherents of the Greek-Orthodox Church, 64,238



Moslems, 1058 Anglicans and Protestants, and 5932 Christians of other sects. In 1929, elementary schools numbered 982, with a total enrollment of 49,070.

About 65 per cent of the population are engaged in agriculture, the chief products being beans, potatoes, raisins, barley, wheat, vetches, oats, cotton, sesame, olives, and silk. The mining of copper ore, asbestos, gypsum, terra umbra, and chrome is extensively carried on. Industry is relatively unimportant. Imports in 1930 were valued at £1,419,990 (£1,983,833 in 1929) and exports at £1,217,727 (£1,635,730). A total of 527 foreign vessels of 997,075 tons entered the ports in 1929. Exclusive of the grant-in-aid from Great Britain and the island's share of the Turkish debt charge, revenue and expenditure in 1929 were £757,117 and £717,342, respectively. In 1930, a budget deficit was indicated for the first time since 1926. The public debt at the end of 1929 totaled £160,738. There were (1930) 881 miles of macadam highways and 2039 miles of graded or drained dirt roads. A weekly air service links the island to Alexandria, Egypt, and Haifa, Palestine. Cyprus is administered by a governor, aided by an executive council and a legislative council of 24 members, of whom nine are office-holders and the remainder are elected for five years, 12 of them by non-Moslem and three by Moslem voters. Governor in 1931, Sir Ronald Storrs. See *ARCHAEOLOGY*.

**HISTORY.** The agitation of the Greek majority in Cyprus for union with Greece culminated on Oct. 22, 1931, in fierce rioting in Nicosia and the other chief towns, the destruction of the Governor's residence, and the forced evacuation of British nationals. The immediate cause of the outbreak was an imperial order-in-council putting into effect a revision of the tariff, which the Legislative Council had previously rejected. Despite the arrival of British troops by airplane and naval vessels from Egypt, riots and raids on government properties continued into November. The British Secretary of State for Dominions and Colonies on October 29 gave the Governor a free hand to quell the disorders, in which four civilians were killed and 31 civilians and 35 policemen and soldiers wounded. The rioting subsided following numerous arrests and the banishment of ten ringleaders from the island. See *GREECE* under *History*.

**CYRENAICA**, sir'ē-nā'y-ka. The eastern district of the Italian colony of Libia on the north African coast. Area, about 75,340 square miles, exclusive of the Cufra hinterland zone of about 285,640 square miles. The population (1929 census) was 149,000 (135,000 Moslems, 10,000 Europeans, 4000 Jews); capital and chief town, Benghazi, with 33,794 inhabitants in December, 1929. Agriculture, fishing, cattle raising and salt refining are leading industries. Italian colonization is progressing. Imports in 1930 totaled 151,652,000 lire; exports, 21,249,000 lire (1 lira equals \$0.0526 at par). The estimated revenue for 1930-31 was 248,580,000 lire, including an Italian State contribution of 204,700,000 lire; civil expenditure, 96,905,000 lire; military expenditure, 150,980,000 lire. The military force in 1929 comprised 500 officers and 16,000 men. Governor in 1931, Marshal Pietro Badoglio, whose headquarters were in Tripolitania; Lieutenant Governor of Cyrenaica, Gen. Graziani. See *TRIPOLITANIA*.

The Italian campaign against the rebel

Senussites was pushed to a successful conclusion during 1931. Cufra was captured on January 24 and in September the Senussite leader, Omar el Mukhtar, was captured and executed. The forced migration of 80,000 natives from the disturbed interior to the coast in 1930 had deprived the insurgents of their means of support.

**CZECHOSLOVAKIA**, chēko-slo-vā'kia. A central European republic, formed Oct. 28, 1918, out of the Slav regions of the old Austro-Hungarian Empire; comprising the former Austro-Hungarian provinces of Bohemia, Moravia, Silesia, Slovakia, and Ruthenia, together with the portion of the Teschen district assigned to Czechoslovakia at the Ambassadors' Conference July 28, 1920. Capital, Praha (Prague).

**AREA AND POPULATION.** The total area of Czechoslovakia is 54,196 square miles. The population at the censuses of 1921 and 1930 was distributed by Provinces as follows:

**CZECHOSLOVAK POPULATION, BY PROVINCES**

Province	Area, sq. miles	Population	
		1921	1930
Bohemia .....	20,102	6,670,610	7,106,766
Moravia * .....	8,615	2,662,856	2,825,137
Silesia * .....	1,719	676,121	738,020
Slovakia .....	18,882	2,998,244	3,330,885
Ruthenia .....	4,877	604,593	725,350
Total .....	54,196	13,612,424	14,726,158

\* Moravia and Silesia were united under one administration Dec. 1, 1928.

By race, the population was distributed in 1921 as follows: Czechoslovaks, 8,760,937 (65.5 per cent); Germans, 3,123,568 (23.3 per cent); Magyars, 745,431 (5.5 per cent); Ruthenians, 461,849 (3.4 per cent); Jews, 180,855 (1.3 per cent); Poles, 75,853 (0.5 per cent); others, 25,871 (0.2 per cent). There were also 238,808 aliens. The largest cities, with their population at the 1930 and 1921 censuses (1921 figures in parentheses), are: Praha (Prague), 848,081 (676,663); Brno (Brünn), 263,646 (221,758); Moravská Ostrava, 125,347 (113,709); Bratislava (Pressburg), 123,852 (93,189); Plzeň (Pilsen), 114,150 (108,023). The majority of the people are Roman Catholics, who numbered 10,383,833 in 1921. Czech is the official language, but about 25 per cent of the population speak German as their native tongue. For the period 1926 through 1930, births averaged 336,918 annually and deaths 221,218, the annual excess of births being 115,700. For the same period, emigration averaged 26,138 annually, with 12,961 going overseas.

**EDUCATION.** School attendance is compulsory between the ages of 6 and 14 and the population is 93 per cent literate. For the 1929-30 school year, there were 1,839,312 pupils in primary schools, 88,412 in secondary schools, and 31,164 in advanced technical schools and universities. There are a German and a Czech university at Praha (Prague), a Czech university at Brno (Brünn), and a Slovak university at Bratislava (Pressburg).

**PRODUCTION.** Czechoslovakia inherited about three-fourths of the industrial resources of the former Austro-Hungarian Empire and the north-western section is one of the most highly developed industrial districts of Europe. In addition, the nation is self-contained in most agricultural commodities, although considerable quantities of livestock, wheat, corn, and lard are

imported. Of the total population, about 45 per cent are engaged in industry and commerce and 40 per cent in agriculture. In 1929, there were 15,205,000 acres of arable land, or 43.8 per cent of the total area, 5,850,000 acres of permanent meadow and pasture, and 11,496,000 acres of forests. The area and production of the chief crops in 1929 and 1930 are shown in the accompanying table from the 1931 *Commerce Yearbook*.

CZECHOSLOVAK CROPS: AREA AND PRODUCTION

Crop	Area (thousands of acres)		Production *	
	1929	1930	1929	1930
Wheat .....	2,017	2,112	52,902	53,077
Rye .....	2,690	2,676	72,186	68,047
Barley .....	1,839	1,830	64,074	56,475
Oats .....	2,150	2,140	102,927	85,437
Corn .....	335	325	19,113	8,142
Potatoes .....	1,880	1,750	892,994	800,491
Sugar beets .....	609	614	6,209*	6,179*
Beet sugar <sup>b</sup> .....	...	...	1,035*	1,131*
Hops .....	43	39	26,054*	25,097*
Grapevines .....	42	43	5,918*	11,387*
Hemp .....	26	25	13,627*	11,433*
Flax .....	47	44	20,728*	16,202*
Tobacco .....	16	19	20,207*	18,842*
Fodder beets .....	255	191	2,769*	.....
Alfalfa and clover .....	1,988	2,049	3,196*	.....

\* Unit, metric ton.

<sup>b</sup> Seasons ended following year.

\* Unit, pound.

\* Unit, gallon of wine.

\* Thousands of units—bushels except as indicated.

The unfavorable crops of 1930 were followed by a still more unfavorable harvest in 1931. According to preliminary estimates the 1931 wheat crop was 24 per cent less than in 1930, rye 28 per cent less, barley 19 per cent less, oats 8 per cent, and corn 10 per cent. The 1931 sugar beet crop was fairly good but the sugar content was 4 per cent less than in 1930. Agricultural prices also declined steadily during 1930 and 1931, greatly reducing the purchasing power of the farming population. The census of 1930 showed 4,547,000 cattle, 3,088,000 swine, 831,000 sheep, 1,080,000 goats, and 750,000 horses.

Production of the principal minerals and basic manufactures in 1930 (1929 in parentheses), in metric tons, was: Coal, 14,572,000 (16,751,000); lignite, 19,256,000 (22,555,000); coke (from coal), 2,711,000 (3,160,000); iron ore, 1,668,000 (1,808,000); pig iron, 1,435,000 (1,645,000); steel ingots and castings, 1,835,000 (2,193,000); manganese ore, 85,220 (96,530); salt, 186,488 (173,989). Beer production in 1930 was 295,553,000 gallons (299,701,000 in 1929); artificial silk, 3,200,000 pounds (4,250,000); raw cotton consumption, 217,261,000 pounds (238,987,000). Industrial conditions became increasingly difficult during 1930 and 1931, due partly to difficulty in collecting payments for exports to neighboring countries. Unemployment continued to increase, reaching a total of 253,580 at the end of October, 1931. Tax returns for 1929 showed only 7237 persons with incomes of more than \$4500 a year and 302 persons with an annual income exceeding \$30,000.

COMMERCE. The trade balance in 1930 was again favorable, with exports valued at \$517,862,000 and imports at \$465,518,000, but as compared with 1929, imports decreased 21 per cent and exports 15 per cent. The 1929 exports were \$606,707,000 and imports were \$591,641,000. Imports of the two leading import commodities, cotton and wool, both declined in 1930, the

former by 8 per cent in quantity and 27 per cent in value and the latter by 10 per cent in quantity and 36 per cent in value. Germany furnished 25 per cent of all imports for consumption, as compared with 8.8 per cent furnished by the free port of Hamburg, 7.7 per cent by Austria, 5 per cent by the United States, 3.7 per cent by the United Kingdom, and 3.6 per cent by France. Germany was also the principal market, taking 17 per cent of all exports, compared with Austria, 14 per cent; the United Kingdom, 7.8; the United States, 5.6; and France, 2.3. Exports to the United States decreased 34 per cent as compared with 1929, while imports from that country declined 28 per cent in value.

Iron and steel, cotton piece goods, glass and glassware, wool fabrics, refined sugar, silk and manufactures, and leather footwear, in the order named, were the leading exports. The principal imports, in order of value, were: Raw cotton, wool, machinery, nonferrous metals, mineral oils, iron and steel, swine, and wheat flour. Preliminary figures for 1931 placed imports at 11,789,000,000 crowns and exports at 13,140,000,000 crowns, leaving a favorable trade balance of 1,351,000,000 crowns (1 crown equals \$0.0296). Compared with 1930, exports declined 24.8 per cent and imports 25 per cent.

FINANCE. Closed accounts for the 1930 budget showed a deficit of 666,108,000 crowns (\$19,743,500), in contrast with surpluses of 328,722,000 crowns in 1928 and 338,271,000 crowns in 1929 (1 crown equals \$0.0296 at par). Actual revenues were 9,645,444,000 crowns and actual expenditures 10,311,552,000 crowns, including unbudgeted expenditures of 1,025,491,000 crowns, as compared with the estimated revenues of 9,419,867,000 crowns and estimated expenditures of 9,366,905,000 crowns. In the 1931 budget, receipts were estimated at 9,844,000,000 and expenditures at 9,838,000,000 crowns. The budget for 1932, as accepted by Parliament in October, 1931, was based on estimated receipts and expenditures 5.3 per cent (about 15,400,000) less than the 1931 budget estimates; the totals were 9,323,376,000 and 9,318,709,000 crowns, respectively.

The public debt on Jan. 1, 1931, totaled 36,916,000,000 crowns (about \$1,092,714,000), compared with 36,223,600,000 crowns (about \$1,072,219,000) a year earlier. The internal debt totaled 25,039,000,000 crowns and the external debt 8,425,000,000 crowns, including \$168,571,000 due to the U. S. government.

COMMUNICATIONS. The Czechoslovak railways, 98 per cent of which are government owned or controlled, had 8367 miles of line in 1930. In that year they carried 73,894,000 metric tons of freight (83,831,000 in 1929) and 264,762,000 passengers (270,992,000 in 1929), earning gross receipts on these services of 3,934,580,000 crowns (4,461,612,000 crowns in 1929). In 1931, there were about 49,000 miles of highways, including 5300 miles of state highway maintained by the National government. Statistics of civil aviation in 1930 were: Flights, 5447; passengers carried, 12,382 (11,345 in 1929); mail carried, 94,456 pounds (55,318); goods carried, 1,071,839 pounds (1,492,347). Telegraph lines (1929) totaled about 10,459 miles, virtually all of which were under government control. The Danube is the principal waterway, with Bratislava as the chief port; the Elbe and Vltava Rivers also are extensively used for freight shipments.

**GOVERNMENT.** According to the constitution adopted by the National Assembly, Feb. 29, 1920, executive power is vested in a president, elected for seven years by the two chambers in joint session, who appoints and recalls his ministers; and legislative power in a senate of 150 members elected for eight years and a chamber of deputies elected for six years, the former elected by all citizens over 26 years of age and the latter by all citizens over 21 years of age. The principle of proportional representation is applied. The composition of the Chamber of Deputies following the election of Oct. 31, 1929, was as follows: Czech Agrarians, 46; Czech Socialist Democrats, 39; Czech National Socialists, 32; Communists, 30; Czech Clericals, 25; German Social Democrats, 21; Slovak Clericals, 19; German Agrarian and Middle Class parties, 16; Czech National Democrats, 15; German Christian Socialists, 14; Czech Small Traders, 12; Hungarian Christian Socialists, 9; German National Socialists, 8; German Nationals, 7; Poles and Jews, 4; League for Election Reform, 3.

President in 1931, Thomas Garrigue Masaryk, reelected May 27, 1927. The coalition government formed Dec. 8, 1929, was constituted as follows: Prime Minister, František Udržal (Czech Agrarian); Foreign Affairs, Dr. Eduard Beneš (Czech National Socialist); National Defense, Dr. K. Viškovský; Finance, Karl Arapl (Apr. 16, 1931); Interior, Dr. J. Slávik; Commerce, Dr. Josef Matoušek; Health, Dr. Franz Spina; Railways, Rudolf Mlčoch; Social Welfare, Dr. Ludwig Czech; Justice, Dr. Alfred Meissner; Agriculture, Bohumil Bradáč; Education, Dr. Ivan Dérer; Posts and Telegraphs, Dr. Emile Franke; Public Works, Jan Dostálek; Unification of Laws, Dr. Jan Šrámek; Food, Rudolf Bechyně. The Cabinet represented a coalition of all Czech parties, bourgeois and socialists, and the German-Magyar Agrarians and Social Democrats.

### HISTORY

**DOMESTIC AFFAIRS.** While sharing the common fate of Europe in the drastic curtailment of trade, increased unemployment, financial stringency, and onerous exchange restrictions, Czechoslovakia during 1931 remained free from striking political, economic, and financial crises. The Udržal Coalition government established in 1929 remained firmly in the saddle and even strengthened its position in the municipal elections in the autumn. Despite intense nationalistic antagonisms aroused elsewhere in Europe by the Austro-German Customs Union and other incidents, the relations of Czechs, Germans, and Slovaks within Czechoslovakia were, in general, more friendly than in former years. Dr. Franz Spina, one of the two German members of the cabinet, testified to the great improvement in German-Czech relations in a speech before the German Farmers party congress in March.

Toward the end of 1931 the nation became genuinely alarmed at the economic prospects. The financial and economic storm of the summer had virtually bankrupted all of the neighboring states to which the bulk of Czechoslovak exports are normally sold. Home consumption declined, unemployment mounted, and the government was obliged to extend relief by direct doles and by providing employment on public works and the state forests. There was a revival of Communist agitation and in a clash between police and "hunger marchers" in Czechoslovak Silesia No-

vember 25, nine persons were killed and 15 badly wounded. The government at the beginning of the year was in an exceptionally strong financial position. In April, negotiations were opened with French bankers for a \$50,000,000 loan to enable the conversion of the 8 per cent external gold loan of 1922 at a lower interest rate. The negotiations were unsuccessful, but the Czechoslovak financial system weathered a severe exchange crisis in September and the crown remained among the stable currencies. The Hoover moratorium proved a distinct aid to the national finances, postponing external payments aggregating \$7,000,000. By several decrees issued in October, foreign exchange transactions were placed under the supervision of the National Bank.

**FOREIGN RELATIONS.** The Czechoslovak Foreign Office during 1931 was chiefly concerned with the problem of the steady economic decline of the countries of Central Europe and the serious repercussions upon Czechoslovak prosperity. Throughout the year, negotiations were carried on for a reduction of the barriers to trade with neighboring countries, but political complications prevented any noteworthy progress. A Czechoslovak delegation was in Vienna for the purpose of negotiating a trade convention when the announcement on March 20 of the Austro-German Customs Union proposal precipitated a crucial diplomatic and financial struggle between France and Germany (See AUSTRIA, FRANCE, and GERMANY under *History*). Foreign Minister Beneš entered vigorously into this struggle on the side of Czechoslovakia's ally, France. In repeated speeches he denounced the proposal as the first step toward the political union of Austria and Germany, which would leave Czechoslovakia surrounded on three sides by a greater Germany. In a speech before the Foreign Affairs Committee of the Czechoslovak Parliament April 23 and again before the Austrian Minister to Prague in October, M. Beneš outlined alternative proposals to the Austro-German Customs Union. His first proposal was based on adherence to the most-favored-nation principle, with the mutual extension of trade preferences between the European agricultural and industrial countries. His second project called for a customs union of Czechoslovakia, Austria, Hungary, and Yugoslavia. It encountered the strong Pan-German sentiment in Austria and aroused little enthusiasm.

Meanwhile the government had concluded a new commercial treaty with Yugoslavia in April, negotiations for a similar treaty with Greece had been inaugurated, and the Czechoslovak delegation had returned to Vienna to renew negotiations for a trade convention. At the annual conference of the Little Entente Foreign Ministers held at Bucharest May 3-5, M. Beneš succeeded in securing the united support of the Rumanian and Yugoslav governments in opposition to the Austro-German Customs Union (see LITTLE ENTENTE). On December 10 M. Beneš indicated that Czechoslovakia was ready to take the initiative in promoting some form of economic union of Central Europe, but that the government could afford to wait until the other nations were in a more receptive mood. His statement gained importance from the fact that at the same time representatives of Czechoslovakia, Poland, Hungary, Rumania, Yugoslavia, and Bulgaria were holding an agrarian conference in Sofia in the presence of representa-

tives of the League of Nations' international agrarian board and other interested parties.

**DADAÏSTS.** See FRENCH LITERATURE.

**DAHOMÉY,** dá-hô'ml. A French colony on the west coast of Africa forming a subdivision of the colony of French West Africa. (See FRENCH WEST AFRICA.) The colony has only about 70 miles of coast, but a wide hinterland. Area, 62,722 square miles; population, according to the census of 1929, 1,080,447 (1093 Europeans). The chief centre of trade and the seat of the government is Porto Novo with a population of 23,614. Imports in 1929 amounted to 147,647,058 francs; exports, 120,691,697 francs. The local budget for 1930 was 55,602,500 francs. In 1931, there were 270 miles of railway line and more than 2700 miles of highways, including 495 miles of first-class roads. Lieut.-Governor in 1931, M. Reste.

**DAIRYING.** The unsettled conditions and sharp decline in prices of dairy products in the United States characteristic of the preceding year were continued well into 1931. Reduced buying power, increased competition, and large supplies of dairy products both at home and abroad combined to decrease the incomes of dairymen. Pasture conditions were poorer during the early summer than during 1930. Seasonal price raises had not materialized and during the latter part of the year tended to decline, a condition that had not prevailed for many years.

Adjustments to meet prevailing conditions were undertaken early in 1931. Low-producing animals were culled from herds, and the proportion of heifers in herds was materially reduced. However, in the early autumn there were nearly 4 per cent more milk cows on farms than there were in the fall of 1930. The relatively low cost of feeds was the redeeming feature in the field of production. At practically all times during the year there was a comfortable margin between the cost of feeds and the prices obtained for dairy products. Due to the poor pastures and the reduction in the amount of supplementary feeding during the spring and early summer the flush of production did not occur. This tended to have a stabilizing effect and reduced reserve stocks of dairy products. Production fluctuated throughout the year, but due to the favorable fall weather the usual decline in production was late in occurring.

The consumption of butter, cheese, and condensed milk in 1931 showed an increase of about 1 per cent as compared with 1930. On the other hand, the production of these commodities declined somewhat less than 1 per cent. The greatest decrease was in the amount of condensed and evaporated milk produced.

Dairy surpluses have usually gone mostly into butter and this market carried the burden of disposing of these surpluses. The amount of butter in storage the first of November, 1930, was 110,000,000 pounds as compared with 138,000,000 pounds on that date in 1929. This amount was about 2,000,000 pounds below the 5-year average. However, on Nov. 1, 1931, the total stocks of butter in cold storage amounted to 56,000,000 pounds. This was the smallest storage of butter on record at that particular date, being 24 per cent below the previous low. The consumption of butter was stimulated somewhat by the low prices which prevailed during the greater part of the year.

The consumption of evaporated milk increased,

but it was probable that a large amount of this stock moved into the hands of wholesale grocers and did not reach the ultimate consumer. The increased consumption of evaporated milk was also offset to some degree by a reduced demand for fluid milk. Cheese consumption in 1931 was short of that of the previous year, but retail prices of this commodity were relatively higher during most of the year than butter prices. The stocks of butter, cheese, and condensed and evaporated milk on hand in the fall of 1931 was about 30 per cent less than the average for the last five years.

Fluid milk prices for the year were relatively stable throughout most of the fluid-milk territories. Buying prices by distributors for fluid milk for use as such, declined about 23 per cent during the two years 1930 and 1931 as compared with a 30 per cent decline in butter prices and a 35 per cent decline in cheese prices, but on account of lower feed prices and the reduction in storage stocks, dairying occupied a relatively strong position in 1931 as compared with other agricultural enterprises.

Efforts to protect both domestic producers and consumers of butter resulted in proposed legislation regulating the sale and distribution of oleomargarine which was considered by 37 State Legislatures. One or more laws of this nature passed in the following States: California, Colorado, Idaho, Illinois, Iowa, Kansas, Michigan, Minnesota, Montana, Nebraska, New Hampshire, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Dakota, Tennessee, Vermont, Washington, Wisconsin, and Wyoming. Of these States, 12 imposed sales taxes, 12 prohibited the sale of yellow oleomargarine, 5 prohibited the use of oleomargarine in public institutions, and 6 either placed dealers under license or increased the license fees previously provided.

**INTERNATIONAL CONDITIONS.** Prices for both butter and cheese in foreign markets, excepting Germany, were well maintained despite heavier supplies than in 1930. Weakened buying power in Germany continued to limit importation of butter into that country. Canada, with exports of milk and cream, and New Zealand with butter practically excluded from the United States by the high tariff rates, were active competitors of American butter on the European markets.

Butter production in Canada increased 15 per cent during the first eight months of the year as compared with 1930, while an unfavorable season in New Zealand held the increase in butter production to 2.5 per cent during the year ended Aug. 1, 1931, the smallest increase for several years. On the other hand, the exports of butter from Australia for the year ended June 30, 1931, amounted to 163,500,000 pounds as compared with 107,551,000 pounds for the previous year.

Both domestic imports and exports of dairy products of the United States were considerably less in 1931 than in the preceding year, and there continued to be an excess in values of imports over exports of dairy products amounting to about \$4,735,000 for the entire year. The exportation of dried milk more than doubled in quantity in 1931 over 1930, but the amount of condensed and evaporated milk exported, the second largest article of export, decreased somewhat. While all imports decreased, the largest decline was in the amount of butter brought in.

**TRENDS IN RESEARCH.** Numerous research studies were in progress at the State Agricultural Experiment Stations and the U. S. Department of Agriculture dealing with quality of dairy products, new methods or modifications of old methods in the manufacture of these products, nutrition as it affects growth, production, and reproduction, and new and better methods of marketing dairy products. These studies may be expected to furnish valuable information, both for the producer and consumer of the products of the dairy cow.

Both the Bureau of Dairy Industry and the Nebraska Agricultural Experiment Station found that more than two milkings daily with high-producing cows increased the butterfat and milk production. It was believed that emptying the udder relieved the pressure and permitted secretion to function in a normal manner. The additional milkings tended to increase the fat content of the milk. The value of the additional milkings was more pronounced when they were carried out through the entire lactation period. The Bureau of Dairy Industry, in its study, also discovered that, contrary to popular belief, the decrease in yield of milk due to a change in milkers was practically negligible.

The possibility of producing milk with a definite antirachitic potency was suggested by studies at the Wisconsin Agricultural Experiment Station. The feeding of 50 gm. of irradiated yeast daily to dairy cows increased the antirachitic value of their milk and as much as 200 gm. daily of yeast was fed without any detrimental effect on milk production. Daily exposure of the cows to sunlight or artificial ultra-violet light did not improve the antirachitic value of the milk. The feeding of irradiated ergosterol to dairy cows at the Ohio Agricultural Experiment Station brought about an improvement in the vitamin D content of the butterfat.

The effect of carbonation on dairy products was studied at the Illinois Agricultural Experiment Station. It was found that carbonation tended to inhibit the growth of some species of bacteria, while others multiplied as rapidly as in uncarbonated products. This inhibiting effect tended to prolong the keeping period of the product, but the temperature at which the product was kept after carbonation, the pressure of the carbon dioxide gas, and the amount and kind of bacterial contamination prior to carbonation also influenced the keeping period.

The use of condensed and dried milks in the manufacture of ice cream is becoming more common because of the convenience and keeping qualities of these products. The Bureau of Dairy Industry found that spray-dried skim milk, preheated to 83° C., imparted the most desirable properties to ice cream. Superheated condensed skim milk improved the quality of ice cream more than when not superheated or when it was preheated, but was not as valuable as the preheated spray-dried skim milk. Atmospheric roll dry skim milk was relatively insoluble and imparted a distinct cooked or custard-like flavor to the ice cream in which it was used at both the New York (Cornell) and Pennsylvania Agricultural Experiment Stations.

The ninth International Dairy Congress was held in Copenhagen from July 13 to 17, 1931. It was attended by more than 1600 delegates and there were official representatives from more than

30 governments. A special branch of tropical dairying was formed. The next Congress was to be held in Berlin in 1934.

During the year James Turner presented to the State of New Jersey, for administration as a dairy research station, 1100 acres of crop and pasture land, 270 Guernsey and 55 Holstein cattle, and elaborate buildings and equipment. The State designated the New Jersey Agricultural Experiment Station to administer this project. The gift, to be known as the James Turner Institute of Research, is a valuable addition to the research equipment of the State.

**PERSONNEL.** Dr. S. M. Babcock (q.v.), of Wisconsin University, died July 1, 1931. Dr. Babcock was most widely known as the inventor of the butterfat test which is the basis for all Advanced Registry work. Dr. Babcock also made other extensive and valuable contributions to the field of dairy chemistry. On Sept. 20, 1931, Dr. L. L. Van Slyke (q.v.), of the New York (Geneva) Agricultural Experiment Station, died. Dr. Van Slyke was an important contributor toward the advancement of the knowledge of the chemistry of milk, cheese, and butter. G. A. Bowling was appointed assistant professor of dairy husbandry at West Virginia University vice K. S. Morrow, resigned to become associate extension dairyman, Rutgers University. W. S. Mueller was appointed assistant research professor of dairying at the Massachusetts State College of Agriculture, vice K. E. Wright, resigned.

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**DAKAR.** See FRENCH WEST AFRICA.

**DALMATIA.** A crownland of Austria until 1918, and then a Province of Yugoslavia until the administrative reorganization of Oct. 3, 1929 (see YUGOSLAVIA). It extended from Bosnia and the Herzegovina west to the Adriatic Sea. Area, 4916 square miles; population, according to the census of Jan. 31, 1921, 621,420.

**DAMS.** There has never been a period which has witnessed such great hydraulic undertakings as those under construction in the United States during the year 1931. It is therefore natural that the design and construction of such basic hydraulic structures as dams should command particular attention. Furthermore, all records for magnitude of construction were being exceeded almost yearly in the construction of great reservoirs for water supply for domestic, power, or irrigation purposes, which require dams of unprecedented height. Nevertheless among all these great works the Hoover Dam stands out clearly as the greatest hydraulic engineering

structure ever attempted by man and the largest hydraulic project since the building of the Panama Canal.

**THE HOOVER DAM.** The earlier stages of this great enterprise have been outlined in previous **YEAR BOOKS**, but the year 1931 marked the beginning of the actual work of construction. On March 4 bids were opened in Denver, Col., and on March 11, the largest single contract ever let was awarded to the Six Companies, Inc., of San Francisco. This organization, a syndicate of six experienced western contractors, submitted the lowest bid of the three offers, and undertook to build the Hoover Dam in seven years for the sum of \$48,890,995.

While the most interesting feature of the plans and specifications, outlined in the 1930 **YEAR BOOK**, is probably the method to be followed in securing a monolithic mass of concrete for the dam proper, actual construction of the dam was not to begin for three years. In other words the amount of excavation and preliminary construction in connection with this 730-ft.-high structure, with its staggering total of 2½ million cubic yards of concrete, is such that actual placing of concrete was not scheduled to start until Dec. 1, 1934. Nevertheless the preliminary construction is on such a vast scale and is of such great magnitude that it is of special interest.

There was no delay in starting this great work although it was not until April 20 that the contract, quickly signed by the representatives of the Six Companies, was made fully effective by the approval of final plans by the consulting experts and the affixing of Secretary Wilbur's signature. In the meantime the Six Companies had courageously gone ahead perfecting their organization. By April 26, six days after the contract was signed, the Union Pacific Railroad had completed its new line, started the previous September to the site of the new Boulder City. Twice daily trains run from Las Vegas, Nevada. By June 27 electric power from the Southern Sierras Power Co. was available at the dam site over a 225-mile transmission line.

On July 31 the highway, 7 miles long, to bring the workers from their homes in Boulder City to the Dam, was completed.

These essential preliminaries permitted the Boulder Canyon activities, in spite of a summer of terrific heat, already to settle down to the steady pull of a seven-year job under complete control and organization.

**Boulder City.** About \$2,000,000 was being spent in building on a desert waste a complete modern city. High above the river and consequently much less subject to the terrific heat of this region, which is particularly bad in the canyon, streets, water supply, sewerage, electric lights, telephones, transportation, and other municipal facilities were provided. A city-manager type of government was instituted and over 130 applications for business enterprises were approved. The Six Companies built housing facilities for their construction force, which include a mess-hall for 1000 men provided with every modern facility, the most complete ever built for such a purpose.

**Transportation.** The first steps looking toward actual construction required the blasting of a road approach to the portals of the great diversion tunnels, the construction of 26 miles

of railroad to open up the gravel deposits and make the dam site accessible to standard railroad equipment, and the construction of four suspension bridges for foot passage across the canyon. The government was also to construct under separate contract a 10½-mile railroad from Boulder City to the canyon rim where it will join a funicular railroad from the river bottom. Other suspension highway bridges also were to be built.

**Tunnel Operations.** Construction operations in the dam could not, of course, be undertaken until the four 50-ft. diameter diversion tunnels, which will carry the river flow around the dam site, and the necessary coffer dams to divert the flow to the tunnels, were completed. It was therefore vitally important to begin the tunneling operations as soon as possible. They were being excavated by attacking from both the four upstream and four downstream portals as well as from two additional headings in each tunnel, opened up by driving adits in from the canyon walls at about the midpoints. Each tunnel is about 4000 ft. long. Boat transportation was used to bring in equipment and begin operations before the construction road was available. The 12 by 12-ft. top-centre pioneer headings of the two inner tunnels were holed through on the south halves in September and proved the rock to be satisfactory in character.

By December the pioneer headings of all four tunnels had been completed. Enlargement operations were started in October. Electric shovels, 2¼-yard capacity, handled muck directly to trucks and later would deliver to railway cars. Three main electrically operated compressed air plants supplied the drills.

**Gravel Plant.** Gravel from the Arizona deposits will be brought by railroad to a great screening and washing plant which will have a capacity of 500 tons of gravel per hour. This was under construction as well as a water-softening and purification plant which will provide 400,000 gallons of water every 16 hours for concrete mixing and other purposes. Another 800,000-gallon clarification and purification plant will supply water at Junction City for the gravel and screening plant. Excavation also was completed for the concrete-mixing plant.

**Labor.** It was early recognized that the climate of this area would be very trying on labor. Every effort was made to minimize these difficulties. Nevertheless as a result of the terrific summer heat and because of a dispute over minimum wage a strike was called August 7. The Six Companies suspended work on the contract but on August 13 work was resumed and on August 16 the strike was called off. By September, as a result of cooler weather, efficiency and morale were restored and the turnover among the 3000 men employed was greatly reduced. Considering the magnitude of the project the number of accidents had not been large. See also **CANALS** under *All-American Canal*.

**DAMS COMPLETED.** On July 12 the huge rock fill dam of the Pacific Gas & Electric Co. of California was dedicated. This structure on the Mokelumne River development and known as the Salt Springs Dam, is 328 ft. high and has a crest length of 1300 ft. The precautions taken in this great power work to secure a solid and water-tight structure were noted in the



1930 YEAR BOOK. It is part of a \$40,000,000 development which will utilize a total head of 5000 ft. by means of four power plants and two reservoirs.

On May 20 the Big Tujunga Dam No. 1, of the Los Angeles County Flood Control District, was completed. This variable radius type of arch dam is 240 ft. high. It is the first of four flood control and conservation dams to be built in the Big Tujunga Canyon and the thirteenth major dam to be constructed in the district.

The Inland Power & Light Co. completed on the Ariel Hydro-electric Project, Wash., on September 1, the first of seven power dams to be built on the Lewis River, a tributary of the Columbia. The Ariel Dam gives 45,000 kw. in one generating unit and a total of four equal units will be installed. The dam is another notable thin-arch variable radius type of 312 ft. in height. Its foundations had to be carried 123 ft. below normal water level and all concrete up to stream level placed in a working period between floods of only 150 days. The method of placing concrete in 30-ft. sections separated by 2-ft. spaces, providing radiating surface in four directions for dissipating the heat of setting and other precautions taken to eliminate shrinkage and temperature effects and secure a solid concrete mass, mark this work as an outstanding example of modern concrete dam construction.

The Cushman Dam No. 2, another power structure, was completed early in the year for the power supply of Tacoma, Wash. This also is a notable arch dam, being 240 ft. high.

Interest in the Calderwood Dam on the Little Tennessee River near Knoxville, Tenn., centres on the spillway fall and on the crest gates. The spillway capacity of this 230-ft. arch dam is 200,000 cubic feet per second. Its construction has been noted in previous YEAR BOOKS and its mechanically and electrically operated crest gates were accepted as the last word in the design and construction of such devices.

On February 19 a remarkable construction record was celebrated in the closing of the temporary sluice gates of the Bagnel Dam of the 129,000 kw. Osage hydro-electric project in Missouri. In only 18½ months after the start of construction this great masonry dam, having a maximum height of 148 ft. and 2543 ft. long, had started to impound water in what will be the largest lake in the State. The reservoir will be 130 miles long and will cover 95 square miles.

**DAMS UNDER CONSTRUCTION.** Next to the Hoover Dam, the arch-gravity type Owyhee Dam of the U. S. Reclamation Service, now under construction in eastern Oregon, was of special interest to engineers. It is a record-height structure, being 530 ft. from the bottom of foundations to the crest, and will provide 715,000 acre ft. of storage. When concreting was resumed on February 23, after the mid-winter layoff on account of the severe weather at the dam site, the dam was about half completed. Excellent progress was made during the summer and on November 23, when work was again suspended, it was 90 per cent completed. Over half a million cubic yards of concrete are involved in the construction.

Work again was going forward on the Cobble Mountain Dam for the water supply of Springfield, Mass. It was necessary to relet the contract for this hydraulic fill structure which will be the highest earth dam in the world—250 ft.

above foundations. The dam is located in the hills west of Westfield, Mass., and, at the request of this city, the adequacy of the design was recently reported on and approved by a special engineering board.

What is believed to be the greatest flood ever handled during the construction of a dam was passed through the openings left in the spillway of the great Dneiper Dam in Russia during a flood in May. A peak of 835,000 cubic ft. of water per second passed this work without damage to the permanent works. The dam is an essential part of the huge Dneiper River power development.

Chile was undertaking the construction of 18 dams under a recent reclamation act. All these structures are of the so-called earthquake proof type. The Cogoti Dam, one of the group, is a particularly interesting rock-fill structure in which precautions have been taken to secure a fill which will not settle under shock and a water-tight apron which will flex without rupture.

**DAM PROJECTS.** It seems probable that there will be a reduced building, particularly in power construction, in the near future, and that for the next few years the Hoover Dam may be almost the only notable structure under way. Nevertheless the U. S. Reclamation Service opened bids on July 10 for the Cle Elum Dam to be located 8 miles from the town of this name in the State of Washington. It was to be an earth-fill type 125 ft. high, not a record structure but a high earth dam.

Another important dam project is the Pine Canyon Dam on the San Gabriel River. This work was to have been of the notable height of 295 ft., but the Pasadena (Calif.) Board of City Directors ordered the height reduced to 245 ft., because it was uncertain whether the Metropolitan Water District of Southern California should utilize the work for storage of Colorado River water from the new aqueduct.

In view of recent widespread dam construction in the Western States and remembering the fatal St. Francis Dam failure, it is interesting to note that a board of engineers and geologists had reported adversely on the Mulholland Dam. This dam is located in the Hollywood Hills, Calif., and is similar in type to the St. Francis Dam and was constructed prior to the latter structure. The report pointed out that there were deficiencies of structure in the Mulholland Dam and that it rested on faulted foundation rock. Insufficient base width with no allowance for uplift, improper terracing of foundations to provide against sliding, and insufficient provision for drainage of foundations were noted.

**DANA, RICHARD HENRY.** An American lawyer, died Dec. 16, 1931, in Cambridge, Mass., where he was born Jan. 3, 1851. Following his graduation from the Harvard Law School in 1877, he was admitted to the Massachusetts bar and practiced in Boston. In 1878-79 he organized the Associated Charities of Boston. He drafted the Civil Service Reform Act of Massachusetts in 1884 and the Australian Ballot Act in 1888, the first to be passed in the United States. From 1889 to 1892 he was editor of the *Civil Service Record*. His activities in behalf of civil service, taxation, ballot, election, municipal, and social reforms led to his being made chairman of the council of the National Civil Service Reform League (1905-12) and president (1913-23). He

was the author of *Double Taxation in Massachusetts* (1895); *The Corrupt Practices Act* (1906); *The Australian Ballot System of Massachusetts* (1911); and *Hospitable England in the Seventies* (1921). He also wrote in 1911 an introduction and concluding chapter to the sea classic, *Two Years Before the Mast*, published by his father, Richard Henry Dana, in 1840.

**DANISH LITERATURE.** See SCANDINAVIAN LITERATURE.

**DANZIG**, dän'tsik. A Baltic port, occupying a strategic position at the mouth of the Vistula River, which, with its surrounding territory, was established as a free city on Nov. 9, 1920, under the terms of the Treaty of Versailles. It was formerly a part of the German Empire. Area, about 754 square miles; population in 1929, 407,620, of whom 236,064 were in the city proper. The population in 1929 was 95 per cent German and less than 5 per cent Polish. German is the official language. Of the 1924 population, 222,868 were Protestants, 140,797 Roman Catholics, and 9239 Jews. In 1929, there were 44,632 children in elementary schools, 3228 in middle schools, and 6207 in high schools.

Danzig is advantageously situated with relation to the great Polish, German, and Russian grain districts and has been the chief outlet for the foreign commerce of Poland, which exercises joint control with the Free City of the harbor administration. The territory is also within the Polish Customs administration. Traffic through the port in 1930 amounted to 8,217,000 metric tons, which was 343,000 tons, or 4 per cent, below the 1929 total. The decline in traffic through other Baltic ports, however, was about 20 per cent. The prosperity of Danzig was adversely affected in 1930 and 1931 by the growth of the new Polish port of Gdynia (see **POLAND** under *Communications*) and by the establishment of Polish Government agencies for the direct sale of Polish exports and the direct purchase of such Polish imports as potash salts and nitrates.

A total of 6078 vessels of 4,143,000 net registered tons arrived at Danzig during 1930, as compared with 5396 vessels of 3,892,000 tons in 1929. Vessels cleared numbered 6080 of 4,143,000 net registered tons, as against 5432 vessels of 3,918,000 tons in the previous year. With the aid of a short-term loan, reduced expenditures, and higher taxes, the budget for the fiscal year ended Mar. 31, 1931, was tentatively balanced at 88,583,000 gulden (\$17,700,000 at the exchange rate of \$0.1944). Four main railway lines connect Danzig with important German cities, while three other main lines run to leading Polish cities. Air lines link the port with various German and Polish points and with Kalmar, Sweden.

Danzig is under the protection of the League of Nations, which appoints a High Commissioner to settle disputes between the Free City and Poland. Foreign relations are controlled by Poland, but the Free City exercises a veto power. The Constitution, as approved by the League of Nations May 11, 1922, vests executive power in the President of the Senate, which is the highest state authority. A Diet of 72 members elected for four years by universal suffrage elects the members of the Senate and its President. The composition of the Diet elected Nov. 16, 1930, was: Social Democrats, 19; National Socialists (Hitlerites), 12; Centrists, 11; Na-

tional Germans, 10; Communists, 7; National People's party, 3; other parties, 10. President of the Senate in 1931, Dr. Ernst Ziehm, elected January, 1931. High Commissioner of the League of Nations, Count Manfred Gravinga, appointed September, 1928.

For relations with Poland in 1931, see **POLAND** under *History*; also see **WORLD COURT**. An important proposal for the solution of Danzig's political and economic problems was put forward by Prof. James T. Shotwell in the *New York Times* of Oct. 10, 1931.

**DARTMOUTH COLLEGE.** A nonsectarian institution for the higher education of men in Hanover, N. H., founded in 1769. The 1931 autumn session had an enrollment of 2375 students, most of whom were working for the B.A. degree, the exceptions being 15 graduate students, 40 students in the medical school, 19 in the Thayer School of Civil Engineering, and 88 in the Tuck School of Administration and Finance. There were 303 members on the faculty. The endowment amounted to \$15,600,000, while the income for the year was \$750,000. The Fisher Ames Baker Memorial Library contained 328,905 volumes. President, Ernest Martin Hopkins, A.M., Litt.D., LL.D.

**DATE SCALE.** See **ENTOMOLOGY**, **ECONOMIC**.

**DAVIS, HARRY PHILLIPS.** An American electrical engineer, died in Wilkesburg, Pa., Sept. 10, 1931. He was born in Somersworth, N. H., July 31, 1868. On graduation from the Worcester Polytechnic Institute in 1891, he became associated with the Westinghouse Electric & Manufacturing Co., being appointed assistant chief engineer in 1904, manager of engineering activities in 1909, assistant to the first vice president in 1910, and vice president in charge of manufacturing and engineering after 1911. He took a leading part in the establishment of radio broadcasting as a public utility, inaugurating at East Pittsburgh, Pa., in 1920 station KDKA, the first to be established for the commercial exploitation of radio by stimulating the manufacture and sale of receiving equipment. He also was instrumental in the establishment of major stations in Chicago, Newark, and Springfield, and on the organization of the National Broadcasting Company in 1926 became chairman of its board of directors. In addition to being a director of the Radio Corporation of America, the Radio-Keith-Orpheum Corporation, and the RCA-Victor Corporation of America, he was president and director of the Westinghouse High Voltage Insulation Company, vice president and director of the Westinghouse Electric Products Company, the Turtle Creek & Allegheny River Railroad, and the Westinghouse Inter-Works Railway, and director of the Westinghouse Lamp Company and the Westinghouse Electric International Company. He was responsible for many important advances in the electrical field, among his inventions being appliances for improving railway control apparatus, rheostats, arc lamps, switches, integrating wattmeters, circuit breakers, and transmission equipment. He also supervised the electrification of the New York, New Haven & Hartford Railroad, the Hoosac Tunnel at North Adams, Mass., the St. Clair Tunnel of the Grand Trunk Western Railway between Ontario and Michigan, and the Pennsylvania Railroad terminal in New York City.

**DAVIS COLLECTION.** See **ART MUSEUMS**.

**DEATH RATE.** See **VITAL STATISTICS**.

**DEAVER, JOHN BLAIR.** An American surgeon, died in Wyncote, Pa., Sept. 25, 1931. Born near Buck, Pa., in 1855, he received the M.D. degree from the University of Pennsylvania in 1878, and eight years later was appointed surgeon-in-chief at the German (later the Lankenau) Hospital. He also was consulting surgeon to several other Philadelphia hospitals. From 1891 to 1900 he was assistant professor of applied anatomy at the medical school of the University of Pennsylvania, and from 1914 to 1923 professor of the practice of surgery, holding the John Rhea Barton professorship of surgery after 1918. He was president of the American College of Surgeons in 1921. His major publications include *Surgical Anatomy* (3 vols., 1889-93); *Enlargement of the Prostate* (with A. P. C. Ashhurst, 1895); *Appendicitis: Its History, Pathology, and Treatment* (1897); *Surgery of the Upper Abdomen* (with Ashhurst, 2 vols., 1909, 1913); *Surgical Anatomy of the Head and Neck* (1912); and *Diseases of the Breast* (with Joseph McFarland, 1917).

**DEBTS, PUBLIC.** See PUBLIC FINANCE; GREAT BRITAIN, ETC., under *Finance*.

**DECEPTION ISLAND.** Deception Island (Lat. 63° S., Long. 60° 15' W.) near the northern extremity of Graham Land is a volcanic island into whose breached crater the sea has entered and provided an excellent land-locked harbor for the whaling vessels congregating in the adjoining waters each year. See POLAR RESEARCH.

**DEFECTIVES.** See CRIME; CHILD WELFARE.

**DE FOREST, ROBERT WEEKS.** An American lawyer and philanthropist, died May 6, 1931, in New York City where he was born Apr. 25, 1848. He was educated at Yale (A.B., 1870), Columbia (LL.B., 1872), and Bonn. When first admitted to the bar, he was associated with his father and uncle; later the firm included his brother and sons. From 1874 to 1924 he was general counsel, and after 1902 vice president of the Central Railroad of New Jersey, and he came to hold offices or directorships in a number of other corporations. Actively identifying himself with a variety of public and philanthropic interests, he served as president of the Charity Organization Society of New York City after 1888 and of the Welfare Council of New York City after 1925; chairman of the New York State Tenement House Commission in 1900, and New York City's first tenement house commissioner (1902-03); president of the National Conference of Charities and Corrections at Atlanta in 1903; president of the Russell Sage Foundation after 1918; and vice president of the American Red Cross for many years. He was also trustee after 1889, and president beginning in 1913, of the Metropolitan Museum of Art, New York City; president after 1912 of the American Federation of Arts; and president from 1905 to 1929 of the Municipal Art Commission of New York City.

**DE KALB, COURTENAY.** An American mining engineer, died in Tucson, Ariz., Sept. 2, 1931. He was born in Loudon Co., Va., Sept. 18, 1861. In 1895, after practicing in the Western and Southern States and conducting mining expeditions in South America, he was appointed professor of mining and metallurgy at the University of Missouri, holding the same chair three years later at Queen's University, Kingston, Ont., Canada. In 1901 he resumed his practice as manager of the San Fernando mine in Durango,

Mexico. He was associate editor of the Mining and Scientific Press in San Francisco during 1908-10, and again during 1917-19, and president and general manager of the Pacific Smelting & Mining Co. in Guaymas, Mexico, during 1910-12. In 1919 he was appointed trade commissioner of the U. S. Department of Commerce to investigate the mineral resources of Spain, Portugal, and Morocco. He was construction engineer at mines in Arizona during 1921-25 and professor of mining engineering at the University of Alabama during 1925-26, lecturing also at DePauw University.

**DELAWARE. POPULATION.** According to the Fifteenth Census, the population of the State on April 1, 1930, was 238,380; in 1920, 223,003. Wilmington, the chief city, had 106,597 inhabitants in 1930; 110,168 in 1920. The capital city is Dover. According to origin, the population of the State in 1930 contained 188,809 native whites, 16,885 foreign-born whites and 32,602 Negroes. Of 77,221 males reported as having gainful occupations in 1930, 8871 were farmers, 6531 farm laborers for wages, 5438 factory operatives, and 5647 factory laborers. Of the 20,883 females reported in gainful occupations, 2822 were factory operatives, 1462 teachers, 4406 cooks and other servants and 1796 stenographers and typists.

**AGRICULTURE.** The following table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1931	146,000	4,745,000	\$1,898,000
	1930	138,000	2,622,000	2,386,000
Wheat	1931	91,000	2,138,000	1,138,000
	1930	105,000	2,048,000	1,597,000
Hay, tame	1931	63,000	106,000*	1,166,000
	1930	60,000	60,000*	1,350,000
Potatoes	1931	5,000	540,000	297,000
	1930	4,000	200,000	230,000
Sweet potatoes	1931	8,000	1,400,000	490,000
	1930	7,000	525,000	472,000

\* Tons.

**MINERAL PRODUCTION.** Only the usual minor production of a few minerals was reported for 1929. The chief total was that of clay products, valued at \$230,441 for 1929; for 1928, at \$274,894. The remainder of the total mineral production, which came to \$467,493 for 1929 and to \$481,584 for 1928, consisted largely of stone, raw clay, sand and gravel.

**FINANCE.** State expenditures of the year ended June 30, 1930, as reported to the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$5,881,761 (of which \$1,853,509 was for local education); for interest on debt, \$336,065; for permanent improvements, \$4,854,255; total, \$11,072,081 (of which \$2,719,232 was for highways, \$242,182 being for maintenance and \$2,477,050 for construction). Revenues were \$15,498,789. Of these, property and special taxes formed 65.3 per cent; departmental earnings and remuneration to the State for officers' services, 4.8; sale of licenses, 16.4 (including gasoline sale taxes amounting to \$982,710). The State's funded debt outstanding on June 30, 1930, was \$5,096,285. Net of sinking-fund assets, it was \$4,977,005. On property there were levied in the year no general State taxes.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 gave the number of the State's manufacturing establishments as 458,

or slightly over that for 1927. These employed 23,382 wage earners, or 9.7 per cent more than those of 1927; the manufacturing wages paid in 1929 totaled \$28,846,113, or about 10 per cent above the 1927 total. Materials for manufacture cost \$72,688,190, and the fuel and purchased electricity used cost \$4,362,483; the materials, fuel, and electricity together costing 11.4 per cent more than in 1927. The manufactured product of 1929 totaled \$146,855,606 in value, which exceeded the value for 1927 by 13 per cent. Value added by manufacture in 1929 was reckoned at \$69,804,933. Wilmington was predominant in manufactures, having in 1929, 192 establishments, 14,822 wage earners, wage payments of \$19,693,481 and manufactured products of \$89,607,934.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 325.14. No important change in this total had occurred during the year preceding. No building of new line or trackage in 1931 was reported.

**EDUCATION.** As reported in December, the estimated school-age population of the State was 52,000. There were enrolled in the public schools 43,092 pupils. Of these, 35,230 were in common schools or elementary grades, and 7862 were in high schools. The yearly expenditure for public-school education was \$5,238,548. Salaries of teachers in public schools averaged, by the year, \$1440. State Superintendent Holloway reported that the Legislature in 1931 had increased the school appropriation by 12 per cent, the increase including for the first time financial aid to kindergartens; that \$3,000,000 had been provided to continue the previously adopted State programme of school construction; and that the systematic teaching of music under the guidance of a State director for this branch had been undertaken.

**CHARITIES AND CORRECTIONS.** In 1931 the duty of supervision over public and publicly aided private benevolent institutions and over correctional institutions continued to be exercised by the State Board of Charities. This Board was composed of five appointees of the Governor, of whom two must be women. It held power to visit children placed in free and boarding homes. State sanatoria for the tubercular were under the State Board of Health.

The following institutions, with the populations indicated, were under the direction of their respective trustees or managers, but were supported in whole or in part by State appropriation: Delaware State Hospital, Farnhurst, 696; Delaware Commission for the Feeble-Minded, 159; Delaware Hospital, 133; Men's Prison, 527; Women's Prison, 28; Ferris Industrial School, 256; Delaware Industrial School for Girls, 76; Industrial School for Colored Girls, 72; New Castle County Hospital, 265.

**LEGISLATION.** Among the acts of the legislative session of 1931 were the creation of a State Old Age Welfare Commission and the passage of an old-age pension law, of which this commission was made the administrator (see OLD AGE PENSIONS). A beginning was made with a proposed constitutional amendment to create a separate State Supreme Court; but this measure, according to the State's system of constitutional amendment, must pass two successive Legislatures. A relatively large provision was made for new public construction whereby it was expected to furnish work for about 10 per cent of the

State's unemployed. Some \$3,000,000 was appropriated for public school construction, \$1,400,000 for roads and an additional \$500,000 for the contemplated new State House, for which the previous Legislature had appropriated an initial \$1,000,000. The legal maximum speed for automobiles in the State was raised to 40 miles an hour, from 35 miles. A refund of 50 per cent of the income taxes paid in 1930, to the payers, was authorized by statute.

**POLITICAL AND OTHER EVENTS.** Awaiting the completion of the settlement of the boundary dispute with New Jersey, the oyster beds in the disputed portion of the bottom of the Delaware estuary were guarded by officials of both States from oystermen's raids, which threatened to bring on an "oyster war."

**OFFICERS.** Governor, C. Douglass Buck; Lieutenant-Governor, J. Henry Hazel; Treasurer, George S. Williams; Auditor, Edward Baker; Secretary of State, Charles H. Grandland; Attorney-General, Reuben Satterthwaite, Jr.

**JUDICIARY.** Chancellor, Josiah O. Wolcott; Chief Justice of Supreme Court, James Pennewill; Associate Justices, Richard S. Rodney, Herbert L. Rice, William Watson Harrington, Charles S. Richards.

**DELAWARE, UNIVERSITY OF.** An institution of higher learning in Newark, Del., founded in 1833. The enrollment in 1931-32 was 750, of whom 471 were men and 279 were women. The enrollment in the 1931 summer session was 443. The faculty numbered 122 members, 88 of whom were on the regular teaching staff, the others being members of the experiment station and extension staffs. Appropriations from the State and Federal Governments amounted to approximately \$441,000; invested endowment funds amounted to \$540,000. The library contained approximately 60,000 volumes. President, Walter Hulihan, Ph.D., D.C.L., LL.D.

**DEMERARA.** The name of a county of British Guiana, sometimes incorrectly used to designate the entire colony. See BRITISH GUIANA.

**DE MOLAY, ORDER OF.** A nonsectarian secret organization for young men between the ages of 16 and 21, founded in 1919 by Frank S. Land in Kansas City, Mo., and named in honor of Jacques De Molay, the last military grand master of the Knights Templars. The members are pledged to the precepts of love of parents, reverence, patriotism, cleanness, courtesy, fidelity, and comradeship, and to the promotion of the public school system and good citizenship. The order is governed by a grand council of Freemasons, while the chapters are sponsored by Masonic bodies or groups of Masons. However, it is not a junior Masonic fraternity, and more than 60 per cent of its members are from non-Masonic families. In November, 1931, there were about 200,000 members and more than 300,000 former members in 1300 cities of the United States, Alaska, Hawaii, Porto Rico, the Philippines, Canada, Mexico, Chile, Panama, and France. Frank S. Land, the founder, is grand scribe; Dr. Stratton D. Brooks, former president of the Universities of Oklahoma and Missouri, is executive director. International headquarters are at 201 East Armour Boulevard, Kansas City, Mo.

**DENISON UNIVERSITY.** A coeducational Baptist institution of higher education in Granville, Ohio, founded in 1831. The enrollment for the autumn of 1931 was 845 and for the summer session 73. The faculty numbered 65. The amount

of endowment was \$3,368,700; the income for the year was \$351,800. There were 68,050 volumes in the library. The university's centennial anniversary was celebrated Oct. 16-18, 1931; a feature was a gift by the alumni of \$160,000 as an endowment for professors' salaries. President, Avery Albert Shaw, D.D., D.C.L.

**DENMARK.** The smallest of the three Scandinavian states; comprising the peninsula of Jutland with its adjacent islands in the Baltic, the Faroe Islands, a part of Schleswig as a result of the plebiscite of 1920 under the terms of the Treaty of Versailles, and part of Greenland, the only colony or possession. Iceland is a free sovereign state, but united to Denmark under the King of Denmark, who is also head of the government of Iceland. Capital, Copenhagen. King in 1931, Christian X.

**AREA AND POPULATION.** The area is 16,574 square miles, excluding the Faroe Islands, which have an area of 540 square miles; population, according to the census of 1930, 3,542,210, compared with 3,434,555 at the 1925 census. For the five years 1925-29, births averaged 68,894 annually and deaths 38,667 annually. There were 3348 emigrants in 1930, as against 6277 in 1929. The population of the leading cities in 1930, with 1925 figures in parentheses, was: Copenhagen, 771,753 (731,496); Aarhus, 81,517 (76,226); Odense, 56,727 (52,376); and Aalborg, 45,545 (42,819). Between the 1925 and 1930 censuses, Copenhagen increased in population 5.4 per cent, the provincial cities by 4.9 per cent, and the country districts by 2 per cent.

**EDUCATION.** Primary education is free and compulsory between the ages of 7 and 14. Pupils attending elementary and secondary schools during 1928-29 numbered 540,999, while 9213 were enrolled in advanced institutions and agricultural schools, not including the University of Copenhagen, which had about 4900 students, and the University of Aarhus, with about 100 students.

**PRODUCTION.** Agriculture and dairying is of primary importance in Danish economy, agricultural products constituting about three-fourths of the value of annual exports. About 7,000,000 acres, or 66 per cent of the total area, is under cultivation and approximately 92 per cent of all farmers own the land they cultivate. Coöperative dairies and slaughter-houses enrolled 90 and 70 per cent, respectively, of all Danish farmers. Production of the chief crops in 1930 (1929 figures in parentheses) was: Wheat, 10,472,000 bushels (11,772,000); rye, 10,039,000 bushels (10,411,000); barley, 49,743,000 bushels (51,094,000); oats, 71,237,000 bushels (71,276,000); potatoes, 37,037,000 bushels (39,388,000); sugar beets, 1,105,000 metric tons (907,000); beet sugar, 167,000 metric tons (134,000); forage roots, 24,960,000 metric tons (22,309,000); and hay, 1,600,000 metric tons (987,000). In 1930, there were 3,101,000 cattle, 4,928,000 swine, and 516,000 horses. In the same year the output of butter was 419,000,000 pounds (395,000,000 pounds in 1929) and that of bacon was 739,000,000 pounds (553,000,000 in 1929). Agriculture was seriously depressed in 1931, as a result of the continued decline of prices and reduced demand for Danish exports in Great Britain and Germany.

Most of the world's motor ships are built in Danish yards; in 1930 new vessels launched totaled 37, of 137,000 gross tons, including 27 motor ships of 120,000 gross tons. Food products,

cigars and cigarettes, cotton yarn, cotton cloth and articles, cement, bricks, paper and cardboard, oils, and varnishes are other leading industrial products. According to preliminary figures, gross earnings of the Danish merchant marine in foreign traffic during 1930 totaled about 175,000,000 crowns, compared with 206,000,000 crowns in 1929 (1 crown equaled \$0.208). About 12 per cent of the industrial workers were reported unemployed in October, 1931.

**COMMERCE.** Danish foreign trade declined considerably in 1930, particularly in exports. Shipments abroad, not including reexports, totaled 1,518,000,000 crowns (\$406,825,000), as against 1,616,000,000 crowns (\$432,982,000) in 1929; imports amounted to 1,727,000,000 crowns (\$462,765,000), compared with 1,794,000,000 crowns (\$480,677,000) in 1929. Export declines were registered chiefly in live animals, dairy products, hides and skins, clothing, cement, and iron and steel manufactures. Of the general exports in 1930, 58.8 per cent went to the United Kingdom, 16.3 per cent to Germany, and 11.1 per cent to Sweden and Norway. Germany supplied 34.3 per cent of all imports, the United Kingdom 14.5 per cent, the United States 11.2 per cent, and Sweden and Norway 9.4 per cent.

**FINANCE.** The budget for the fiscal year commencing Apr. 1, 1931, as approved by Parliament Mar. 20, 1931, balanced at 410,330,000 crowns (1 crown equals \$0.208 at par). Ordinary revenues were estimated at 330,589,000 crowns and revenues in the capital accounts at 79,741,000 (including an estimated cash reserve of 35,000,000 crowns as of Apr. 1, 1931). Current expenditures were budgeted at 325,714,000 crowns and capital expenditures at 84,616,000 crowns. Closed accounts for the ordinary budgets for 1929-30 and 1930-31 showed surpluses of 12,000,000 crowns and 25,000,000 crowns, respectively. In the 1930-31 budget, current receipts were estimated at 331,096,000 crowns, capital receipts at 50,679,000 crowns, current expenditures at 318,207,000 crowns, and capital expenditures at 70,911,000 crowns. The public debt on Mar. 31, 1930, amounted to 1,354,931,000 crowns (\$363,122,000), including 637,005,000 crowns of internal and 717,926,000 crowns of external debt.

**COMMUNICATIONS.** Railways in operation in 1929 totaled 3258 miles of line, including 1560 miles owned by the state. Highways at the beginning of 1930 extended about 32,000 miles; main trunk roads aggregated 4722 miles. The telegraph system and some telephone lines are government operated, but most of the telephone traffic is privately managed. The Danish merchant fleet on July 1, 1930, comprised 512 steamers of 743,704 tons; and 151 motor ships of 356,451 tons. There were a number of commercial air lines.

**GOVERNMENT.** The Constitution as amended Sept. 10, 1920, vests executive power in the King, who acts through a responsible ministry. Legislative power is vested in the Rigsdag (Parliament), composed of the Folketing (lower house) and the Landsting (upper house). The Folketing has 149 members, of whom 117 are elected on the basis of proportional representation; the Landsting has 75 members, elected indirectly by voters over 35 years of age. The composition of the Landsting after the election of September, 1928, was as follows: 28 Liberals, 27 Socialists, 12 Conservatives, and 8 Radicals.

The Folketing, elected Apr. 24, 1929, consisted of 44 Liberals, 16 Radicals, 61 Socialists, 24 Conservatives, 1 Slesvig (German party), and 3 Georgistic party members. The Ministry as formed in April, 1929, was headed by Th. Stauning, Socialist, who was Prime Minister during 1924-26. Other members were: Agriculture, K. M. Bording; Foreign Affairs, P. Munch; Interior, B. Dahlgaard, Social Affairs, K. K. Steincke; Justice, C. Th. Zahle; Defense, L. Rasmussen; Public Instruction, F. Borghjerg; Ecclesiastical Affairs, N. P. L. Dahl; Public Works, J. F. N. Friis-Skotte; Finance, C. V. Bramsen; Commerce and Industry, C. N. Hauge.

**HISTORY.** The increasing severity of the agricultural crisis in Denmark during 1931 precipitated a new political issue—that of farm relief—which displaced the Stauning government's revolutionary disarmament bill as the chief item of controversy. The dissatisfaction of the farmers early in the summer was indicated by refusals to pay taxes and a growing demand for a moratorium on farmers' debts. Conferences between farm leaders and government officials were held in Copenhagen during July and August, at which the government offered to create a 30,000,000-crown fund to provide extra credit facilities to agriculture. The proposal was rejected as inadequate by the farm organizations, but the government proceeded (September 25) to introduce it in legislative form. While the measure was being debated at length in Parliament, farm leaders in a meeting October 13 prepared to inaugurate a nation-wide agricultural strike to force Parliament to give adequate consideration to their needs. The strike was called off, however, when the farm-relief bill was passed October 19. The fund of some \$6,600,000 was to be used to help farmers meet their mortgage, interest, and tax payments and as grants for long-term loans in case conditions failed to improve. The funds were to be raised by new taxes on beer, incomes, and imports and reductions in military expenses.

The Stauning government's disarmament bill provided for the replacement of the standing army of about 5500 by a neutrality guard of 10,000 men and 6000 reservists, to be mobilized only in case of war. Naval forces were to be drastically reduced. The bill passed the Folketing on Mar. 11, 1931, by a vote of 77 to 64, but as in 1926 was held up in the Landsting. Premier Stauning in February reiterated previous Socialist threats to abolish the Landsting unless it abandoned its practice of vetoing important measures passed by the Lower house.

Denmark abandoned the gold standard on Sept. 28, 1931, following similar action by Great Britain and by Norway and Sweden. Although the finances of the nation were sound, subsequent difficulties in the fluctuating values of foreign exchange caused the Finance Minister to ask authorization to extend the suspension of gold payments until Mar. 19, 1932, and to grant the government far-reaching control over exchange transactions. In the meantime the export of gold was prohibited and, by informal agreement among the banks, foreign exchange was made available only for necessary commercial transactions. Relations with Norway became somewhat strained after the Norwegian government laid claim to part of the northeastern coast of Greenland. The issue was submitted to the World

Court. An agitation in Iceland for the termination of the constitutional union under the Danish King aroused considerable interest in Denmark. See GREENLAND and ICELAND under *History*; NAVAL PROGRESS.

**DENNING, WILLIAM FREDERICK.** A British amateur astronomer and discoverer of comets, died in Bristol June 9, 1931. He was born near Dadstock, Somersetshire, Nov. 25, 1848. Beginning the study of astronomy in 1865, he continued this interest throughout life, although choosing accountancy as his profession. He discovered five comets, some new nebulae, and made a number of planetary observations, the study of the surface markings, rotation periods, and phenomena of Mars, Jupiter, and Saturn especially engaging his attention. He was also one of the first to discover a nova which appeared June 8, 1918, and was absolute discoverer of the new star in Cygnus Aug. 20, 1920. In the field of meteors or shooting stars, where he was a universally recognized authority, he developed the theory of stationary radiants, and his calculations of the heights and velocities of 1220 fireballs and shooting stars during the years 1884 to 1926 enabled meteorologists to obtain important deductions as to the heat of the atmosphere at great altitudes. He was made a Fellow of the Royal Astronomical Society in 1877. In 1895 he received the Valz prize of the Academy of Sciences, Paris, and in 1898 the gold medal of the Royal Astronomical Society. Among his publications are *Telescopic Work for Starlight Evenings* (1891); and *The Planets Mercury and Venus* (1907).

**DENNIS, ALFRED PEARCE.** An American economist, died by suicide at Bailey Island, near Brunswick, Me., Aug. 28, 1931. He was born in Worcester Co., Md., Jan. 10, 1869, and was graduated from Princeton University with the A.B. degree in 1891 and the Ph.D. degree in 1894. He was professor of history at Wesleyan University (Conn.), 1894-95, and at Smith College, 1898-1907. After being engaged in business for several years he was appointed in 1918 commercial attaché at the American Embassy in Rome and in 1921 held the same post in London. As a representative of the U. S. Department of Commerce, he made investigations in central and eastern Europe during 1922-23, and in 1924 became assistant to the Secretary of Commerce, Mr. Hoover. In 1925 he was appointed a member of the U. S. Tariff Commission, and also served as vice chairman of this commission until 1929. He was the author of *The Romance of World Trade* (1926) and *Gods and Little Fishes* (1931), and was a frequent contributor on political history and economics to various periodicals.

**DENVER, UNIVERSITY OF.** A coeducational institution of higher learning in Denver, Colo., founded in 1864. The registration for the autumn of 1931 totaled 2368, distributed as follows: Graduate school, 243; college of liberal arts, 945; school of science and engineering, 150; school of commerce, accounts, and finance, 583; school of law, 87; school of dentistry, 12; school of art, 62; school of librarianship, 34; city college, 252. The summer session in 1931 totaled 1145. The faculty had 203 members. The total assets of the university amounted to \$3,843,838 and consisted of plant assets, \$1,526,097; endowment assets, \$2,129,065; and current assets, \$188,675. The total income for the year was \$550,072. The library contained 75,000 volumes. The new Mary



Reed Library, costing \$400,000 and having a permanent endowment of \$180,000, was under construction during 1931. Chancellor, Frederick M. Hunter, Ed.D., LL.D.

**DEPARTMENT STORES.** See **BUSINESS REVIEW.**

**DEPAUW UNIVERSITY.** A coeducational institution for higher learning in Greencastle, Ind., under the auspices of the Methodist Episcopal Church, founded in 1837. The enrollment for the autumn session of 1931 was 1612, including 973 men and 639 women. Of this number, 1461 were registered in the college of liberal arts and 151 in the school of music. In the summer session of 1931 there were 84 students. The college of liberal arts had a faculty of 94 members and the school of music a faculty of 17. The productive funds of the university amounted to \$5,313,175, including assets of \$2,207,307 of the Rector Scholarship Foundation. The income from productive funds was \$289,731, while the total current income for the year was \$691,578; \$124,410 of the income from productive funds was for scholarships. The total amount of gifts for permanent funds received during the year was \$59,409. During 1931 an addition was made to the Minshall Laboratory at a cost of \$30,000, and \$10,000 was spent on conditioning the athletic fields. The library contained about 73,000 volumes. President, G. Bromley Oxnam, D.D., LL.D., Litt.D.

**DEPRESSION.** See **BUSINESS REVIEW**; **FINANCIAL REVIEW**; **BANKS AND BANKING**; **PUBLIC FINANCE**; **TAXATION**; articles on basic industries, such as **COTTON**, **IRON AND STEEL**, **SUGAR**; and sections on *Commerce, Finance, and Production* in the articles on the various countries, such as **GERMANY**, **GREAT BRITAIN**, **FRANCE**, **UNITED STATES**, ETC.

**DERBY.** See **RACING.**

**DERCUM, FRANCIS XAVIER.** An American neurologist, died Apr. 23, 1931, in Philadelphia, Pa., where he was born Aug. 10, 1856. He received the degrees of M.D. and Ph.D. from the University of Pennsylvania in 1877. In 1887 he became neurologist to the Philadelphia Hospital, and in 1893 consulting physician to the Asylum for the Chronic Insane in Wernersville, Pa. After serving the University of Pennsylvania, from 1883 to 1892, as instructor in nervous and mental diseases, he was appointed professor of the same subjects in the Jefferson Medical College, retiring as professor emeritus in 1925. During the World War he was a member of the Medical Advisory Board, lecturer to the Army and Navy Medical Corps, and member of the Medical Red Cross.

He was a past president of the American Neurological Association, the Philadelphia Neurological Society, and the Philadelphia Psychiatric Society, and at the time of his death was president of the American Philosophical Society. In 1892 he described the disease known as adiposis dolorosa (Dercum's Disease). Besides editing *Text-Book of Nervous Diseases by American Authors* (1895), he was the author of "Rest, Suggestion and Other Therapeutic Measures in Nervous and Mental Diseases," vol. viii of Cohen's *System of Physiologic Therapeutics* (1903); *A Clinical Manual of Mental Diseases* (1913); *Hysteria and Accident Compensation* (1916); *The Biology of the Internal Secretions* (1924); and *The Physiology of the Mind* (1925).

**DESIGN, NATIONAL ACADEMY OF.** See **NATIONAL ACADEMY OF DESIGN.**

**DESTROYER AND DESTROYER LEADER.** See **NAVAL PROGRESS.**

**DETROIT, UNIVERSITY OF.** An institution of higher education in Detroit, Mich., under the auspices of the Roman Catholic Church and conducted by the Jesuit fathers, founded in 1877. In the autumn of 1931 there were 3607 students registered, distributed as follows: Arts and sciences, 497; engineering, 870; commerce and finance, 792; law, 196; foreign trade, 39; Saturday and Thursday extension school, 667. The summer school registration was 546. The faculty numbered 162. The productive funds in 1931 totaled \$1,218,446. There were 61,200 volumes in the library. President, the Very Rev. John P. McNichols, S.J., Ph.D., LL.D.

**DETROIT INSTITUTE OF ARTS.** See **ART EXHIBITIONS**; **ART MUSEUMS.**

**DEUTSCHLAND.** The name of Germany's famous "pocket battleship"—a 10,000-ton armored cruiser, with a fighting power equivalent to that of a 20,000-ton battleship—launched in May, 1931. See **NAVAL PROGRESS**, **GERMANY** under *History*.

**DE VILLIERS, de vil'yērz, SIR JOHN ABRAHAM JACOB.** An Anglo-Dutch historian and cartographer, died Apr. 2, 1931, in London where he was born Sept. 23, 1863. He was educated at the City of London College, was appointed to the British Museum in 1887, and since 1909 had been superintendent of the map division. During 1890-99 he was expert adviser to the British Foreign Office in the Venezuelan boundary arbitration case, and acted in a similar capacity during 1901-04 in the boundary arbitration with Brazil. In 1926 he was cartographical expert in the Labrador boundary arbitration, by the award of which the claim of Newfoundland to 110,000 square miles was allowed. He was knighted in 1927. Sir John was distinguished especially for his researches in Dutch Colonial history, publishing *The Transvaal* (1896); *The Dutch in South Africa* (1923); and *My Memories* (1931) and editing for the Hakluyt Society, of which he was honorary secretary from 1909 to 1923, Storm van's Gravesande's *The Rise of British Guiana* (2 vols., 1911).

**DEWEY, MELVIL.** An American librarian and educator, died at Lake Placid, Fla., Dec. 26, 1931. He was born in Adams Centre, N. Y., Dec. 10, 1851, and was graduated from Amherst College in 1874. In 1876, while acting librarian at Amherst, he published his *Decimal Classification and Relative Index* and founded the *Library Journal*, which he edited until 1881. He also took an active part during 1876-83 in founding the American Library Association (q.v.) of which he was secretary for 15 years and twice president, the Library Bureau for advancing library interests, the Metric Bureau for establishing metric weights and measures, and the Spelling Reform Association. From 1883 to 1888 he was librarian of Columbia College, where he established (1887) a school of library economy. This was transferred to Albany in 1890 as the New York State Library School, Dewey remaining director until 1906. He was from 1889 to 1900 secretary and executive officer of the University of the State of New York, from 1889 to 1906 director of the New York State Library, and in 1904-06 also State director of libraries. He prepared cataloguing rules that are widely used, and his "decimal

classification" has been adopted in most American and in many foreign libraries. He also was active in advocating a simplified spelling. He founded the Lake Placid Clubs in New York and Florida, and in 1922 the Lake Placid Club Education Foundation.

**DIALECTS.** See PHILOLOGY, MODERN; PHILOLOGY, CLASSICAL.

**DIAMONDS.** With the existing world-wide depression, it was inevitable that the diamond industry not only should have a most unfavorable year but should be virtually at a standstill. The Diamond Corporation, Ltd., referred to in the 1930 YEAR BOOK, was aiming at a gradual liquidation of its stocks, and the DeBeers Company, one of the largest producers, decided to abandon sending fresh diamonds to London before June, 1932. After the abandonment of the gold standard in Great Britain, it was decided by the Diamond Corporation, Ltd., that diamond transactions would continue on a gold basis and an agreement to that effect was made also with the Union of South Africa, where during the year the mines were virtually stopped in order to check overproduction. In Amsterdam, the leading diamond centre of the world, there was general unemployment in the industry, 4500 diamonds workers being estimated out of work in a total membership of 6000 in the General Association of Dutch Diamond Workers.

The Diamond Corporation, Ltd., was able, during the year, to maintain the price level of rough diamonds through its agreement with the government of South Africa and the large diamond mining companies. However, the showing of rough diamonds was curtailed and after October restricted to twice a week with a written request necessary. There was a reduction in prices of bort, an impure variety of diamonds used largely for cutting and polishing, which later was stabilized at 305 guilders or about \$1.20 a carat.

The prevalence of unfavorable economic conditions in the United States naturally reduced the world market as that country was the largest purchaser of cut diamonds, and figures for the year 1931 indicated imports totaling 201,998 carats valued at \$11,064,820 as against 295,351 carats valued at \$23,267,296 in 1930. In 1931, rough, uncut diamonds, which were admitted free, were imported to the amount of 85,249 carats valued at \$3,851,698 as compared with 83,525 carats valued at \$1,464,549, dutiable, admitted before June 18, 1930, and 120,066 carats valued at \$4,176,240 admitted after that date free, in 1930. Belgium, with Antwerp as a centre, continued the leading source of diamonds for the United States, the 1931 imports of cut diamonds amounting to 146,412 carats valued at \$7,981,246, followed by The Netherlands, with Amsterdam as the main supply, with 48,608 carats valued at \$3,168,263.

At the end of 1931 many in the diamond industry were hopeful that the reduced prices of cut diamonds would lead to their being accumulated for investment and appreciation in view of the depreciation of currency and stocks.

**DIBELIUS, WILHELM.** A German philologist, died Jan. 28, 1871, in Berlin where he was born Apr. 23, 1876. He successively held professorships in Posen (1903-11), Hamburg (1911-18), Bonn (1918-25), and Berlin (1925-31). As a specialist on English language and literature, his principal works are *John Capgrave und die*

*englische Schriftsprache* (1899); *Englische Romankunst* (2 vols., 1910); *Charles Dickens* (1916); and *England, Its Character and Genius* (2 vols., trans., 1923).

**DICTIONARIES.** See PHILOLOGY, CLASSICAL.

**DIESEL ENGINES.** See INTERNAL COMBUSTION ENGINES; AERONAUTICS; SHIPBUILDING.

**DIET.** See FOOD AND NUTRITION.

**DINDINGS.** See STRAITS SETTLEMENTS.

**D'INDY, VINCENT.** See INDY, PAUL MARIE THÉODORE VINCENT D'.

**DINKEY, ALVA CLYMER.** An American industrialist, died in Wynnewood, Pa., Aug. 11, 1931. He was born in Weatherly, Pa., Feb. 20, 1866. After receiving an elementary education he became connected with the Carnegie steel interests in Pennsylvania, serving in various positions with the Edgar Thomson Steel Works, the Pittsburgh Locomotive Works, the McTighe Electric Company, and as general superintendent of the Homestead Steel Works (1901). In 1903 he became president of the Carnegie Steel Company, but resigned in 1915 to accept the presidency of the Midvale Steel & Ordnance Co., reorganized in 1923 as the Midvale Company. He was a director of the American Iron and Steel Institute.

**DISARMAMENT.** In the field of disarmament, attention was centred during 1931 upon preparations for the Disarmament Conference, scheduled to open Feb. 2, 1932, in Geneva. Much of the groundwork for the conference had been laid by the Preparatory Disarmament Commission, established under League auspices in 1925. After five years of labor the Preparatory Commission on Dec. 9, 1930, completed the drafting of a skeleton agreement for the limitation and reduction of land, naval, and air forces. To the 1932 Disarmament Conference was left the task of filling in the actual figures at which armaments were to be limited. The Conference was also faced with the problem of reconciling more than 50 reservations made to various provisions of the draft disarmament treaty by delegations of different countries represented on the Preparatory Commission. Germany advanced 20 objections or reservations to the draft treaty, while the Soviet Union reserved the right to propose its own plan at the Disarmament Conference.

On Jan. 24, 1931, the Council of the League of Nations formally invited the governments of the world, including the United States, Soviet Russia, and other non-members of the League, to participate in the Disarmament Conference. With the acceptance of this invitation, the various governments and the League Secretariat commenced the work of formulating their respective programmes for the Conference and of smoothing out the numerous technical and political differences which stood in the way of a final agreement. These problems were among the most important issues discussed during the numerous exchange visits of premiers and foreign ministers among the capitals of Europe and the United States during 1931. League committees continued their work on specific problems. On February 23, the committee of experts working on budgetary limitation of armaments concluded the drafting of a model statement by which armament expenditures of the various countries could be shown in a simple and comprehensive form. To participate in this preliminary work, the U. S. Department appointed a representative

to the disarmament section of the League of Nations Secretariat.

During the spring, the League Council formally requested the various governments to submit figures on their respective armaments in a schedule form drawn up by the Preparatory Commission. These figures were to be used to calculate figures to be inserted in the Draft Treaty as a basis for discussion at the Disarmament Conference. At the same time the Council asked for such information and suggestions as would facilitate the work of the Disarmament Conference. The most important of the replies received was the French memorandum of July 21, 1931, which led many observers to declare that the Disarmament Conference was doomed to largely futile negotiation. The memorandum advanced the familiar French thesis that security must precede disarmament, as contrasted with the stand of the United States, and other powers, that the previous limitation and reduction of armaments was the most effective road to security. It was plainly stated that France had cut her armaments to an irreducible minimum under existing conditions of security in Europe, and that any further reduction was conditioned upon an international agreement for immediate and effective military financial, and economic aid to a nation attacked by an aggressor. Furthermore, the French government warned, any increase in Germany's armaments intended to give Germany theoretical equality with the other powers would force France to increase her existing armaments.

Shortly after publication of the French memorandum, Joseph Paul-Boncour, chairman of the Foreign Affairs committee of the French Chamber, proposed that the defense forces of each country as fixed at the Disarmament Conference should become a police force under the direction of the League. His proposal was coldly received in the European capitals not allied with France. In a speech on December 20, Premier Laval stated that, if necessary, France would introduce at the Disarmament Conference a plan for military help to nations menaced by aggression. On the same day, Lord Cecil of Chelwood, who headed the British delegation to the Preparatory Commission, urged that the Disarmament Conference admit the principle of armament equality demanded by Germany, while at the same time barring to all nations the weapons denied to Germany under the Peace Treaties, such as aircraft and submarines.

**THE ARMAMENTS TRUCE.** A proposal was made by Foreign Minister Grandi of Italy before the League Assembly Sept. 8, 1931, for "a suspension of the execution of the new armament programmes until after the Disarmament Conference." The proposal was referred to the Third Commission of the Assembly on disarmament, where on September 30 it was adopted in a denatured form, the modifications being due largely to the objections raised by France, Poland, and Japan. The American Minister to Switzerland, Hugh R. Wilson, sat with the Third Commission during the discussion "in a consultative capacity." The Council then requested the various governments to state before Nov. 1, 1931, whether they were prepared to accept the proposed armaments truce for a period of one year. By November 5, 38 governments, including the United States and the Soviet Union, reported favorably. The truce was placed in effect by the United States and a number of other governments with-

out awaiting the formal declaration of the League. On Nov. 16, 1931, the League Secretariat informed the powers that the truce was in effect for one year, commencing Nov. 1, 1931.

**DISARMAMENT PROPAGANDA.** Toward the end of 1931, considerable sentiment in favor of the postponement of the 1932 Disarmament Conference became evident in French and other governmental circles, as well as among students of world politics, who felt that the time was extremely inopportune. It was pointed out that the French memorandum, the Manchurian crisis, the reparation negotiations, and the critical financial and political situation in Europe, made it not unlikely that the debates at the Conference would increase rather than ameliorate nationalistic antagonisms. No government, however, dared incur the onus of proposing the postponement of the conference, while leaders of the German government flatly opposed postponement. The peace societies in all civilized countries had carried on intensive propaganda on behalf of disarmament, which statesmen hesitated to appear to oppose. Petitions urging immediate arms reductions, had been widely circulated. Pope Pius XI, President Hoover, and other religious and political leaders in many countries had declared the limitation and reduction of armaments to be one of the most vital political and economic problems of the generation. In an encyclical issued during the year, addressed primarily to Bishops of the Church, Pope Pius said:

Since the unbridled race for armaments is on the one hand the effect of the rivalry among nations and on the other the cause of the withdrawal of enormous sums from the public wealth and hence not the smallest of contributors to the current extraordinary crisis, we can not refrain from renewing on this subject the wise admonitions of our predecessors which thus far have not been heard. We exhort you all, that with all the means at your disposal, both by preaching and by the press, you seek to illumine minds and open hearts on this matter according to the solid dictates of Right reason and of the Christian law.

In a statement addressed to President Hoover, 66 officials and members of 38 national organizations in the United States urged that the Government exert every influence to insure the success of the Geneva parley. With the object of making known the facts of the armament situation, an *International Disarmament Review* was established in Geneva. The movement for disarmament met a decided setback in Paris, however, when an unofficial international disarmament conference was convened there in November, attended by more than 1000 delegates from peace societies in 30 countries. Some of the delegates were indiscreet enough to hiss Paul Painlevé, former French Premier and liberal leader, when he defended the French official thesis of security before disarmament. The following night (November 27) a great mass meeting for disarmament in the Trocadero Palace was thrown into pandemonium by French nationalist agitators and the aroused French public. Lord Cecil of Great Britain, former Premier Herriot of France, Vittorio Scialoja, head of the Italian delegation to the League of Nations; and Alanson B. Houghton, former American Ambassador to Germany and Great Britain, were among the prominent peace advocates howled down by the mob. The Paris press, with a few exceptions, condoned the breaking up of the meeting. The general sentiment expressed was that the conference had been called by the peace organizations in Paris "to

force upon France a solution unfavorable to our country."

See DENMARK, GREAT BRITAIN; ITALY, SPAIN, and FRANCE under *History*; UNITED STATES under *Disarmament*; PEACE; LEAGUE OF NATIONS; MILITARY PROGRESS; NAVAL PROGRESS; INTER-PARLIAMENTARY UNION.

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**DISCIPLES OF CHRIST.** A communion known also as the Churches of Christ and sprung from a movement for Christian unity, which arose in American Presbyterian circles at the beginning of the nineteenth century, under Barton W. Stone, in Kentucky, and Thomas and Alexander Campbell in Western Pennsylvania. This is the largest religious body having its origin in America. It was fifth among Protestant communions in the United States in 1931. In policy the churches are congregational. There were six major agencies of the communion in 1931: The United Christian Missionary Society; Board of Education; Board of Temperance and Social Welfare; Association for the Promotion of Christian Unity; Pension Board; besides the missionary societies of the several states and provinces of Canada. These agencies are corporations and are related in an advisory way to the International Convention of the Disciples of Christ which meets annually in the late summer or early autumn. The general missionary work of the churches is organized under the United Christian Missionary Society, with headquarters at 222 Downey Avenue, Indianapolis, Indiana. Its board of managers of 120 is composed of an equal number of men and women. The foreign missionary work in 1931 embraced the Belgian Congo, Africa, China, India, Jamaica, Japan, Mexico, Philippine Islands, Porto Rico, Argentina, Paraguay and Tibet (Batang, on the border).

Statistics of the denomination show that during the year there were 7148 baptisms in the foreign fields. The 527 mission schools had a total enrollment of 16,202. The communion maintained 16 hospitals and 19 dispensaries which gave 431,261 treatments, a decrease of 32,456 over the previous year. The church erection fund amounted to \$2,820,459.78. The Society maintained Bible chairs in four State universities; and 60 young people's conferences were held, a gain of one over the previous year. Work in America was conducted among the French, Highlanders, immigrants, Negroes, Orientals, Spanish-Americans and Mexicans. The department of benevolence maintained six homes for children, an equal number of homes for the aged and one hospital. In 1931, 29 colleges coöperated with the Board of Education.

The total church membership throughout the

world in 1931 was 1,679,768, a gain over 1930 of 9332; and in the United States and Canada, 1,549,754, a loss of 4924. The Bible school enrollment for the world was 1,134,772, a gain over the previous year of 6170; and for the United States and Canada, 1,050,141, a gain of 606. Contributions, missionary, benevolence, and educational, reported for the fiscal year in the United States and Canada totaled \$3,309,638.71. Among the periodicals published by the communion are *World Call*, *Christian Evangelist* and *Christian Unity Quarterly*. The president of the International Convention for the year was L. D. Anderson of Fort Worth, Texas. Dr. Stephen J. Corey of Indianapolis, Indiana was president of the United Christian Missionary Society.

**DISEASES OF ANIMALS.** See VETERINARY MEDICINE.

**DISEASES OF PLANTS.** See BOTANY.

**DISTILLING.** See PROHIBITION.

**DIVORCE.** See MARRIAGE AND DIVORCE.

**DOCKS.** See PORTS AND HARBORS.

**DODSON, JOHN E.** An American actor, died in New York City, Dec. 9, 1931. Born in England in 1857, he came to the United States with the Kendals in 1880 and was especially known in character parts. He made his debut in 1877 at Manchester with J. L. Toole in *The Spelling Bee*. Later he played for several seasons at Dublin and in different British cities, supporting, among others, Charles Mathews, Barry Sullivan, Joseph Jefferson, and J. K. Emmett. One of his creations was Carraway Bones in *Turned Up*. After he joined the Kendal company he appeared in *A Scrap of Paper*, *The Ironmaster*, *The Squire*, *The Second Mrs. Tanqueray*, *Still Waters Run Deep*, and other productions. In 1894 he became a member of Charles Frohman's company, playing in *The Masqueraders*, *John-a-Dreams*, and other plays. In 1898 he made a hit as old John Weathersby in Gillette's farce, *Because She Loved Him So*.

**DOGS.** Pendley Calling, wire-haired fox terrier owned by John G. Bates of Morristown, N. J., established herself as among the greatest dogs in the history of the show ring, in 1931. Against strong opposition she went through to win the title of Best-in-Show at the Westminster Kennel Club show at Madison Square Garden in February for the second time in succession. The competition was keen and it was only after the greatest of rivalry and demonstrations of approval and disapproval by the spectators that she won the ribbon over Blue Dan of Happy Valley, the magnificent English setter owned by Dr. A. A. Mitten of Philadelphia. The judging was questioned later in many written protests but the award was upheld and the shadow lifted when Pendley Calling took the honors at the Canadian show at Toronto in November. Blue Dan of Happy Valley must be given second honors through the year, not only for his brilliant showing in the Westminster classic but because of his incessant and brilliant triumphs in the smaller shows. Dog show competition did not appear to feel the economic crisis. There was no let-up in shows and with record entry lists almost as many shows were held in 1931 as in previous years; 55,000 dogs were benched during the year. The only indication of the financial condition was to be found in the lessening of importations of important dogs. But since the importations of other years have produced stock in this country which seems to be every bit as good as that of

the European breeds there is less and less need for such activity in the matter of importing, and dog fanciers were concentrating on their own.

**DOHERTY, CHARLES JOSEPH.** A Canadian lawyer and statesman, died in Westmount, Que., July 28, 1931. He was born in Montreal, May 11, 1855, and was educated at St. Mary's Jesuit College and at McGill University, being graduated from the latter with the B.C.L. degree in 1878. Called to the Quebec bar in 1877, he soon gained a large practice and in 1887 was created Queen's Counsel. He also became professor of civil and international law at McGill University and was a member of the Royal Commission appointed in 1883 to investigate the working of the Protestant and Catholic school boards in Montreal. In 1891 he was appointed a puisne judge of the Superior Court of Quebec, serving until 1900. From 1908 to 1911 he was a member of the House of Commons for the St. Ann's division of Montreal and actively supported Robert Laird Borden, the Conservative leader, in opposing the Liberal policy of reciprocity with the United States. On the election of Borden as Premier, in 1911, he was appointed Minister of Justice, holding this office until the fall of the Conservative government in 1921. During the World War period he had the difficult task of administering the Conscription Act. He was also one of the Canadian delegates to the Paris Peace Conference and to the League of Nations during 1920-21, and in 1920 was made an Imperial Privy Councillor.

**DOLE.** See UNEMPLOYMENT; LABOR, AMERICAN FEDERATION OF. FRANCE; GREAT BRITAIN; GERMANY.

**DOMINICA.** See LEEWARD ISLANDS.

**DOMINICAN REPUBLIC (SANTO DOMINGO).** A West Indian state occupying the eastern part of the island of Haiti, the western part of which comprises the Republic of Haiti (see HAITI). Capital, Santo Domingo.

**AREA AND POPULATION.** The area is estimated at 19,332 square miles; the population at the census of 1921 was 897,405 (estimated at 1,200,000 in 1929). The chief cities, with their estimated populations in 1929, were: Santo Domingo, 45,000; Santiago, 15,000; San Pedro de Macoris, 31,000; Puerto Plata, 9500; La Romana, 10,000. Of the total population in 1927, 25 per cent were white (mainly of Spanish descent), 25.4 per cent were Negroes, and the remainder were mestizos or yellow. In February, 1930, there were 841 schools, of which 33 were technical, and a total enrollment of 90,366 (average attendance, 55,842), or about one-half the children of school age. Approximately 20 per cent of the population were illiterate in 1930. The language of the country is Spanish.

**PRODUCTION.** Agriculture is the predominant industry, with sugar, cacao, coffee, and tobacco as the chief crops. About 8,000,000 acres, or two-thirds of the total area, is suitable for cultivation. Sugar production during the 1930-31 grinding season was 406,237 short tons (396,000 tons in 1929-30). Sugar normally constitutes about 55 per cent of the value of all exports. Yields of other crops were: cacao, 50,000,000 pounds (estimated) in 1931 and about 45,000,000 pounds in 1930; tobacco, about 29,000,000 pounds in 1930; coffee, about 12,000,000 pounds in 1930 and 13,000,000 pounds in 1929; rice, 16,500 short tons (estimated) in 1931. Approximately \$2,000,000 worth of rice is imported annually.

Livestock in 1930 included about 900,000 cattle, 1,100,000 swine, 150,000 horses, 150,000 asses, 45,000 mules, 650,000 goats, and 5000 sheep. The forests produce lignum-vitæ, mahogany logs, railroad ties, and dyewoods. Sugar refining is the only important manufacturing industry; straw hats, cigarettes, soap, etc., are produced for local consumption. Agriculture and business were badly depressed in 1931, as a result of the fall of agricultural prices, adverse crop conditions, the destruction of Santo Domingo by the September, 1930, hurricane, and the continuance of political unrest.

**COMMERCE.** General imports in 1930 were valued at \$15,229,000, compared with 22,729,000 in 1929, a decline of 33 per cent. General exports were valued at \$18,552,000, as against \$23,736,000 in the previous year, a 22 per cent decrease. Due entirely to lower prices, raw sugar exports declined 19 per cent in value—from \$12,259,000 in 1929 to \$9,910,000 in 1930. Cacao shipments declined only 3 per cent in volume but 30 per cent in value, the totals being \$3,870,000 and \$2,710,000 for 1929 and 1930, respectively. Coffee exports were \$1,483,000 in 1930 (\$2,444,000 in 1929); leaf tobacco, \$1,032,000 in 1930 (\$1,381,000). The United States, including Porto Rico, supplied 56.8 per cent of all imports in 1930 (59.5 in 1929) and took 32.2 per cent of all exports (30.9). The United Kingdom purchased 39.5 per cent of the exports and France 13.2 per cent.

**FINANCE.** In the budget for 1931, as passed by Congress in December, 1930, revenues were estimated at \$12,094,870 (including \$5,463,457 apportioned to the special fund) and expenditures at \$9,957,662 (including \$4,961,557 for special purposes). The sum of \$2,892,917 was set aside for service of the debt. Budget estimates for 1930 were: Revenues, \$14,292,210; expenditures, \$14,042,098, or \$4,084,431 more than in the 1931 budget. While actual results were not available, deficits were indicated for both years. Customs receipts for 1930 amounted to \$3,594,567, compared with \$4,989,527 in 1929. Payments toward the debt sinking fund absorbed \$2,345,119, or 65.24 per cent of all customs receipts. When costs of the receivership were deducted, there remained but \$848,870 for transfer to the Dominican government, as compared with \$3,461,814 for 1929. Dominican customs are supervised by the U. S. State Department, under the treaty of 1924. The external public debt on June 30, 1931, totaled \$17,283,000, compared with \$19,684,000 at the end of 1929.

**COMMUNICATIONS.** In 1930, there were 149 miles of railway line, of which 62 miles were government owned, and 845 miles of highways, including 686 miles of macadam. The Pan-American Airways operated a tri-weekly service from Santo Domingo to San Juan, Porto Rico, and from Santo Domingo to Miami via Camaguey, Cuba. It was announced that the air company would change its base from Santo Domingo to San Pedro de Macoris on Dec. 1, 1931. A total of 1687 vessels, of 2,382,000 net registered tons, entered the ports in 1930, and 1509 ships, of 2,218,000 tons, cleared. Direct radio-telegraphic service between Santo Domingo and the United States was inaugurated Dec. 24, 1930.

**GOVERNMENT.** The Republic is governed under a constitution adopted by the Constituent Assembly on June 13, 1924, and revised in 1927 and 1929. Executive power is vested in a presi-



dent and cabinet of seven ministers. The President is ineligible for a second successive term. The senators, deputies, and governors of the Provinces are elected for four years by direct popular vote. Each of the 12 Provinces is represented by one senator and (in practice) by two deputies. The President of the Republic in 1931 was Gen. Rafael Leonidas Trujillo y Molina, who assumed office Aug. 16, 1930, following a successful revolution against the administration of President Horacio Vásquez.

**HISTORY.** The tightening of the economic depression during 1931 created a serious unemployment problem and forced general reductions in wages and personnel among both private and government employees. Government revenues, derived largely from duties on imports, declined steadily until November, when it became necessary to declare a moratorium with respect to amortization payments on the government's foreign debts. The moratorium, which was approved by the U. S. State Department, provided for the continuation of interest payments. Industrial establishments operated at about 50 per cent of capacity throughout the year. In an effort to tide the government over the financial crisis, Congress on July 17, 1931, authorized the President to float a \$5,000,000 bond issue. The proceeds were to be applied to the cancellation of the floating debt and pending claims, payment of debts incurred as a result of the 1390 hurricane, and for public works.

Aggravated by the depression, the political unrest which flared out in revolution in 1930 continued throughout 1931. President Trujillo's régime proved unable to stamp out revolutionary bands in the Provinces. A number of his supporters were killed during sporadic disorders, including Jesus Gomez, a member of the Land Tribunal, and Senator Desiderio Ariay. Factionalism became evident within the government and when Vice President Estrella Ureña sailed in August, 1931, for a vacation in the United States and Europe, it was predicted that he would not return while President Trujillo retained power. This prediction was verified on December 7, when the Chamber of Deputies voted to impeach the Vice President on charges of conspiring against the government. Dr. Estrella Ureña's whereabouts were then unknown.

Three bills approved by Congress in an extraordinary session convened Jan. 26, 1931, reduced the number of Cabinet ministries from 10 to 6, leased the national lottery for 10 years to a Dominican citizen, and authorized the President to lease the government-operated Central Railway and the aqueduct and telephone system in Santo Domingo to a national or foreign corporation. The reorganized cabinet was constituted as follows: Presidency, Dr. Rafael Vidal; Interior, Police, War, and Navy, Dr. Jacinto B. Peynado; Foreign Affairs, Dr. Rafael Estrella Ureña; Finance, Labor, and Communications, Dr. Teódulo Pina Chevalier; Agriculture and Commerce, Dr. R. César Tolentino; Health, Social Welfare, and Public Works, Dr. Fiallo Cabral (Dr. Cabral died Mar. 20, 1931, and was succeeded by Dr. Rafael Vidal as *ad interim* secretary).

An international committee of three architects in 1931 accepted the design submitted by J. L. Gleave of England for a \$1,500,000 light-house to be erected in Santo Domingo under the auspices of the Pan American Union as a

memorial to Christopher Columbus. See **ARCHITECTURE**.

**D'ORSAY, LAWRENCE** (DORSET WILLIAM LAWRENCE). A British actor, died in London, Sept. 13, 1931. He was born in Northamptonshire, Aug. 19, 1853. After making his stage début in 1877, he toured the provinces, returning to London in 1882 to appear as Lord All-Cash in *Fra Diavolo*, the type of character-rôle for which he became famous. He later supported Minnie Palmer in *My Sweetheart in London* and played Lord Dangars in *The Profligate* and the Earl of Thamesmead in *An Artist's Model*. In 1900 he went to the United States, where he remained until 1924, appearing as the Earl of Pawtucket in the play of that name (1903-05), Capt. Howard Kellie in *The Embassy Ball* (1905-07), Capt. Cecil Fitz Herbert in *The Lancers* (1907), Captain Montjoy in *Miss Innocence* (1908), Captain Foenix in *Trelawney of the Wells* (1911), Archduke Frederick in *The Whirl of Society* (1912), The Earl of Carmondale in *The Rented Earl* (1914), Captain Chichester in *Robinson Crusoe, Junior* (1916), the King of Serendib in *Sinbad* (1918), and Sir Percy Beauchamp in *So This Is London* (1922). He last appeared in London in *Othello*, in 1930.

**DORSEY, GEORGE AMOS.** An American anthropologist and author, died in New York City, Mar. 29, 1931. He was born in Hebron, Ohio, Feb. 6, 1868, and was graduated from Denison University in 1888 and from Harvard University with the Ph.D. degree in 1894. During 1891-92 he conducted anthropological investigations in South America for the Chicago Exposition and also acted as superintendent of archaeology in the department of anthropology. After two years of teaching in the department of anthropology at Harvard, he became assistant curator of anthropology (1896) at the Field Museum of Natural History in Chicago, and acted as curator from 1898 to 1915. As a result of his travels in Europe, Africa, Asia, and Australasia in 1908 the museum's anthropological collections were greatly augmented. He also served as professor of comparative anatomy in the dental school of Northwestern University (1898-1913) and as assistant professor of anthropology (1905-08) and associate professor (1908-15) at the University of Chicago. From 1909 to 1912 he was a member of the editorial staff of the *Chicago Tribune*, investigating sources of European emigration and studying political conditions in India, China, Japan, Australia, and South Africa.

During the World War Dr. Dorsey was lieutenant in the U. S. Naval Reserve, serving as assistant naval attaché at Madrid in 1918 and naval attaché at Lisbon in 1919. He was also adviser on Spanish problems to the American Commission to Negotiate Peace at Paris in 1919. In 1922 he resumed his interest in journalism as correspondent for the London *Evening News*, and on his return to the United States, aside from lecturing at the New School for Social Research in New York City, devoted his entire time to writing. He was the author of *Young Low* (a novel, 1917); *Why We Behave Like Human Beings* (1925); *The Nature of Man* (1927); *The Evolution of Charles Darwin* (1927); *How and Whys of Human Behavior* (1929); and *Man's Own Show: Civilization* (posthumous, 1931). He had also published more than 70 papers on anthropology and anatomy.



**DOURINE.** See VETERINARY MEDICINE.

**DRAINAGE.** See RECLAMATION.

**DRAKE UNIVERSITY.** An institution for the higher education of men and women in Des Moines, Iowa, founded in 1881. The number enrolled in the autumn of 1931, was 1481, distributed as follows: College of liberal arts, 483; commerce, 296; education, 304; law, 86; fine arts, 266; and Bible, 27. The summer session registration was 546. The faculty numbered 99. The fixed endowment amounted to \$1,363,676. The number of volumes in the library was 53,029. President, Daniel W. Morehouse, Ph.D.

**DRAMA.** See THEATRE; GERMAN LITERATURE; FRENCH LITERATURE; LITERATURE ENGLISH AND AMERICAN; ITALIAN LITERATURE; SCANDINAVIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

**DRAPER, DANIEL.** An American meteorologist, died in Hastings-on-Hudson, N. Y., Dec. 21, 1931. He was born in New York City, Apr. 2, 1841, a son of John William Draper under whom he studied science. He obtained the Ph.D. degree from New York University in 1880. He helped his brother, Henry Draper, to construct the telescopes, grind the mirrors, and build his observatory at Hastings-on-Hudson. From 1869 to 1911 he served as director of the New York City Meteorological Observatory. The self-recording meteorological instruments employed in that institution are based chiefly upon his designs.

**DROUGHT.** See AQUEDUCTS; AGRICULTURE; FLAX; DAIRYING; HAY; FORESTRY; HORTICULTURE; LIVESTOCK; METEOROLOGY; UNITED STATES under Administration.

**DROUGHT RELIEF.** See AGRICULTURE, U. S. DEPT. OF; RED CROSS, AMERICAN NATIONAL; UNITED STATES under Congress; FLOODS AND FLOOD PREVENTION.

**DRUG CONTROL.** See LEAGUE OF NATIONS.

**DRUGS.** See CHEMISTRY, INDUSTRIAL.

**DUKE UNIVERSITY.** An institution for higher education in Durham, N. C. It had its beginning under the name of York Academy, established in 1835 in Randolph County, N. C., and expanding later into Union Institute, then into Normal School, and in 1858 into Trinity College. In 1892, Trinity College was moved to Durham where it continued under that name until 1924, when the greater Duke University was made possible through benefactions from James B. Duke.

The enrollment for the autumn of 1931 was 2666, distributed as follows: Undergraduate men, 1436; undergraduate women, 583; school of religion, 145; school of law, 75; school of medicine, 147; other graduate schools, including arts and sciences, 233; school of nursing, 60; duplications, 13. For the summer session of 1931 there was an enrollment of 1363. In the autumn of 1931 the faculty, including officers, numbered 252. In addition there were 25 teachers in the 1931 summer school who were not included on the regular staff of the university.

The endowment funds of the university amounted to \$23,278,041, and the income for the year was \$1,147,117. Gifts received during the year 1930-31 amounted to \$100,000. The Angier B. Duke memorial student loan fund exceeded \$1,250,000 in value. The library contained 246,280 accessioned volumes and above 40,000 catalogued volumes. President, William Preston Few, Ph.D., LL.D.

**DUNKERS or DUNKARDS.** See BRETHREN, CHURCH OF THE.

**DURUM WHEAT.** See WHEAT.

**DUTCH EAST INDIES.** See NETHERLAND EAST INDIES.

**DUTCH GUIANA.** See SURINAM.

**DUTCH REFORMED CHURCH.** See REFORMED CHURCH IN AMERICA.

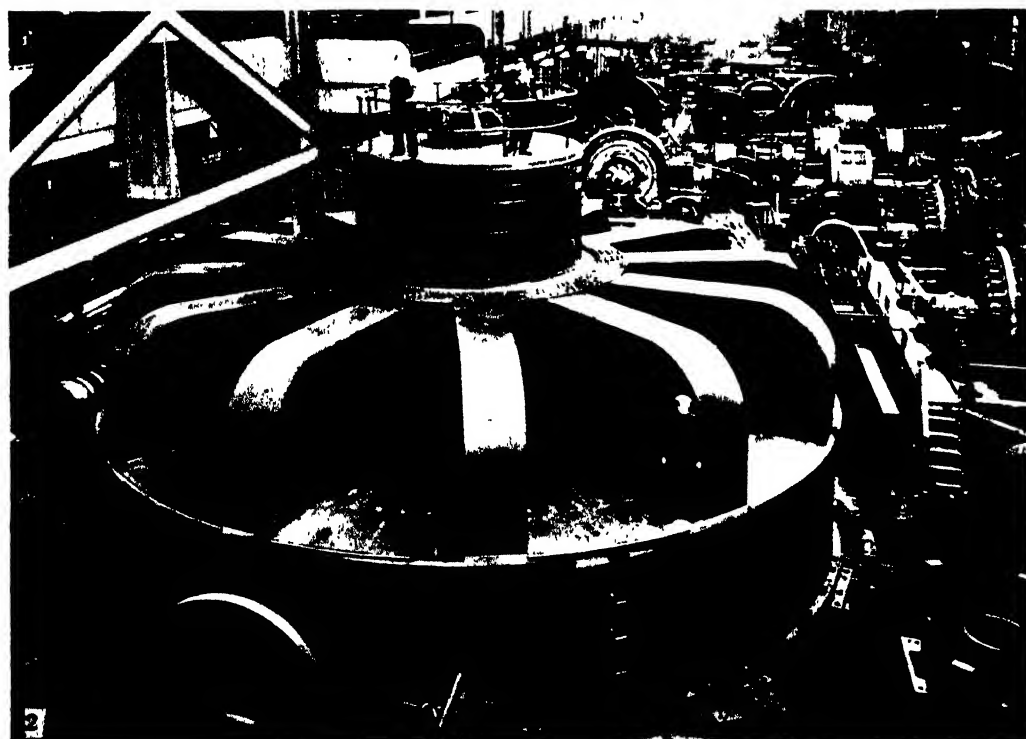
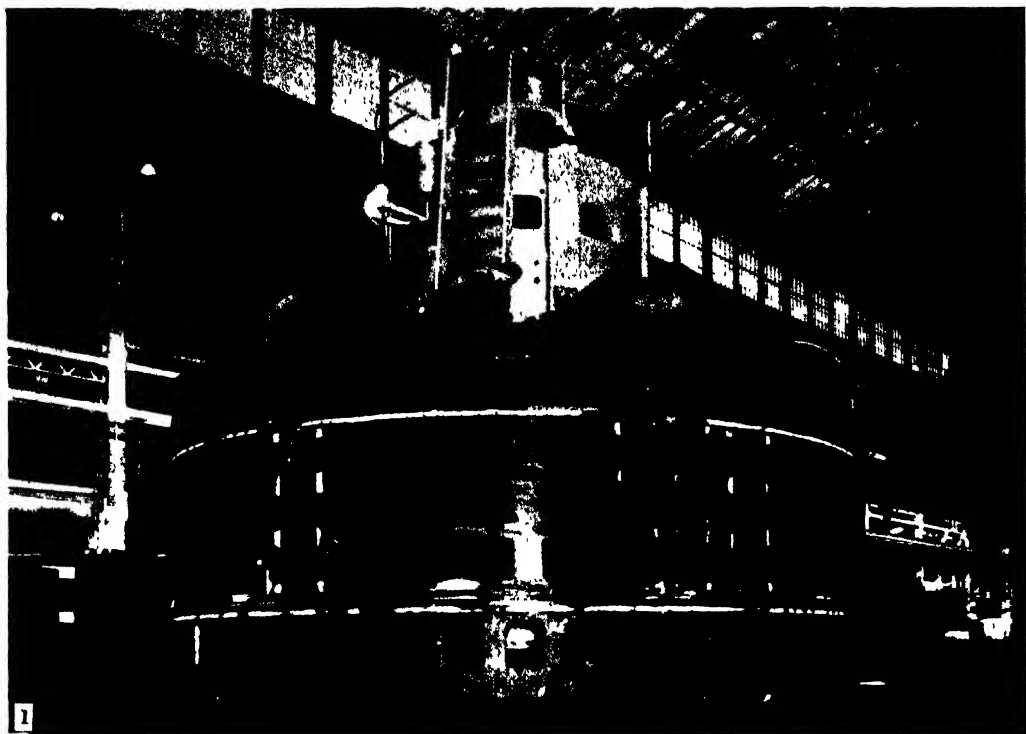
**DUTCH WEST INDIES.** The Dutch possessions in the West Indies, viz., Surinam (Dutch Guiana) and Curaçao. Consult those titles. See also Amy Vandenbosch, "Dutch Problems in the West Indies," *Foreign Affairs*, January, 1931.

**DUTTON, BROTHER JOSEPH** (IRA BARNES DUTTON). A lay missionary of the Roman Catholic Church, died in Honolulu, T. H., Mar. 26, 1931. He was born in Stowe, Vt., Apr. 27, 1843, and removing to Wisconsin served with the 13th Wisconsin Volunteers during the Civil War, being appointed first lieutenant and assistant quartermaster. For ten years after the war he was in the government service, principally in the adjustment of war claims. During this period he became a convert to the Roman Catholic Church, and entered the Trappist monastery at Gethsemane, Ky. After taking his final vows he went to New Orleans where he learned of the work among the lepers of Father Joseph Damien, the heroic Belgian priest. In 1886 he sailed for Honolulu where he presented himself to the Superior of the Hawaiian Catholic Missions as "a gift to the lepers" and joined Father Damien at the leper settlement on Molokai. On Father Damien's death three years later he took over the administrative work of the settlement and instituted, among other important projects, the Baldwin Home at which more than 1300 leprosy men and boys were cared for. In 1929 he received the thanks of the Hawaiian House of Representatives for his inspiring work and service.

**DYNAMO ELECTRIC MACHINERY.** The unfavorable business conditions of 1931 had the effect of slowing up the development of large size units and to discourage the tendency to break records for size, but the conditions seemed to stimulate activity in the production of more ingenious improvements and refinements in design which would bring about more efficient and economic operation and lessen costs of operation, particularly in machines of small and moderate capacities. The type of turbo-electric generator for 1800 r.p.m., built as one machine on one shaft and known as a "single cylinder machine," took two steps upward in maximum size available, i.e. an 80,000 kw. machine for Buffalo and a 200,000 kv-a. 160,000 kw. machine for Brooklyn. The latter is designed to operate at 400 lbs. steam pressure at 730° F. and the generator has the new type of "double winding" first introduced in the generator for the N. Y. Edison Company at the East River Station.

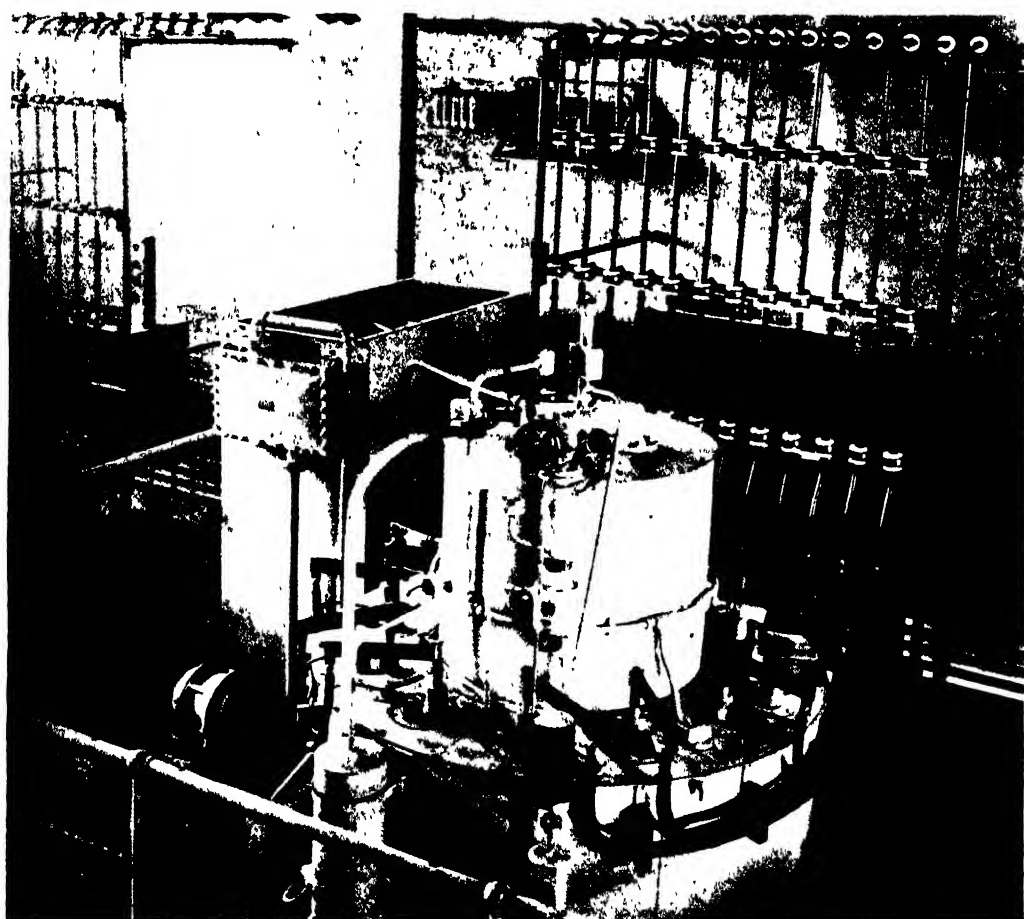
The 110,000 kv-a. turbo-generator operating with a steam pressure of 1200 lbs. mentioned in the 1929 YEAR BOOK was put in successful operation. This is a double shaft machine, each running at 1800 r.p.m. with one turbine on top of the other in order to save floor space.

A number of smaller sets designed to operate at 1200 lbs. steam pressure were put in operation including a couple for 50,000 kv-a. An increase in the size of turbo-generators operating at a shaft speed of 3600 r.p.m. is noted in a 22,500



1. One of the 77,000 kva Water-Wheel Generators for the Diablo Power Station  
*From Westinghouse Electric and Manufacturing Co*
2. The 77,500 kva Water-Wheel Generator for the Dnieper River Project, Russia  
*From General Electric Co*

**DYNAMO ELECTRIC MACHINERY**



1. The 70,000 kva Three-phase Transformer for the Hell Gate Station, New York  
*From Westinghouse Electric and Manufacturing Co*

2. A 3000 kw. mercury arc rectifier for supplying power at 3000 volts direct current from an alternating  
 current transmission system For the Delaware, Lackawanna and Western R. R.  
*From General Electric Co.*

## DYNAMO ELECTRIC MACHINERY

kv-a. machine for New Jersey which operates at 600 lbs. steam pressure.

It has been found more economic to design these large electric generators in sizes of 100,000 kw. and greater for a voltage of 18,500 and 22,000 at their terminals, and as such designs have given satisfaction in service this has become standard practice.

The largest generators in the world (in bulk and weight) for the Dnieper installation in Russia were shipped and installed. These are for 77,500 kv-a. at 88.2 r.p.m., weigh 880 tons each, and are driven by water wheels. Some other water-wheel generators for 77,000 kv-a. were installed at the Diablo plant near Seattle, but these were for 171 r.p.m. and are of lesser bulk and weight. However, 77,500 kv-a. is a record for capacity of water-wheel driven generators.

The largest synchronous condenser yet built was one for 75,000 kv-a. at 514 r.p.m. installed in Chicago. It is connected by transformers to the 220,000-volt transmission system and serves to stabilize and regulate the system voltage. Another 50,000 kv-a. synchronous condenser is noteworthy because it is cooled by hydrogen instead of air.

A notable novelty is the installation of two 21,000 kv-a. frequency changers for the Reading Railway. They take power at 60 cycles three phase from a commercial transmission system and deliver power at 11,000 volts, 25 cycles single phase for the operation of the locomotives and trains. The novelty consists in the two facts that they are designed to operate outdoors and they are the largest single phase frequency-changers in operation.

The size of high frequency generators for the operation of induction furnaces was increased to 1250 kw. at 960 cycles. A direct current motor for 8000 h.p. for a steel mill of the Illinois Steel Co. broke another record for size.

There was an intensive development in transformers which included an increase in the maximum unit capacity to 70,000 kv-a. in a three phase 60 cycle oil and air cooled transformer for New York City. There was a large increase in the application of special high-voltage transformers of the "non-resonating" or "surge-proof" type, which features render them less susceptible to trouble from lightning and high-voltage surges. Many of these were used on 230,000 volt transmission systems in sizes up to 67,000 kv-a.

The use of transformers with "load-ratio control" for the control of the secondary voltage very materially increased. These transformers operate without attendants.

Among the minor ingenious improvements for transformers were: The Thermotol, an instrument for indicating the extent to which the available capacity of all the transformers of a system is being used. A system of "banked radiators" for the cooling of a number of large transformers in a restricted space. A combination of oil-air pressure for the more effective cooling of large transformers.

The development and the application of Mercury Arc Rectifiers has been very vigorously pushed in recent years and there has been a very great increase in the number, size, and power capacity. The direct current systems in which they are used range from 600 to 3000 volts and their capacities from 750 kw. to 6000 kw. and for all commercial frequencies. The largest in-

stallation is probably that of the New York City Board of Transportation, intended to supply power to the new subways, particularly the Eighth Avenue Subway.

**EARTH.** See GEOLOGY; ASTRONOMY; METEOROLOGY.

**EARTHQUAKES.** On the average, an earthquake is felt in some part of the world at least 4000 times each year, though fortunately the vast majority of these quakes either are feeble and harmless or else occur under the sea or in thinly populated regions; in the United States alone, 200 or more are usually reported annually. The year 1931 had the usual quota of earthquakes, several of which ranked as severe disasters; forty-three major quakes occurred during the first four months of the year alone, but several of these took place in midocean, and a number of the others did not cause much damage or loss of life. A great quake in China on January 27, was known to have occurred only from the records made by seismographs over the globe.

A destructive earthquake took place in the south of Mexico (q.v.), on January 14, and was followed by aftershocks for several days; the epicentre was close to the coast of the Gulf of Tehuantepec. Oaxaca was almost completely destroyed, with a loss of about sixty lives; considerable damage was caused at Mexico City, 230 miles from Oaxaca.

On February 3, an intense quake in North Island, New Zealand, caused part of the city of Napier to collapse; the epicentre was under the ocean, near Napier, and the shock was followed by a sea wave. Many aftershocks occurred, notably on February 13. Over 250 lives were lost. Napier and Hastings were the most heavily damaged cities, but destruction occurred over an area 12 or 15 miles wide and 45 miles long, parallel to the coast. The bed of the harbor at Napier rose as much as 18 feet in some places. Notable displacements of the earth's crust have been a feature of New Zealand quakes in the past. Since 1814, four great shocks have been felt in New Zealand, viz., in 1826, 1848, 1855, and 1929, but none compares, especially in destruction of life, with that of 1931.

On March 7, and again more strongly during the early morning of March 8, destructive quakes were felt over a large part of the Balkan Peninsula; destruction and loss of life occurred over an area 100 miles in diameter, while the total disturbed area was at least 350 by 200 miles. The epicentre was probably about 100 miles north of Salonika, close to one of the most seismically active zones in the central peninsula.

On March 31, Managua, capital of Nicaragua (q.v.), was almost completely destroyed by a violent earthquake which was followed by strong aftershocks; out of a population of 50,000, several hundred were killed. This quake took place in an almost dormant seismic zone; the principal shock was of exceptionally brief duration—it lasted only a few seconds—and the area of damage was comparatively small.

Several towns were ruined in northwestern Argentina on January 14. Central Java was shaken on January 21, and considerable damage caused. Great damage and loss of life occurred at Koritza in Albania on January 28. Some damage was caused along the coast of Chile on March 5. Destructive quakes in the

Caucasus region on the Armenian-Persian frontier on April 27, killed about 400 people, and injured 2000. On August 10, one of the greatest quakes of the year took place in Sinkiang province, China, on the western edge of the Gobi desert; and another one 400 miles to the north occurred on August 18.

A mild shock was widely felt in Texas and New Mexico on August 16; and another occurred in the Mississippi Valley on July 18, with an epicentre close to New Madrid. See **SEISMOLOGY**; **ARMENIA** and **NICARAGUA** under *History*; **GEOLOGY**.

**EAST AFRICA PROTECTORATE.** See **KENYA COLONY**.

**EAST PRUSSIA.** A Province of the State of Prussia separated from Prussia and from the German Reich by the Polish Corridor (q.v.). Its area on Apr. 1, 1929, was 14,401 square miles and its population June 16, 1925, was 2,256,349. See **GERMANY** and **POLAND** under *History*.

**ECLIPSES.** See **ASTRONOMY**.

**ECOLOGY.** See **BOTANY**; **ZOOLOGY**.

**ECONOMIC ASSOCIATION, AMERICAN.** An organization founded in Saratoga, N. Y., in 1885 to encourage economic research, especially the historical and statistical study of the actual conditions of industrial life; to issue publications on economic subjects; and to encourage perfect freedom of thought and discussion upon current problems from an economic point of view. The membership, which in 1931 totaled approximately 3800, comprises persons interested in the study of political economy or the economic phases of political and social questions.

The association held its annual meeting in Washington, D. C., Dec. 28-30, 1931. Among the topics discussed were: "Technological Change as a Factor in Unemployment"; "Economic Organization and the Control of Industry"; "The Changing Character of the Transportation System"; and "Recent Bank Changes." Papers read at the meetings are published in the *Proceedings* of the association. The official periodical is the *American Economic Review*, a quarterly. The officers in 1931 were: President, Ernest L. Bogart, University of Illinois; vice presidents, Edmund E. Day, New York City, and Eliot Jones, Stanford University; counsel, John E. Walker, Washington, D. D.; and secretary and treasurer, Frederick S. Deibler, Northwestern University.

**ECONOMIC ENTOMOLOGY.** See **ENTOMOLOGY**, **ECONOMIC**.

**ECONOMIC GEOLOGY.** See **GEOLOGY**.

**ECONOMICS.** See **BANKS** and **BANKING**; **BUSINESS REVIEW**; **FINANCIAL REVIEW**; **LITERATURE**, **ENGLISH** and **AMERICAN**; **PUBLIC FINANCE**, **ETC.**

**ECUADOR**, ek'wá-dór. A South American republic situated on the northwest coast of the continent between Colombia on the north and Peru on the south. The capital of the republic is the city of Quito.

**AREA AND POPULATION.** The area in 1931, still undetermined because of the boundary dispute with Peru, was variously estimated at from 110,000 to 284,000 square miles, including the Galapagos or Colon Islands (2868 square miles), situated 600 miles West of Ecuador in the Pacific. The population in 1929 was estimated at 2,533,000 (2,000,000 in 1926), including 10,000 foreigners. One estimate placed the white population at 10 per cent of the total; Indians, 38 per cent; mixed, 41 per cent; Negroes, 5 per cent; others, 6 per cent. The chief cities, with their approxi-

mate populations in 1929, are: Guayaquil, 100,000; Quito, 91,600 in 1930; Cuenca, 50,000; and Riobamba, 27,000. Births in 1930 numbered 97,824; deaths, 44,673.

**EDUCATION.** Primary education is free and nominally compulsory but there is a large percentage of illiteracy. According to the President's message of Aug. 10, 1931, there were during the 1930-31 school year 2081 elementary schools, with 3618 teachers and 149,065 enrolled pupils. Seventeen secondary schools enrolled 2992 pupils and other vocational institutions and special classes, 5234. The four universities at Quito, Guayaquil, Cuenca, and Loja reported a total of 920 students in 1930.

**PRODUCTION.** Ecuador is primarily an agricultural country, whose prosperity has been undermined by an alarming shrinkage in the production and exportation of cacao, caused by plant diseases. Exports of cacao in 1930 represented only 29 per cent of the total value of exports, compared with 63.2 per cent in 1913 and 62.2 per cent in 1918. In 1930, cacao exports totaled 44,273,000 pounds, valued at \$4,681,000 (40,142,000 pounds, valued at \$4,251,000, in 1929). Production of the other chief crops in 1930 was: Coffee, about 21,600,000 pounds (18,800,000 in 1929); rice, about 82,000,000 pounds; cotton, about 5,760,000 pounds in 1930-31 (3,245,000 in 1929-30); sugar, about 20,000 long tons for 1929-30. Cereals, potatoes, and fruit are other important crops. Livestock in 1930 was estimated at 1,280,000 cattle, 700,000 sheep and goats, 150,000 swine, and 85,000 horses. Tagua nuts (vegetable ivory), kapok, and rubber are the chief forest products. The output of the principal minerals in 1930 was: Petroleum, 1,559,000 barrels (1,351,000 in 1929); gold, 69,482 troy ounces; silver, 100,128 troy ounces. The leading industries are the making of straw hats, textiles, and shoes, the grinding of sugar cane, and rice hulling.

**COMMERCE.** Preliminary figures showed general imports in 1930 of \$12,796,000 (16,967,000 in 1929) and general exports of \$16,129,000 (\$17,207,000 in 1929). As compared with 1929, imports declined 24.6 per cent and exports 6.3 per cent. The leading exports, in order of value, were: Cacao, petroleum, coffee, straw hats, gold and silver, tagua nuts, and rice. The United States is the principal export market and source of imports, taking 47.2 per cent of all exports in 1930 (45.2 per cent in 1929) and supplying 40.1 per cent of all imports (40.8). The United Kingdom in 1930 furnished 18.2 per cent of the imports and Germany 13 per cent. For the 12 months ended June 30, 1931, exports to the United States were valued at \$4,719,000 (\$5,523,000 in 1929-30) and imports from the United States were \$3,975,000 (\$5,302,000).

**FINANCE.** According to a preliminary statement covering the supplementary period only up to the end of January, 1931, national revenues and expenditures in 1930 were below budget estimates and amounted to 60,112,141 sucres and 60,704,060 sucres, respectively. Expenditures included funds set aside for service of the national debt and for the treasury reserve. Customs receipts during 1930 totaled 22,287,337 sucres, as compared with 26,249,203 sucres in 1929. The national budget for 1931, enacted in the latter part of the year, calculated both revenues and expenditures at 61,476,600 sucres. During 1930 the Government deposited the amounts due as

service on the external debt, exclusive of the Swedish match loan, in the Central Bank rather than remitting payments to the bondholders. On Dec. 31, 1930, the public external debt totaled \$22,701,000, as against \$22,165,000 on Jan. 2, 1930, while the internal debt was 10,837,000 sucres (\$2,167,400), compared with 11,950,000 sucres (\$2,390,000) on Jan. 2, 1930. The sucre was stabilized at about \$0.20 U. S. currency in 1927.

**COMMUNICATIONS.** In 1929, there were 652 miles of railway line in operation, divided into nine systems. Main highways in 1930 extended about 1388 miles; new motor roads were under construction in 1930 and 1931. Of the two airlines in operation, one, the Scadta line, suspended service during 1931. Guayaquil is an important port of call for European and American lines.

**GOVERNMENT.** The Constitution promulgated Mar. 26, 1929, vested executive power in a president elected for four years by direct suffrage, and legislative power in a congress of two houses. The Senate has 32 members elected for four years by the Provinces and occupational groups; the Chamber of Deputies, 56 members elected for two years by direct vote of literate male and female citizens. A drastic reorganization of the central administrative system became effective Jan. 1, 1931, under a law promulgated Dec. 9, 1930. The law established the following ministries: Government and Social Welfare; Foreign Affairs; Public Education; Public Works, Agriculture, and Promotion; Finance and Public Credit; War, Navy, and Aviation. President at the beginning of 1931, Dr. Isidro Ayora, reelected Mar. 27, 1929, for the term ending Aug. 31, 1932.

#### HISTORY

**THE GOVERNMENT OVERTURN.** On Aug. 24, 1931, Dr. Isidro Ayora resigned as President of Ecuador, a post he had filled with ability and patriotism since assuming power in April, 1926, through a military *coup d'état*. Under his leadership the Constitution was amended and restored to operation and he was reelected as Constitutional President on Mar. 27, 1929, by a Constituent Assembly. Dr. Ayora succeeded in reorganizing the fiscal and banking systems and inaugurating much-needed public works, despite the continued economic depression, which commenced in 1927. The collapse of agricultural prices forced his Government repeatedly to reduce expenditures in order to balance the budget. The civil servants affected protested and unrest was reported in the army. In the spring of 1931 all expenditures on public works were stopped, arousing the hostility of leading cities, particularly Guayaquil, where sanitation and dock works were in progress. The failure in May of the Banco del Ecuador, one of the principal private credit institutions of the country, and of other banks, aggravated the financial distress. Communist propaganda was reported to be making rapid headway among the laboring classes, and there were several attempts at Indian risings, especially at Cayambe, near Otavalo, to secure distribution of the large landed estates.

There was also friction between the President and Congress, and much public dissatisfaction at the awarding of a match monopoly to the Swedish Match Company in return for a \$2,000,000 loan. Discouraged by his numerous problems

and the loss of congressional support, President Ayora resigned following a mutiny of the Chimborazo Regiment and took refuge in the American Legation. Col. Luis Larrea Alba, whom Dr. Ayora appointed Minister of Government, became Acting President. In accordance with the Constitution, Colonel Larrea Alba immediately fixed October 20 as the date for a presidential election. On October 15, however, he proclaimed a dictatorship with the support of two regiments, but the opposition of the other regiments of the Quito garrison and of the populace frustrated his plans and he was forced to resign, with his entire Cabinet. Stoned by indignant citizens, one of the regiments supporting Colonel Larrea Alba fired into a crowd, killing seven.

Larrea Alba, on resigning, appointed as his successor Former President Alfredo Baquerizo Moreno, then serving as President of the Senate. Under the latter's direction, elections were held October 20, in which Señor Neptali Bonifaz, an independent in politics and one of the country's wealthiest landowners, was victorious over Señor Modesto Larrea Jijon, a cousin of Larrea Alba and presumed to have official support. While the election was reported to be free and orderly, only 26,000 votes were cast out of a population of more than 2,000,000. President-elect Bonifaz, however, was closely affiliated with the landowning and conservative classes and his election widened the breach with the liberal and radical elements. Predictions that a violent effort would be made to prevent his taking office were borne out when an insurrection broke out in the Province of El Oro early in November. The revolt was crushed and the leaders arrested without serious fighting. At the same time Alfonso Larrea Alba, brother of the former Provisional President, and about 15 other army officers were arrested.

One result of the overthrow of the Ayora government was the cancellation by Congress on September 15 of the match monopoly granted the Swedish Match Company. This involved the repayment of the Kreuger-Toll loan of \$2,000,000, which was to be taken from deposits for the service of the foreign debt in the Bank of the Republic. Manuel Navarro, Speaker of the Chamber of Deputies, was mobbed by occupants of the gallery when he cast the sole dissenting vote against cancellation of the match monopoly. On Dec. 13, 1931, the Minister of Public Works announced that the contract of the J. G. White Engineering Company of New York for the installation of a sanitation system at Guayaquil would be cancelled. During 1931, Ecuador was in default on debt service payments due on seven railway and salt loans, the principal outstanding aggregating \$16,658,550.

Ex-President Ayora was cleared of charges of misuse of government funds by a congressional committee on November 26. A landslide on the Guayaquil and Quito Railway early in 1931 cost nearly 200 lives and extensive damage to the railway. For the resumption of diplomatic relations between Ecuador and Colombia, see COLOMBIA under *History*.

**EDDINGTON, A. S.,** THEORIES OF. See ASTRONOMY.

**EDESON, ROBERT.** An American actor, died in Hollywood, Calif., Mar. 24, 1931. He was born in New Orleans, La., June 3, 1868. He made his debut in Brooklyn, N. Y., in 1887 in *Fascination*, and after playing in stock and road com-



panies for about 10 years returned to New York to support Maude Adams as the Rev. Gavin Dishart in *The Little Minister*. In 1899 he appeared as David Brandon in *The Children of the Ghetto*, making his first appearance on the London stage in that year in the same part. He commenced his career as a star in *Soldiers of Fortune* in 1902 and appeared as Soangataka in *Strongheart* on both the New York and London stages in 1905-07. He next appeared in *Classmates* (1907); *The Sinner* (1908); *The Call of the North* (1908-09); *The Offenders* (1908); *The Noble Spaniard* (1909); *The Outpost* (1909); *A Man's a Man* (1910); and his own play, *Where the Trail Divides* (1910). Then followed *The Cave Man* (1911); *The Indiscretion of Truth* (1912); *Fine Feathers* (1912); *Husband and Wife* (1915); *His Brother's Keeper* (of which he was author, 1916); *The Knife* (1917); *The Riddle: Woman* (1918); *A Good Bad Woman* (1919); and *The World We Live In* (1922). After 1921 he devoted himself to motion pictures in connection with the Famous Players-Lasky Corporation, appearing as an actor in silent films and later as studio director and coach.

**EDISON, THOMAS A (LVA).** An American electrician and inventor, died in West Orange, N. J., Oct. 18, 1931. He was born in Milan, Ohio, Feb. 11, 1847, and when he was 7 years of age his family moved to Port Huron, Mich., where the remainder of his boyhood was passed. His schooling was limited, but he received some instruction from his mother, and at the age of 12 he became a newsboy on the Grand Trunk Western Railway. His spare hours were spent in reading and in boyish experiments, largely with electrical and mechanical apparatus, while in addition with a small printing press he published a weekly known as the *Grand Trunk Weekly Herald*, doing the printing in a baggage car where he installed his chemical apparatus. He was forced out by the conductor on account of a fire caused by some of his chemicals.

Due to his saving the child of a station master from the wheels of an approaching train, Edison became a pupil in the telegraph office at Stratford Junction, Ont., in 1863, and shortly made himself a brilliant and rapid operator. He was enabled to carry on studies in electricity and telegraphy, and his inventive genius manifested itself in an automatic reply signal indicating his presence in the station instead of the manual signal required every half hour when on duty. The automatic signaling device became the forerunner of the familiar messenger call box, but unfortunately, led to his discharge, and he sought and secured employment as an operator in several cities, arriving at the Western Union office at Boston in 1868.

During this time he made his first important invention, namely, a repeating telegraph instrument which enabled a message to be picked up and transmitted automatically on a second line without the presence of an operator. In New York, whither he went from Boston, he secured a mechanic's job in the office of the Law Gold Reporting Company, which maintained a ticker service, and not only repaired instruments but developed an improved stock ticker and other telegraphic appliances. His two-wire Universal stock ticker invented in 1870 remained standard and unchanged for over 50 years. With money received from his invention he established a shop in Newark, N. J., where he was enabled to develop his

duplex and multiplex telegraphs. From 1872 to 1876 his inventions included the motograph, the automatic telegraphic system, the duplex, quadruplex, and multiplex telegraphic systems, the carbon rheostat, the microtassimeter, and other devices. In the years between 1860 and 1910 in the telegraph field alone Edison applied for 1328 patents. Between 1876 and 1877 he devised the carbon telephone transmitter which made telephony a commercial art and fitted in with the telephone as invented by Bell. The carbon transmitter also involved the microphone, which had constantly increasing application and was finally utilized in radio transmission. In 1877 he invented the phonograph which eventually he improved with various subsequent inventions so that by 1890 it could be put on a commercial basis as a widely used industrial instrument.

Edison removed his workshop from Newark to Menlo Park, N. J., in 1876, where he invented the incandescent lamp on Oct. 21, 1879; the first modern incandescent lamp was placed in a circuit and maintained its incandescence for more than 40 hours, demonstrating the practical quality of this invention. The incandescent lamp was more than an isolated invention, for with it came improved dynamos, a system of distribution for current and its regulation and measurement, including such devices as the sockets and switches ordinarily used together with the meters. In fact, Edison invented not merely a lamp but a complete system, or more properly the art, of incandescent electric lighting which was first exemplified in the Pearl Street Station, New York City (1881-82). In 1881 the first commercial incandescent lamp factory was established in Harrison, N. J., and the various devices invented and devised for incandescent lighting were placed in production on a commercial basis. At this time he had invented and developed a full-sized electric railway for freight and passengers at Menlo Park. In 1883 he discovered the "Edison Effect" which became so important a consideration later in radio tubes.

In 1887 Edison removed to West Orange, N. J., where he established the laboratory in which his subsequent scientific and inventive work was carried on. About this time he had invented an induction system of wireless telegraphy to and from trains in motion or between moving trains and railroad stations, and worked on an improved cylinder phonograph which was available for commercial dictation and carried with it various adjunct and auxiliary devices. This work alone involved more than 80 patents. About 1891 he made a number of inventions relating to electric railroads and was the first to perfect the motion-picture camera where a rapid succession of pictures were made on a traveling film and then reproduced in his so-called kinetoscope. Between 1900 and 1910 he invented and developed the Edison alkaline storage battery and in addition to his electrical work became interested in the production of Portland cement. Between 1910 and 1914 he was engaged on an improved disk phonograph with a diamond-point reproducer and an indestructible record. In 1912 came the kinetophonograph, or talking motion-picture system, where the phonograph was combined with the kinetoscope. About 1913, desiring to become independent of ordinary sources of carboic acid, he devised a plan of making this material synthetically, and in 1915 developed extensive chemical processes so as to secure chemical materials which

previously had been imported from Germany. In 1914 he developed the telescribe, which combined the telephone and dictating phonograph for the recording of telephone messages. In July, 1915, Edison was made president of the Naval Consulting Board, and when the United States entered the World War he made many war inventions for the U. S. Government.

Edison's honors included appointment as chevalier, officer, and commander of the Legion of Honor by the French Government. In 1903 he was made honorary chief consulting engineer of the St. Louis Exposition held in 1904. He received the award of the John Fritz Medal in 1908, of the Rathenau Medal (a German honor), and a medal of the American Museum of Safety in 1914. A most unusual number of his many inventions were of extraordinary value from the practical standpoint and in their effect upon human life. Edison was the first to apply electrical energy on a large and practical scale and it is doubtful if any single invention has had more effect on civilization than the incandescent lamp, and few devices have found wider application than the phonograph in its various forms. Edison was distinctly a true and real inventor and often was able to utilize in a practical way the scientific thoughts or discoveries which had been the works of others. No one ever had a saner and surer instinct in combining in correct and useful form mechanical or electrical elements to secure a useful purpose. He was able to apply a scientific truth to a practical end to an extraordinary degree, and so rapid were the developments secured by his efforts that he was popularly known as a wizard. He received a congressional gold medal in 1928 on the occasion of the fiftieth anniversary of his invention of the electric light, a medal from Pope Pius XI in 1930, and numerous honors from governments, universities, and leading societies. His death occasioned world-wide expressions of grief and appreciation. Among the biographies are: Dyer and Martin, *Edison: His Life and Inventions* (2 vols., 1910); George Sands Bryan, *Edison: The Man and His Work* (1926).

**EDUCATIONAL PSYCHOLOGY.** See **PSYCHOLOGY**.

**EDUCATION ASSOCIATION, NATIONAL.** See **NATIONAL EDUCATION ASSOCIATION OF THE UNITED STATES**.

**EDUCATION IN THE UNITED STATES. STATISTICS.** *Attendance.* Attendance statistics for 1930 were issued by the U. S. Census Bureau and the following summary was in the *United States Daily*:

There were 38,387,032 persons from five to twenty years of age in the population of the United States on April 1, 1930, of which number 26,849,639, or 69.9 per cent, were returned as having attended school at some time since September 1, 1929. For males from 5 to twenty years of age, the percentage attending school was 70.2, and for females 69.7.

The number of persons from 5 to 20 years of age returned in 1930 as attending school, 26,849,639, represents a gain of 5,475,663 since 1920, when the number so returned was 21,373,976. The percentage attending school increased from 64.3 to 69.9 in the 10-year period.

Of the whole number of children 7 to 13 years of age, 95.3 per cent were attending school; of those 14 and 15 years, 88.8 per cent., of those 16 and 17 years, 67.3 per cent, and of those 18 to 20 years, 21.4 per cent. The number of persons 21 years of age and over reported in 1930 as attending school was 1,034,782, as compared with 844,789 in 1920.

Of the native whites of native parentage, 96.1 per cent of those from 7 to 13 years old were attending school; 90 per cent of those 14 and 15 years; 61 per cent of those

16 and 17 years, and 24.4 per cent of those from 18 to 20 years. For native whites of foreign or mixed parentage in these age groups, the percentages were, respectively, 98, 91.3, 54.4, and 19.8.

In the foreign-born white population, 97.5 per cent of those from 7 to 13 years old were attending school; 92.6 per cent of those 14 and 15; 52.3 per cent of those 16 and 17, and 15.6 per cent of those from 18 to 20 years.

**Costs.** The U. S. Office of Education reported that more than 23 per cent of all public revenue from tax collections was being expended for elementary and secondary school instruction. The cost of such schools amounts to more than \$2,180,000,000. More than \$5,486,000,000 are invested in buildings, grounds, and equipment. The cost of public instruction has risen from \$1,580,671,296 in 1922 to the figure given. It is shown that the income of the nation and the cost of maintaining the schools have increased at approximately the same rate. The Office of Education reported that salary increases among teachers appeared in practically every class of school during the school year ending in June, 1931. In individual instances, however, there was a drop. The median salary for rural school teachers in 1930 was \$926. This compared with \$1771 for city teachers. The median salary for the rural white teachers in the 17 States that segregate the negro children was \$945, while that of the negro teachers in these States was \$388.

The problem of financing the educational system received much attention during the year. Various forms of taxation to meet the needs of the schools were considered by the legislatures that met in 1931. In many places the problem of support had not been solved. Nearly all of the school systems had found it necessary greatly to curtail expenditures. This was done in a variety of ways. Among these may be mentioned the following: increasing the size of classes in order to reduce the number of teachers that are needed; shortening the school period in order to reduce the salaries of teachers and the cost of maintenance; reducing the salaries of the school staff (in some places this took the form of a 10 per cent reduction; in a few, the reduction was even larger); and reducing the school offerings and equipment.

During recent years there has been considerable extension in the offerings provided by school systems. Kindergartens have become common, and nursery schools have been maintained by some cities. There has been a great improvement in school buildings with a resulting increase in bonded indebtedness. In rural sections, provisions have been made for the transportation of school children. The National Association of Motor Bus Operators reported that more than 1,500,000 children were transported each day, and that the annual cost was approximately \$35,000,000. All of these improvements were justified by those who control the school, and they were approved by those who support the school. In 1931, however, the problem of supplying the funds had become critical in many sections.

**Illiteracy.** The 1930 census reports show that on Apr. 1, 1930, there were in the United States 4,283,753 illiterate persons. For the purpose of the census, any person ten years or older who was unable to read and write was considered illiterate. It was not required that he read and write the English language. Of the illiterates in the United States in 1930, 407,218 were white, 1,513,892 were negroes, and 362,643 were of other

racers. For native whites the percentage of illiteracy was 1.5, for foreign-born whites 9.9, for negroes 16, and for the other races 25.

Iowa ranked first in literacy. In that State only 0.8 per cent of the persons ten years of age or over were not able to read or write. There has been a reduction of illiteracy from 6 per cent in 1920 to 4.3 per cent in 1930. Dr. Louis I. Dublin, vice president and statistician of the Metropolitan Life Insurance Company, stated that on the bases of census figures, there were more than 3,000,000 children between the ages of seven and seventeen who were not in school. He estimated that about 2,000,000 of these were gainfully employed; the others were not. He called attention to the fact that this group of children out of school represented approximately 10 per cent of that age group in our total population.

*Public, Society, and School Libraries.* During the year, the Federal Office of Education issued a report on the statistics for American libraries, collected for 1929. It shows that there are 33 books for every 25 persons. There is one library for every 11,226 American citizens. In the 6429 libraries and 4387 branch libraries that reported, there was a total of 154,316,858 bound volumes. In 6057 libraries that reported, 10,453,672 volumes and pamphlets had been added during 1929. In 4134 libraries that reported, there were in force 19,635,906 borrowers' cards. The books issued for use outside of the library in 4380 that reported this item numbered 336,758,203. The report shows that there are 1982 school libraries having more than 3000 volumes each. In 1923, there were only 947 such libraries. The annual cost of the libraries is \$69,294,121, of which \$52,620,396 is supplied by taxes. Of the total library expenditures, \$16,590,538 was used to buy books. Sixteen of the forty-eight States had one or more libraries containing more than 500,000 volumes. New York State had seven such libraries. Illinois and California each have four. See LIBRARY PROGRESS.

**EDUCATIONAL CONDITIONS.** For a decade or more the improvement of public education had received marked consideration. The attempts at improvement have taken one or more of three forms. These may be described as curriculum changes, improvement of teachers, and improvement of buildings and equipment.

The changes in curriculum, particularly of the elementary school, have been very marked. Many cities have expended large sums in the employment of those who devoted their time and attention to work on the curriculum. There have been some outstanding results.

The improvement of teaching has in general taken the form of increased training for the teaching profession. Until 1920 the normal school was considered adequate for the purpose of training the elementary teachers. As a matter of fact, many who entered the schools as teachers had received their training in one year in classes conducted in connection with high schools. The emphasis that has been placed upon better preparation of teachers has led to the changing of normal schools into teachers' colleges and the requirement that the prospective teacher receive three or even four years of training instead of two.

The improvement of buildings and equipment has been remarkable. Better lighting, better ventilation, and more desirable surroundings have resulted.

It was surprising that after this period of intensive effort to improve the schools, there should come into existence the most pronounced criticisms of elementary and secondary education that have appeared in years. All features of the educational system were under severe condemnation in many quarters. Laymen looked upon the changes in curricula as serious defects. Parents whose children sought admission to college were often very greatly distressed with the difficulties that their children experienced in entering the institutions of their choice. The parents believed that this difficulty was due in large measure to the newer notions that were operating in the public schools. Even within the profession itself there was no definite agreement in regard to the value of some of the changes that were proposed. In some cities where new courses had been formed the old ones continued in use because the teachers and school officials did not have confidence in the new provisions.

Many of those who criticized the modern school were equally critical of the educational system which it was supposed to replace. Such critics did not desire to return to the old form, but they believed that school people had not worked out a thoroughly reliable and effective scheme for education that was in keeping with modern demands.

The problem of improving teaching through increasing the amount of training that teachers receive was also clouded with uncertainty. Within the profession there was a conception that length of training and efficiency in teaching were closely correlated. This would seem to be a reasonable assumption, yet no one presented evidence that is conclusive. In the meantime there was a larger number of trained teachers entering the schools each year. It was startling that there should be a growing conception that teaching was not being as well done now as it was earlier. Unquestionably there was an oversupply of teachers. There was, however, not a sufficient number of those who had two years or more of training to fill the positions.

It was true that the aims and purposes of public education were less well defined than at any previous time in the history of the United States. Even those who are regarded as leaders in the educational field do not agree among themselves as to what the school should accomplish and there is even less agreement as to how the purposes of the school may be accomplished. This leads to a distressing amount of uncertainty on the part of teachers. They assert that their efforts are judged in respect to the opinions of those who observe, yet the results of their work are determined by testing the achievement of their pupils in the identical subjects that were required before the newer conceptions came into existence. It was certain that increased training of teachers cannot bring the desired improvement in instruction until the aims and purposes of education are more clearly defined. It was true that such teachers as were found in the schools could render far better service if they knew more definitely what was expected of them.

Every one connected with the schools believes that proper buildings and surroundings are a very decided factor in the educative process. Now, however, the time has come when those in control of the financial aspects of education find it very difficult to persuade tax-payers that money spent for such improvements is essential. As a

consequence, in nearly every city in the United States there was an attempt to economize on the equipment that was supplied. Textbook publishers reported a startling decrease in the number of books ordered by the schools. One system even considered the possibility of defraying part of the expense of books by the sale of advertising in such books.

The U. S. Office of Education, acting under the authority of Congress, undertook extensive investigations in three fields that relate to the welfare of the schools.

The first of these investigations had to do with secondary education in the United States. The report of the commission working on this topic was awaited with great interest. It seemed certain that the report would serve to clarify many ideas in respect to the field of secondary education. Some of the best persons in the profession were associated with this commission and there had been funds sufficient to employ a number of thoroughly competent helpers.

The second investigation to be started dealt with teacher training in the United States. The commission was considering every aspect of the teacher training problem. Its report was not to be forthcoming for another year.

The third investigation to be undertaken related to the financing of public education. The Office of Education brought together in this commission a group of prominent persons representing various fields of interests. The attempt was to be made to have the investigation thorough and comprehensive. The report was not due for two years.

**MOTION PICTURES AND RADIO.** Plans for the use of motion pictures, talking pictures, and radio progressed during the year. Not as much was written in regard to motion pictures as appeared earlier. Probably this was due to the fact that motion pictures were established in most prominent school systems in the United States. The problem that confronted the producers was connected with the development of more suitable pictures and more effective ways of employing them for instructional purposes. The Department of Visual Instruction of the National Education Association urged that a course in visual and other sensory aids in teaching be required of all persons preparing for the profession of teaching, and that teacher training institutions in every State be requested to organize and offer such courses, beginning with the scholastic year of 1931-32.

The use of radio as an educational means received a large amount of attention during the year. There were two national organizations for the furtherance of radio in education. One was the National Advisory Council on Radio Education organized in 1930 and supported for a period of three years by John D. Rockefeller and by the Carnegie Corporation. Dr. R. A. Millikan, California Institute of Technology, was the president of the Council. Both the National Broadcasting Company and the Columbia Broadcasting System were in sympathy with the purposes of the Council and had representatives in its active membership. Committees of the Council were undertaking the preparation of programmes of high quality in such subjects as agriculture, art, history, foreign languages, mathematics, philosophy, political science, and science.

The second organization concerned with radio was the National Committee on Education by

Radio. The purposes of the committee as stated in the by-laws are:

To secure to the people of the United States the use of radio for educational purposes by protecting the rights of educational broadcasting, by promoting and coordinating experiments in the use of radio in school and adult education, by maintaining a service bureau to assist educational stations in securing licences and in other technical procedures, by exchange of information through a weekly bulletin, and by serving as a clearinghouse for the encouragement of research in education by radio.

This committee published a weekly bulletin of information. It was urging Congress to set aside 15 per cent of all available radio channels for education. It was also developing a programme of research in education by radio. The work of this committee was financed for a period of five years by the Payne Fund.

**NATIONAL ADVISORY COMMITTEE ON EDUCATION.** In his annual message to Congress on Dec. 3, 1929, the President said:

In view of the considerable difference of opinion as to policies which should be pursued by the Federal Government with respect to education, I have appointed a committee representative of the important educational associations and others to investigate and present recommendations.

The report of the National Advisory Committee on Education entitled, *Federal Relations to Education*, was presented to the President and printed late in 1931. The report occasioned much discussion in educational circles. In some quarters it was opposed; in others it was vigorously praised. In effect, it again raised the issue of forming a Department of Education having a Secretary in the President's Cabinet.

The committee found that Federal appropriations authorized for the aid of general and special education amounted to \$23,778,680 in 1930. Of this amount, the Office of Education in the Department of the Interior received \$351,624, agricultural and mechanical colleges \$2,550,000, agricultural experimental stations \$4,335,000, agricultural extension work \$7,662,936, vocational education \$7,800,000, and vocational rehabilitation \$1,079,120. It appeared, therefore, that the Federal government was participating in education with the States, yet the report asserted that there was "no inclusive and consistent public policy as to what it should or should not do in the field of education. Whatever particular policies it seems to be pursuing are often inconsistent with each other, sometimes in conflict. They suggest a haphazard development wherein policies of far-reaching effect have been set up as mere incidents of some special attempt to induce an immediate and particular efficiency."

The committee found that there were seven distinguishable fields, in each of which the Federal government has either at the origin or at subsequent periods in its development definitely assumed responsibility for education. There are various overlappings, but these fields may be broadly classified as:

1. The education of the people in the several States. In this the function of the Federal Government has largely been one of cooperation in fostering the education of the people under State jurisdiction.
2. The education of persons resident on special Federal areas, such as Government reservations and Federal districts, lying outside the legal jurisdiction of State and other regional governments.
3. The education of the American Indians and other indigenous peoples within the national jurisdiction.
4. The education of the peoples of the Territories and outlying possessions.

5. The training of persons in the service of the National Government.
6. Scientific research and the collection and diffusion of information regarding education.
7. The intellectual and educational coöperation of the United States with other nations.

The report considers each of these fields and offers specific recommendations. In respect to Federal relations to education in the States the following recommendations are offered.

- a. That the special aid now in force be continued for at least five years and until a comprehensive financial survey of tax systems, distribution of national incomes, living costs, etc., can be completed.
- b. Amend existing laws so as to prevent the Federal Government and its agencies from interfering with the autonomy of the States in matters of education. This would mean the repeal of all provisions that require the States and the local community to match Federal funds or that grant power to the Federal agencies to approve or reject State educational plans.
- c. Make all future grants to States as grants in aid of education in general, expendible by each State for any or all educational purposes as the States themselves may direct. The only restriction to be placed on such grants should be the provision that every State, when it accepts the grant, agrees to make each year to the Federal headquarters for education a full report on all questions on which the Federal headquarters for education may require information concerning the manner in which the State has used the grant.
- d. Provide adequate Federal headquarters for educational research and information.
- e. Increase the Federal appropriations for educational research and information service.

Concerning education in special Federal areas, it is recommended:

- a. That the Federal Government assume direct responsibility for the education of the residents of Federal reserve areas, districts, reserves or reservations.
- b. Formulate a general programme and set up an efficient organization by which the Federal Government shall provide or contract for educational facilities.
- c. Leave the central administration of school facilities for Federal area school children under the control of that particular Federal department responsible for the special governmental function for which the area is reserved.
- d. Establish expert local supervision.
- e. Cooperate with the State systems.

As applied to the education of the Indians and other indigenous peoples, the recommendations made are:

- a. That there be established in the Bureau of Indian Affairs a planning and development division which shall be concerned only with basic investigations, this division to be responsible for developing a new type school suitable for the education of peoples with different cultural backgrounds.
- b. Provide for a permanent conference to consider all problems arising in connection with the development of primitive and native peoples under the jurisdiction of the Federal Government.
- c. Gradually delegate the management of Indian affairs to local officials.
- d. Provide a trained personnel.

Among the recommendations made for education in the Territories and outlying possessions are the following:

- a. Continue to emphasize educational means as an instrument in the life of our politically dependent peoples.
- b. Formulate a more comprehensive and unified Federal policy of education in regard to these peoples.
- c. Employ educational advisors.
- d. Provide conferences such as that recommended for the Indians and other indigenous peoples.

The committee has considered the training of government personnel. It recommends:

- a. The encouragement of the widespread use of school and course training in improving the administrative and other services of the Government.
- b. The maintenance of a training professional educational advisory service in every department or independent establishment that conducts any considerable number of classes or schools.

- c. The organization of representatives of these advisory educational services as a subcommittee on the Interdepartmental Council for Education.
- d. The authorization of an inclusive survey of all the policies and practices followed throughout the different divisions of the Government, with the idea of recommending a more consistent, effective, and economical programme for the training of government personnel.

In the field of research and information service, the committee recommends:

- a. The development of the Federal Government's research and information services with increasing emphasis on comprehensive research and on the diffusion of information that is pertinent to the decision of critical national issues.
- b. The expansion of the Federal research and information service in the field of education.
- c. The coordination of activities through the Interdepartmental Council for Education.
- d. The granting of a proper status in the general headquarters for education, such that it may present forcibly both to Congress and to the President the scientific and other professional facts which are pertinent and crucial in determining the policies of the Federal Government with regard to education.

One section of the report is devoted to international intellectual relations. The recommendations include:

- a. The encouragement of international coöperation.
- b. The selection of appropriate commissions to represent the United States in international educational matters.
- c. The study of foreign education.
- d. The coordination of the visa machinery.

Each of the recommendations grows out of the facts that are presented by the committee. Of the 51 members of the committee who voted on the recommendations that have here been presented, 45 were in favor, and 6 opposed.

In the part of the report that deals with policies and procedures, the committee employed the name "Federal headquarters for research and information." The second section of the report deals with the governmental organization necessary to establish such a central agency. The report urges that—

The lack of such an official spokesman for education, competent and influentially situated in the Government, has been one of the conditions, and a major condition, which has permitted us to drift into our present dilemma where a nation, by tradition and experience opposed to the federalized administration of education, has in fact developed a pluralized Federal control of education in the States through various Federal agencies, which are not even coordinated in their efforts.

The committee therefore recommended "that a Department of Education with a Secretary of Education at its head be established in the Federal government." It recommended that there be transferred to this Department the present Office of Education and the duties of the Federal Board of Vocational Education. It stated:

The Department of Education, when properly established, will have sufficient financial support to enable it to collect and publish critical data and pertinent information on all significant phases of education. Some of the more important phases now needing this service are education in the outlying possessions and in foreign countries, education of the physically, mentally, and socially handicapped; education of government personnel under the various Departments; education on governmental areas; and the educational aspects of clinics, playgrounds, parks, libraries, museums, motion pictures, radio and other similar environmental activities that are such powerful influences in molding the spirit and character of American youth.

The committee safeguards the power of the Department of Education by stating that "it will have no legal or financial power and no regula-

tory or executive authority, direct or indirect, explicit or implied, by which it may control the social purposes and specific processes of education." The proposals that have been made by this committee in regard to the Department of Education in the Federal government differ from those previously made in that the "Secretary is without administrative portfolio. He is merely advisory and is left deprived of coercive authority. His influence is that of intellectual assistance based on fact-finding and experience reporting."

The committee was not as thoroughly agreed on this proposal as on the first part of the report. Thirty-eight were in favor, eleven were opposed, and two did not vote. The report includes a minority report which gives the views of those who voted against the proposal.

Another part of the report which was not accepted by some members of the committee is that which deals with Negro education. This group believes that the government will be compelled to give special grants for negro schools for at least a limited number of years. To assist in solving the problems raised by this group, Secretary Wilbur authorized the establishment of a National Advisory Committee on the Education of the Negro. The general purpose of this committee, he stated, will be to give advice and counsel in respect to the national problems and questions which are likely to arise in meeting the educational needs of the colored race. See *UNIVERSITIES AND COLLEGES*; also see under *PHILOLOGY, MODERN* for *Bibliography*.

**EDWARDS, MAJ. GEN. CLARENCE RANSON**, U. S. A., RET. An American soldier, died in Boston, Mass., Feb. 14, 1931. He was born in Cleveland, O., Jan. 1, 1860, and was graduated from the U. S. Military Academy in 1883. By successive promotions he attained the rank of major general and was retired in that grade in December, 1922, after 40 years of service. He participated in the campaigns in the Philippines, serving as adjutant general on Gen. Henry W. Lawton's staff in 1899. In 1902 he was made chief of the Bureau of Insular Affairs. In 1912 he returned to line service, and during 1915-17 was in command of the United States troops in the Panama Canal Zone. Later, he had charge of the Department of the Northeast, comprising the New England States, where he organized in 1917 the 26th or "Yankee" Division, going to France in command of that body. He participated in such important offensives as the Aisne-Marne, St. Mihiel, and Meuse-Argonne during the latter part of the World War. On his return to the United States he resumed command of the Northeastern Department, and in 1921 was assigned to the command of the 1st Corps Area, with headquarters in Boston. He received the Croix de Guerre with palm and was made an officer of the French Legion of Honor.

**EDWARDS, EDWARD IRVING**. A former United States Senator and Governor of New Jersey, died by suicide Jan. 20, 1931, in Jersey City where he was born Dec. 1, 1863. He attended New York University, and after 1882 had been connected with the First National Bank of Jersey City, becoming president in 1916 and chairman of the board in 1925. He was State Comptroller of New Jersey during 1911-17 and member of the State Senate in 1919, resigning the following year to become Governor. He was elected to the United States Senate for the term 1923-29, but was defeated for reelection.

**EGGS**. See *LIVESTOCK*.

**EGYPT**. A state in northeastern Africa, established as a nominally independent kingdom Mar. 15, 1922, following the termination on Feb. 28, 1922, of the British protectorate declared Dec. 18, 1914. It occupies the lower valley of the Nile and parts of the Libyan Desert, the region between the Nile and the Red Sea, and the Sinai Peninsula. Egypt's claim to jurisdiction over the Anglo-Egyptian Sudan is denied by the British. Capital, Cairo. Ruler in 1931, King Fuad I.

**AREA AND POPULATION**. While the total area of Egypt proper, excluding the Sudan, is about 386,000 square miles, the cultivated and settled area covers only about 13,600 square miles. The total population at the census of 1927 was 14,213,364, as compared with 12,750,918 at the census of 1917 and 9,734,405 in 1897. The estimated population in 1929 was 14,493,000. During the period 1925-29, births averaged 626,724 and deaths 378,027 annually, the excess of births being 248,698. The cultivated areas in 1929 were among the most densely populated in the world, with an average of three persons to an acre. Populations of the leading cities in 1927 were: Cairo, 1,064,467; Alexandria, 573,063; Port Said, 100,899; Tanta, 90,016; Mansura, 63,676; Asyut, 57,136; Faiyum, 52,863; Zagazig, 52,839; and Damanhur, 51,709. At the 1927 census, Moslems formed 91.19 per cent of the population; Christians, 8.34 per cent; Jews, 0.45 per cent.

**EDUCATION**. Primary instruction is supplied mainly by native schools called *maktabs*. In 1929-30, there were 2073 *maktabs*, with 188,789 pupils in attendance. The University of El-Azhar at Cairo and its six affiliated institutions had 2174 students enrolled in the same year. The total school population (5 to 19 years) in 1927 was 4,734,071, of whom 841,711 were attending school. About 88 per cent of the population 10 years of age or over were illiterate in 1927.

**PRODUCTION**. Agriculture is the main support of the population and cotton is the leading crop and chief export commodity, comprising 74 per cent of the total value of exports in 1930. In 1929, there were 8,504,000 acres of arable land, or 3.4 per cent of the total area; most of it was irrigated land in the Nile valley. Additional land was being brought under cultivation through the completion of the Nag Hamadi Barrage, a large irrigation project in Upper Egypt, in December, 1930, and a great drainage project for reclaiming more than 1500 square miles of saline land on the lower Nile delta. The cotton crop in 1930 totaled 811,166,000 pounds, compared with 825,028,000 pounds in 1929. Exports declined 22.3 per cent in quantity and 42.5 per cent in value, as against 1929 figures, causing acute depression among cotton growers and necessitating extensive Government aid. Other leading crops were: Wheat, 41,100,000 bushels in 1930 (45,228,000 in 1929); barley, 10,590,000 bushels in 1930 (12,669,000 in 1929); raw sugar, 108,000 metric tons in 1930-31 (107,000 in 1929-30); corn, beans, onions, millet, and rice. Livestock in 1929 included 801,000 cattle, 823,000 buffaloes, 1,003,000 sheep, 13,000 swine, 731,000 goats, 172,000 camels, and about 759,000 asses.

The chief manufactured products are sugar, cigarettes, petroleum products, boots and shoes, rugs, leather goods, furniture, and matting. The Government established a sugar monopoly in 1930. In the same year mineral production in-



cluded: phosphate rock, 313,478 metric tons; manganese ore, 121,211 metric tons; petroleum, 1,910,000 barrels. Gold, zinc, lead, silver, and salt are also produced.

**COMMERCE.** Imports during 1930 totaled £E47,488,000 (\$237,028,000) and exports £E31,942,000 (\$159,430,000), compared with imports and exports in 1929 of £E50,275,000 (\$280,885,000) and £E52,187,000 (\$260,479,000), respectively. The adverse trade balance in 1930 was £E15,546,000 (\$77,598,000), as against £E4,088,300 (\$20,408,000) in 1929; exports declined 38.8 per cent in value to the lowest dollar value since 1921, while imports decreased 15.6 per cent to the smallest since 1924. The principal exports in 1930 were: Cotton, \$118,735,000 (\$206,445,000 in 1929); cottonseed, \$9,306,000; cottonseed cake \$4,401,000; gold bullion, \$4,045,000; onions, \$2,697,000. Cotton piece goods, iron and steel, fertilizers, machinery, and wheat flour, in the order named, were the leading imports. The United Kingdom supplied 20.4 per cent of all imports (21.2 per cent in 1929) and took 34.5 per cent of the exports (34.9). France supplied 9.4 per cent and took 14.4 per cent; Germany, 7.9 per cent and 7.9 per cent; the United States, 4.7 per cent and 6.1 per cent, respectively. In 1931 imports declined roughly 36 per cent to £E31,528,790 and exports 13 per cent to £E27,937,110.

**FINANCE.** The budget estimates for the 1931-32 fiscal year (ending Apr. 30, 1932) placed receipts at £E39,316,000 and expenditures at £E38,884,000. This compared with estimated receipts and expenditures balancing at £E44,915,000 for 1930-31 and with actual receipts and expenditures of £E41,886,000 and £E41,128,000, respectively, for 1929-30. The 1931-32 budget estimates were the first since 1925 to balance without drawing upon the reserve fund, which amounted to £E40,509,190 on Jan. 1, 1931, and to £E39,852,370 on May 1, 1929. Part of the reserve fund, however, represented cotton purchased by the Government in an effort to stabilize prices. The public debt on Oct. 31, 1930, totaled £89,762,000 (\$436,827,000), including bonds held by the Government to the amount of £15,603,000 (\$75,932,000). The unit of currency is the Egyptian pound, with a par value of \$4.9431. The gold standard was abandoned on Sept. 27, 1931, when the pound fell to \$3.70.

**COMMUNICATIONS.** In 1929, there were 2874 miles of railway lines, of which 2008 miles were government owned. In the same year the government lines carried 27,225,000 passengers and 5,502,000 metric tons of freight, with gross receipts of £E7,163,000 (\$35,408,000). Highways in 1930 included 3760 miles of graded or drained dirt roads and 205 miles of macadam. In 1930 through air service to Persia and a weekly air postal service between Alexandria and Athens were established and the traveling time between Alexandria and London was cut to 60 hours. Ships arriving at Alexandria in 1929 numbered 2286, of 5,420,000 registered tons (2175 of 4,960,000 tons in 1928). See SUEZ CANAL.

**GOVERNMENT.** Under the Constitution promulgated Oct. 22, 1930, Egypt was declared an independent hereditary monarchy, in which the King exercises full executive powers as well as legislative powers concurrently with Parliament. His other extensive powers include the right to veto all laws passed by Parliament, the sole right to initiate financial laws, to dissolve the Chamber of Deputies to which the Ministers jointly and

separately are responsible, and the right to appoint and remove Ministers. He appoints 60 of the 100 members of the Senate, the other 40 being elected by universal suffrage, as are the 150 members of the House of Deputies. The King also nominates the President of the Senate. The term of Senators is ten and that of Deputies five years; one-half of the Senate is renewed every five years. Prime Minister in 1931, Ismail Pasha Sidky, who took office June 21, 1930. The Cabinet formed by Oct. 9, 1930, included: Prime Minister, Minister of Finance, and of Interior, Ismail Pasha Sidky; Foreign Affairs, Abdel Fattah Pasha Yehia; War and Marine, Mohamed Tewfik Pasha Rifaa; Justice, Aly Pasha Maher; Agriculture, Hafez Pasha Hassan; Public Works, Ibrahim Pasha Fahmy; Wakfs (religious foundations), Mohamed Halim Jassa Pasha; Education, Murad Sid Ahmed Pasha; Communications, Tewfik Pasha Doss.

### HISTORY

**THE MAY ELECTIONS.** During 1930, the Nationalist (Wafdist) movement for complete independence from British control was diverted by the outbreak of a violent internal struggle between King Fuad and the overwhelmingly Nationalist Parliament, headed by Premier Nahas Pasha. The struggle resulted in the dissolution of Parliament, the resignation of Nahas Pasha, the formation of a Conservative Ministry under Sidky Pasha, with very little popular support, and finally the promulgation of a new Constitution (see above under *Government*), which was repudiated by both the Wafd and the Liberal Constitutional party of former Premier Mohammed Mahmud Pasha.

Early in April, 1931, the Wafd and Liberal parties made public a pact pledging their mutual cooperation in opposing the Sidky Government. A boycott of all elections held under existing conditions and in accordance with the new Constitution was declared. The manifesto insisted that the 1923 Constitution was still valid, that the existing Cabinet was illegally appointed, and that only a constitutional government, supported by a lawfully elected parliament, could conclude a definitive treaty with Great Britain. Nevertheless, at the end of April, Sidky Pasha announced that on May 14, 16, and 18 elections would be held in different districts of Egypt to select electors, who in turn would vote for members of Parliament on June 1. The Government prohibited campaigning on the part of the Wafd and Liberal leaders and suppressed the Opposition Arabic newspapers. But demonstrations against the Government and the elections assumed menacing proportions, requiring vigorous action of troops and police to disperse them. With the holding of the first election on May 14 occurred the most sanguinary rioting since the revolt of 1919. In Cairo, where government agents sought to force citizens out of their homes to vote, troops fired upon frantic mobs, which retaliated; casualties included 86 killed and over 500 wounded. In villages and towns throughout the country, polling booths were attacked or boycotted by a large majority of the population, according to foreign correspondents, and clashes only less severe than those in Cairo were reported from numerous points. Similar, but somewhat less intense, rioting marked the subsequent elections on May 16 and 18.

At the end of the elections Sidky Pasha an-

nounced that 1,541,315 voters, or 65 per cent of those eligible, had gone to the polls, while the Opposition leaders declared that scarcely 6 per cent had voted. The reports of foreign correspondents seemed to substantiate the Opposition leaders. Nahas Pasha openly charged that the Government used fraud and intimidation to secure the election of handpicked electors. On June 1 the electors, each of which was supposed to represent 100 voters, gave 119 seats out of the 150 in the new Chamber of Deputies to members of the two Conservative parties supporting Sidky Pasha and King Fuad. About 10 per cent of the electors refrained from voting. King Fuad opened the new Parliament with customary pomp and ceremony on June 20 and the Sidky Government, apparently assured of a long lease of life, proceeded to reinforce its restrictions upon the press and upon Wafd activities. Parliament was prorogued on July 21 remaining in recess until December.

With the country firmly in the grip of the King and his Ministers, there ensued a period of unusual political quiet, partly attributed to the precedence which economics was taking over politics. This was due primarily to the low price of cotton, which had adverse effects throughout Egypt. King Fuad convened the second session of Parliament December 17. His speech from the throne called for high tariffs, the limitation of cotton acreage, establishment of an Egyptian air force, and the renewal of treaty negotiations with Great Britain. The latter point brought forward the important question as to whether the British Government would recognize the new Parliament as legitimate, or insist upon the election of a more representative Parliament prior to the resumption of negotiations for a final treaty settlement.

**OTHER DEVELOPMENTS.** Following the abandonment of the gold standard by Great Britain earlier in the month, Egypt on September 27 took similar action by prohibiting the export of gold. The step was taken to prevent the general dislocation of trade resulting from the fluctuations in Egyptian currency, which by an agreement concluded in 1923 was linked with the pound sterling. The Government at the same time announced that it planned to pay the Egyptian consolidated debt on a non-gold basis. The French representative on the Public Debt Commission notified Premier Sidky Pasha November 5 that he would file suit in the Mixed Courts to compel the Government to pay interest on the Egyptian unified preference debt bonds in gold. Faced with the prospect of declining revenues and a budget deficit of between \$20,000,000 and \$25,000,000 in 1932-33, the Government in December, 1931, submitted to the General Assembly of Mixed Tribunals, representing the capitulatory powers, a proposal for the taxation of foreigners in Egypt. New taxes on natives were also proposed.

A photographic air survey of an area of 30,000 square miles in the Sudan was completed in 1931. One result of the survey was a proposal for the diversion of the Nile waters through a 350-mile by-pass to eliminate the loss of water in the absorbent sands of the so-called sudd area of the Eastern Sudan. In return for his renunciation of all claims to the Egyptian throne, the Government granted ex-Khedive Abbas Hilmi an income of £E30,000 annually for life, beginning Jan. 1, 1931. See RECLAMATION and ARCHÆOLOGY.

Consult Elizabeth P. MacCallum, "Egypt: A Decade of Political Development," *Foreign Policy Association Information Service*, Jan. 7, 1931, vol. vi, no. 22.

**EGYPTOLOGY.** See ART MUSEUMS; ARCHÆOLOGY.

**EINSTEIN THEORY.** See ASTRONOMY; PHYSICS.

**ELECTIONS.** See UNITED STATES; also STATES and COUNTRIES.

**ELECTRICAL ENGINEERS, AMERICAN INSTITUTE OF.** A national organization representing the electrical engineering profession, founded in 1884. The objects of the institute are the advancement of the theory and practice of electrical engineering and of the allied arts and sciences, the maintenance of a high professional standing among its members, and the development of the individual engineer. It is governed by a board of directors, elected by the membership, consisting of a president, the 2 junior past presidents, 10 vice presidents, 12 directors, and a treasurer. In 1931 there were 60 sections of the institute located in various cities throughout the United States and 109 branches in colleges giving courses in electrical engineering. Three annual conventions are held, in addition to regional, local section, and branch meetings. The 1931 winter convention was held in New York City, January 26-30; the summer convention in Asheville, N. C., June 22-26; and the Pacific Coast convention at Lake Tahoe, Calif., August 25-28. Much of the institute's work is accomplished through its standing and technical committees, of which there were 41 in 1931. It maintains, in cooperation with other national engineering societies, the engineering societies library and a national employment service. There are three grades of members as follows: Associate, member, and fellow. The total membership on Oct. 1, 1931, was 18,178.

The principal publications of the Institute are the monthly *Electrical Engineering*, the quarterly *Transactions*, the *Standards of the A. I. E. E.*, and the *Year Book*. The medals awarded by the institute in 1931 included the Edison Medal, to Edwin Wilbur Rice, Jr., honorary chairman of the board of the General Electric Company at Schenectady, N. Y., for "his contributions to the development of electrical systems and apparatus and his encouragement of scientific research in industry"; the Lamme Gold Medal, to Giuseppe Faccioli, associate manager and works engineer of the General Electric Company at Pittsfield, Mass., for "his contributions to the development and standardization of high voltage, oil-filled bushings, capacitors, lightning arrestors, and numerous features in high voltage transformers and power transmission"; and the John Fritz Medal, to Rear Admiral David Watson Taylor, U.S.N., for "outstanding achievement in marine architecture, for revolutionary results of persistent research in hull design, for improvement in many types of warships, and for distinguished service as chief constructor of the U. S. Navy during the World War." The Commission of Washington Award for 1931 was voted to Dr. Ralph Modjeski for "preëminent service in advancing human progress."

The officers of the institute elected for 1931-32 were: President, C. E. Skinner; junior past presidents, Harold B. Smith and W. S. Lee; vice presidents, H. V. Carpenter, G. C. Shaad, I. E. Moulthrop, H. P. Charlesworth, T. N. Lacy,

A. W. Copley, W. B. Kouwenhoven, W. E. Freeman, P. H. Patton, and L. B. Chubbuck; directors, J. Allen Johnson, A. M. MacCutcheon, A. E. Bettis, J. E. Kearns, F. W. Peek, Jr., C. E. Stephens, A. B. Cooper, A. E. Knowlton, R. H. Tapscott, L. W. Chubb, H. R. Woodrow, and B. D. Hull; national treasurer, W. I. Slichter; national secretary, F. L. Hutchinson. Headquarters are in the Engineering Societies Building, 33 West Thirty-ninth Street, New York City.

**ELECTRICAL INDUSTRIES.** The steel mills of the United States were preparing themselves for the next period of activity by putting in new, electrically operated apparatus and devising new methods of operation. One electric manufacturer alone supplied in 1931, 90,000 horse power in electric motors of various sizes to the steel industry. The largest motor was of 8000 horse power, operating at 40-100 r.p.m. and capable of giving instantaneous outputs of 22,000 horse power. Two 7000 horse power blooming mill motors were sold to U.S.S.R. (Russia). One installation in the United States was a slabbing machine using two 5000 horse power and one 2500 horse power motor. A new ore bridge at the Edgar Thompson Steel Works had a span of 190 ft. between rails and a bucket capacity of 17 tons of ore. The bridge can supply 100 tons of ore per hour to its four blast furnaces and moves along its track at a speed of 2.9 ft. per second.

Among new electric furnaces installed were: a Heroult furnace for the Ford Motor Company, capable of making 15 tons of high grade steel in one and one-half hours, and a 40-ton capacity three-phase arc furnace for Japan.

The rapid development of the application of electric heating in industry seemed little affected by adverse business conditions. Large, three-phase arc furnaces were built for the melting and refining of metals, a 750-kw. induction furnace for non-ferrous metals and a 1250-kw. induction furnace for steel were built to operate at high frequencies (900 cycles). There was a considerable application of resistance furnaces for the annealing of high grade steel because of the accuracy of the time and temperature control by electrical means.

Because heating devices can be, and usually are, operated at times of the day when the other demands for power are low, or "off-peak" in the technical term, the public utilities were offering better rates both for industrial and domestic heating devices. Heating devices were being urged for the home. The ironing machine, dish and clothes washers, and electric cooking ranges were being vigorously pushed by the electrical industry following the great success of the electric refrigerator. Great scientific and technical advances have been made in the heating units for these devices. New metals for the heating resistance have been devised and these are cast in solid aluminum, thus protecting the hot resistance wire from oxidation, dirt, vibration, and mechanical injury. An unusual heating device was the "Fever Machine" which by means of a very high-frequency radio-electric field induces a fever in any part of the human body placed in the influence of the machine. It was claimed that this was a cure for some ailments and the medical profession was studying the effect of the phenomenon.

The vacuum tube has assumed a very important rôle in industry as a device to control and

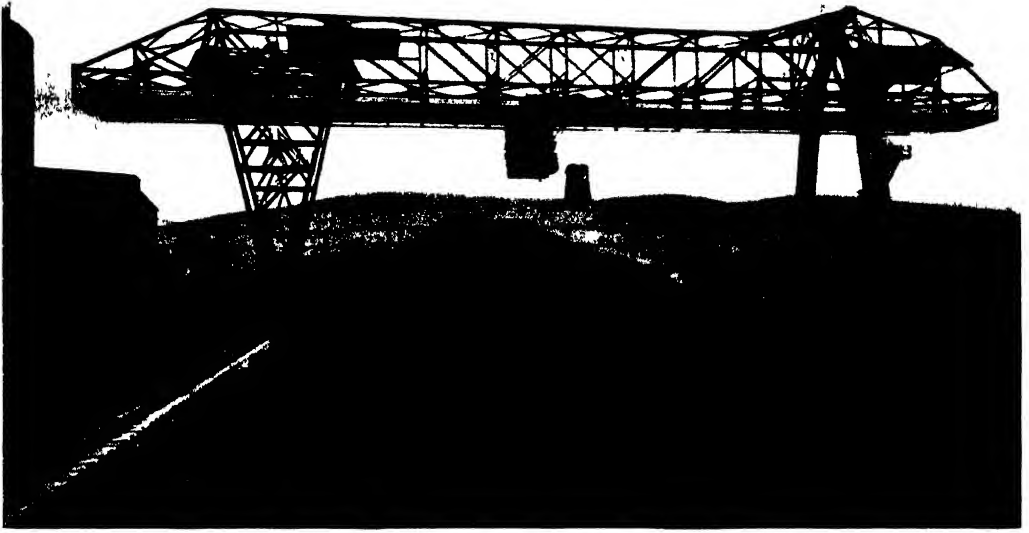
operate larger devices. The three-element tube with mercury vapor known as a "Thyratron" or "Grid Glow Tube" has the ability to respond to very minute changes of voltage or current and produce much greater effects which may be used to open or close an ordinary electrically operated switch. The "Photo-electric Cell" has the ability to respond to changes in the amount of light it receives and produce a small change in the current in the circuit in which it is connected. Thus a control is built up which will turn on the street lights when it gets dark and turn them off when daylight returns. The diminished light causes the photo-electric cell to give a diminished current, this diminishing current affects a thyratron which causes a big change in its current and this large current-change closes the switch which supplies all the lights. There have been many other less simple and more important applications, such as controlling furnaces, opening doors, controlling theatre lighting, and it has been quite popular in the dramatic feature of having some prominent personage start up a plant many miles away by passing his hand over a tube as he sits at his desk.

The remote control of machinery and the reading of instruments may be accomplished by the above method or by a more general method of sending high frequency or radio currents over the same wires that carry the main power current. This is "Carrier Current" or wired radio. Many substations were installed during the year in accordance with this plan. Some pumping stations of considerable power on an oil pipe line in the Middle West operate in this manner.

Electric welding continued to develop in usefulness. Several large buildings, including two high office buildings in Wilmington, Del., and Dallas, Texas, and many factories were put together by welding instead of riveting. The makers of high pressure steam boilers found it advantageous and it was very generally used in the manufacture of electrical machinery. By the end of the year 100 cities and towns had included provisions for welded buildings in their regulations.

A great increase in the speed of elevators has been accomplished (1200 feet per minute or 14 miles per hour) without discomfort to passengers, by a careful study of the rate of change of the acceleration used. It was claimed that a high rate of acceleration was not necessarily a cause of discomfort, but sudden changes in the rate of acceleration or deceleration were unpleasant. The use of two elevator cars in one shaft, one above the other, either in one mechanical structure or entirely independent and interlocked electrically so they cannot collide, was being adopted. Automatic self-leveling at stops had become the rule in all new high class elevators.

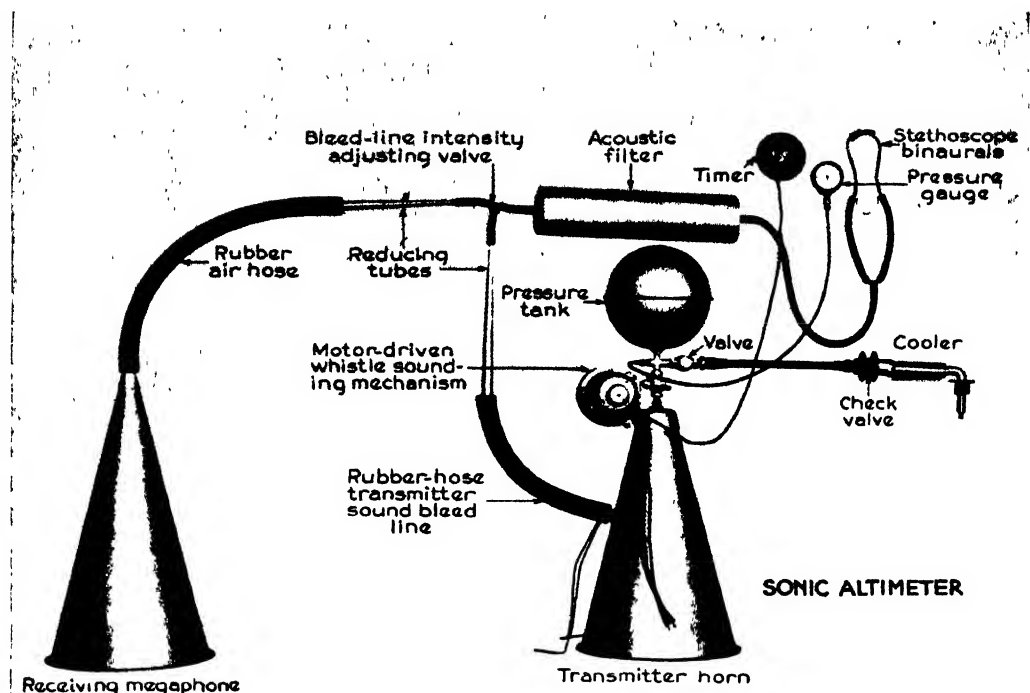
In aviation the most popularly known advance was the completion of the dirigible *Akron* for the U. S. Navy. This was most completely equipped with electrical apparatus including auxiliary motors, lighting, radio, searchlights, cooking and control apparatus. This was all supplied from two 11-kw. 115-volt direct-current generators driven by gasoline engines. For the heavier-than-air type of airplane, new devices put in use were: Automatic directional control in combination with a magneto-compass, altitude control by means of a gyroscope, and a new "Sonic Altimeter" which indicated altitudes from 5 to 100 feet by means of a sound echo; the



THE ORE BRIDGE AT THE EDGAR THOMPSON STEEL WORKS

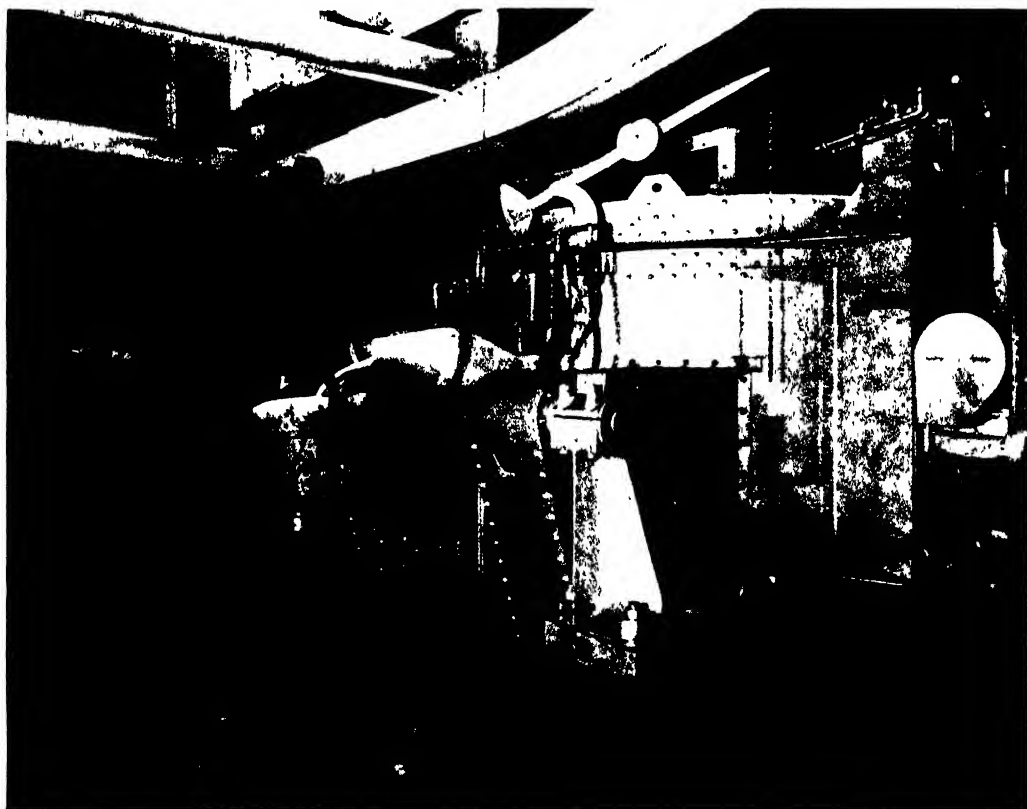


A GRID-GLOW TUBE CAPABLE OF CONTROLLING 900 KW OF ELECTRIC POWER  
*Photographs from the Westinghouse Electric and Manufacturing Co.*



From General Electric Co

THE SONIC ALTIMETER FOR DETERMINING THE HEIGHT OF AIRPLANES ABOVE GROUND  
BY ECHO



From Westinghouse Electric and Manufacturing Co.

ELECTRIC FURNACE OF THE HEROULT TYPE FOR MAKING STEEL

time between the original whistle and the return of the echo is nicely timed electrically and translated into feet by a special indicating instrument.

The telechron principle of clock control was extended to the operation of many devices that have to follow a definite time schedule, including traffic control, and heating devices. A convenient help to the lumber industry was developed which indicates the wetness or "moisture content" of any piece of wood by means of the electrical resistance of a portion of the surface. It is in the form of a two-bladed hatchet with the two blades electrically insulated from each other and connected by wires to an indicating instrument which measures the resistance of the wood between the blades and translates the resistance into "moisture content."

The potential applied to X-ray apparatus was increased to 70,000 volts for portable apparatus, to 900,000 volts for practical installation, and millions of volts for research work.

#### ELECTRICAL MARINE ENGINEERING.

In electrical marine transportation there was notable engineering achievement and considerable activity. The most noteworthy additions were the two ships *President Hoover* and *President Coolidge*, put into service by the Dollar Line between New York and Manila. These two are sister-ships, both having turbo-electric drive with synchronous motors. One equipment was supplied by the General Electric Company and one by the Westinghouse Company. The *President Hoover* is a passenger liner of 33,500 tons, 654 ft. long and 32 ft. draft. It is equipped with two turbo-electric generator sets of 10,100 kw. rating at 2060 r.p.m., which use steam at 275 lbs. pressure. There are two propeller shafts, each having a synchronous-induction motor of 13,250 h.p. at 133 r.p.m., the propeller speed. With 26,250 h.p. the vessel made 20.83 knots with an oil fuel consumption of 0.87 lb. per shaft h.p. hour. On the acceptance trial the vessel developed a speed of 22 knots with 32,872 h.p. These two vessels have 3000 h.p. in auxiliary motors for operating and loading the ship, and to supply these and the lighting and cooking, there are four auxiliary turbo-generator sets of 500 kw. giving direct current at 240 volts.

The U. S. Mail S. S. Co. was building six ships, of which two were completed during the year, the *Talamanca* and *Segovia* (later injured by fire). These ships are 440 ft. long, designed to operate at 17.5 knots, and each has two 5500 h.p. synchronous motors for 125 r.p.m. The synchronous-induction motor is a combination design which starts and operates at fractional speeds as an induction motor with its ease of speed control, but at high speeds operates as a synchronous motor with a high efficiency and a high power factor.

The *City of Flint*, a car ferry of the Pere Marquette Railway with turbo-electric drive, operated 364 days and 101,000 miles without interruption in the waters of northern Lake Michigan where frequently she had to plow through ice. Other new turbo-electric vessels were the yacht *Corsair*, the *Morro Castle*, and several new U. S. Coast Guard vessels of 2000 tons and 3200 h.p. In Europe there were the two P & O liners in England, each of 28,000 tons for a speed of 22 knots, and in France there was building the *Ile de France* to be propelled by steam-electric drive. In all, there was over 1,000,000 h.p. of electric motors installed for electric ship drive in 1931.

Much attention was given to the electric drive of auxiliaries on board ship. The design of the motors was improved to make them particularly suited to the purpose with especial attention given to protection from water, be it waves, splash, or merely the moisture in the air. As a consequence, there was a great increase in motor drive for auxiliaries on all new ships, even on the straight steam driven type. For smaller installations, particularly where ease and quickness of handling were important, the "Diesel-electric drive" was installed. Typical of these is a dredge for the city of St. Louis which has an aggregate of 3000 h.p. in motors for propelling, pumping, cutting, for the winches, and for the hoists. This equipment is also unusual in that the alternating current system is used, while most Diesel-electric plants use direct current. See SHIP-BUILDING.

**ELECTRICAL TRANSMISSION AND DISTRIBUTION.** The principle of operating electrical systems as a network, which was adopted for secondary distribution some years ago with the advent of the "Network Protector," was extended not only in secondary distribution, but in primary transmission systems. In this, the transformers, located at strategic places, which supply the 110-220 volts for the houses, receive their power from a network of 4400-volt feeders interconnected so that the current may find two or three paths to any one transformer. Thus if any feeder is injured, no one transformer or locality is without power. In the same way, there were "Vertical Networks" in tall office buildings, each building being treated like a city block put up on end in the air. In all these systems the automatic load ratio control transformer plays an increasingly important rôle.

In long transmission lines 220,000 volts was still the highest voltage in commercial use, but experiments were being carried on which would make it possible to operate at 330,000 volts when economically justified. The principal difficulties were still from lightning, but much valuable information was being accumulated by many correlated scientific investigations all over the United States. These investigations were of two kinds. First, getting records of the rise and fall of the voltage and current due to a real lightning stroke, by means of "Lightning Recorders" or Surge Indicators using the principle of the cathode ray oscillograph. In these tests, records of lightning strokes have shown values as high as 5,000,000 volts and 50,000 amperes, all occurring within an interval of a few millionths of a second. Second, applying artificial lightning of 1,000,000 to 5,000,000 volts from artificial lightning generators and recording its effects on various types of construction.

Protection from lightning was improved by advances in the design of the "Thyrite" and "Auto-valve" lightning arresters which had been adapted for high voltage lines. These use stacks of many plates or discs in series, each coated with a peculiar oxide which lets the lightning voltage through but stops the power current. The "Deion" principle was applied to the protection of individual insulators in exposed places. This takes the lightning discharge away from the insulator and quenches the arc when the line has discharged the lightning potential. The beneficial effects of an overhead "ground wire" were confirmed.

Improvements were made in oil circuit breakers by details of design in which a blast of cool



oil was forced directly across the path of particles of the arc at the instant that the current passed through its zero value. The "Deion" circuit breaker, described in the 1929 YEAR BOOK, was improved and was built in larger sizes for any voltage. This operates on the principle of the quench-gap.

Circuit breakers of any type may now be operated by "Thermostrip," as well as an overload coil. The thermostrip is a thermostat which operates after a moderate overload has existed for a certain period of time. Thus protection from overload as well as short-circuit is obtained.

The commercial use of oil-filled cables for underground transmission increased with addition of several new installations operating at from 66,000 to 132,000 volts.

The extension of electric transmission and distribution into rural districts for "Farm Electrification" was receiving much attention and encouragement. There were 650,000 farms in 1931 receiving electric service from central stations and 300,000 using electric current provided by small isolated generating sets.

Telemetering is a new term for a rapidly increasing practice of reading the indications of a number of instruments in a distant station without an attendant. It is usually accomplished by carrier currents and may be used to read volts, amperes, power, water, gas, and oil pressure and temperatures. By a similar means one "Load Dispatcher" for the new subways in New York City will control 89 substations containing 24 synchronous converters, 99 rectifiers, 202 ventilating fans and 817 circuit breakers.

**ELECTRIC LIGHT AND POWER INDUSTRY.** For the year 1931, the output of the electric central stations of the country was 87 billions of kilowatt-hours, a drop of 3.75 per cent from 1930, but there was an increase of 0.65 per cent in the income \$2,137,000,000, due to an increase in the number and demand of small customers and a decrease in the demand of industrial customers usually taking large units. There were a number of reductions of rates to small customers to encourage a greater use of domestic electrical appliances. The average rate for the whole country was 6.33 cents per kw-hr. in 1929, 6.03 cents in 1930, and 5.87 cents in 1931.

The total generating capacity of the central stations increased from 32,500,000 kw. in 1930 to 35,000,000 kw. in 1931 and of this latter figure, 25,000,000 kw. were obtained from steam prime movers and most of the balance from water wheels.

The Electric Light and Power business had become thirteenth in size and importance of the industries of the United States, employing over 230,000 people, having an investment of \$10,000,000,000 and doing a business of over \$2,000,000,000 per year. The revenue for 1931 was given as \$2,137,000,000. This makes the average price at which all the output was sold to be 2.46 cents per kw-hr.

The rate of consumption of coal per kw-hr. had been brought down from 4.4 lbs. in 1912 to 1.62 in 1930 and 1.56 lbs. in 1931. The investment per kilowatt of capacity had gone up to \$370 and the investment per customer to \$470.

The most interesting additions to the plant capacity of the industry were the two 200,000 kv-a. 60-cycle units for the Brooklyn Edison Company and the 115,000 kv-a. unit for the Pub-

lic Service Company of Northern Illinois. The Niagara-Hudson System increased the capacity of its Huntley steam-electric station in Buffalo to 622,000 horse power which was a greater capacity than all of the hydro-electric stations on the American side of Niagara Falls, and more than one-third of the total of 1,600,000 horse power in all the hydro-plants now installed on both sides of the river.

The principal developments in steam driven units were an increase in boiler pressure and steam temperature giving an increase in economy (See BOILERS), a decrease in floor space required per unit of power, and a reduction in weight of sets to about 15 lbs. per kv-a. Interconnection of plants and systems progressed, an example being the proposed interconnection of the New York Power and Light Co., with the New York Edison Co., at Peekskill, making it possible to exchange power between the territory around Albany and the plants of New York City.

The use of outdoor installations increased, transformers, synchronous condensers, and motor generators being constructed which required no building for protection, and the use of outdoor switching stations was quite general.

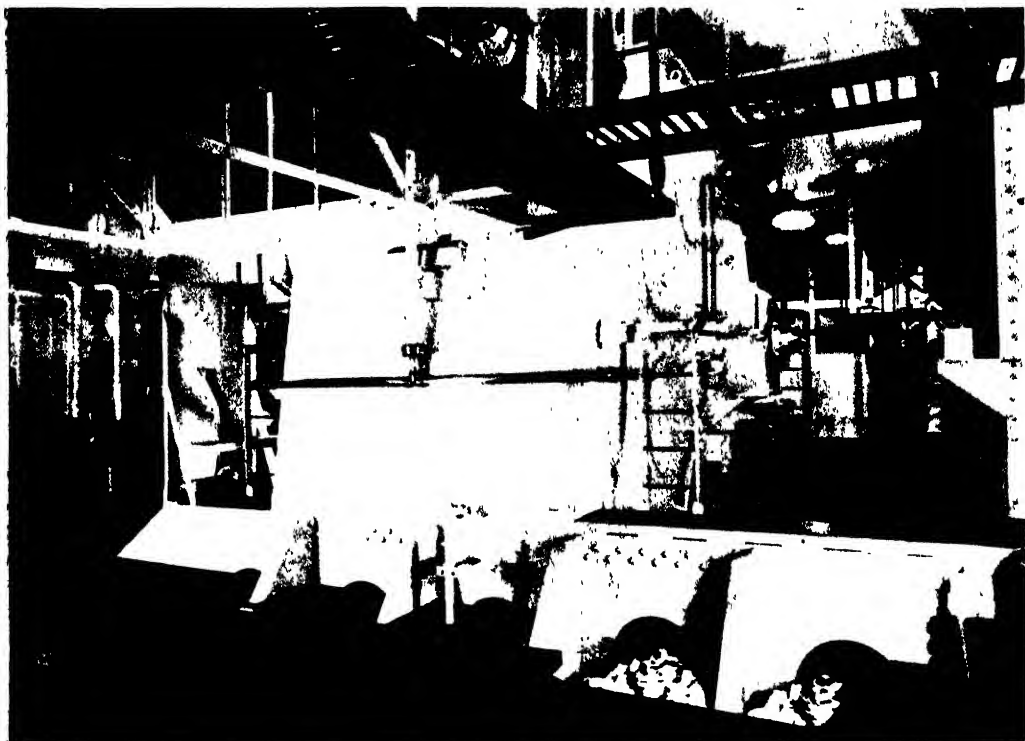
Among hydro-electric stations, new ventures were the Diablo plant for the city of Seattle with two generators of 77,000 kv-a. capacity at 171 r.p.m., the largest water wheel generators in the United States, and operating with the record head of 327 feet of water; the Safe Harbor plant to supply the city of Baltimore in which there were four generators of 31,000 kv-a., and which was planned for an ultimate capacity of 510,000 kv-a.; and the Osage River development in Missouri, with six generators of 27,500 kv-a. capacity. The civil engineering features of this plant involve a reservoir covering 95 square miles.

The Muscle Shoals plant was still awaiting the decision of the politicians before becoming useful. Work on the Boulder Dam started and contracts were concluded for the sale of some of its output at 0.163 cent per kw-hr. as measured at the switch-board of the generating station. The St. Lawrence River Development was still in the political stage, but meanwhile the Beauharnois plant on the Canadian side was progressing with its plan for an ultimate capacity of 500,000 horse power and two of the first six 50,000 horse power units were installed.

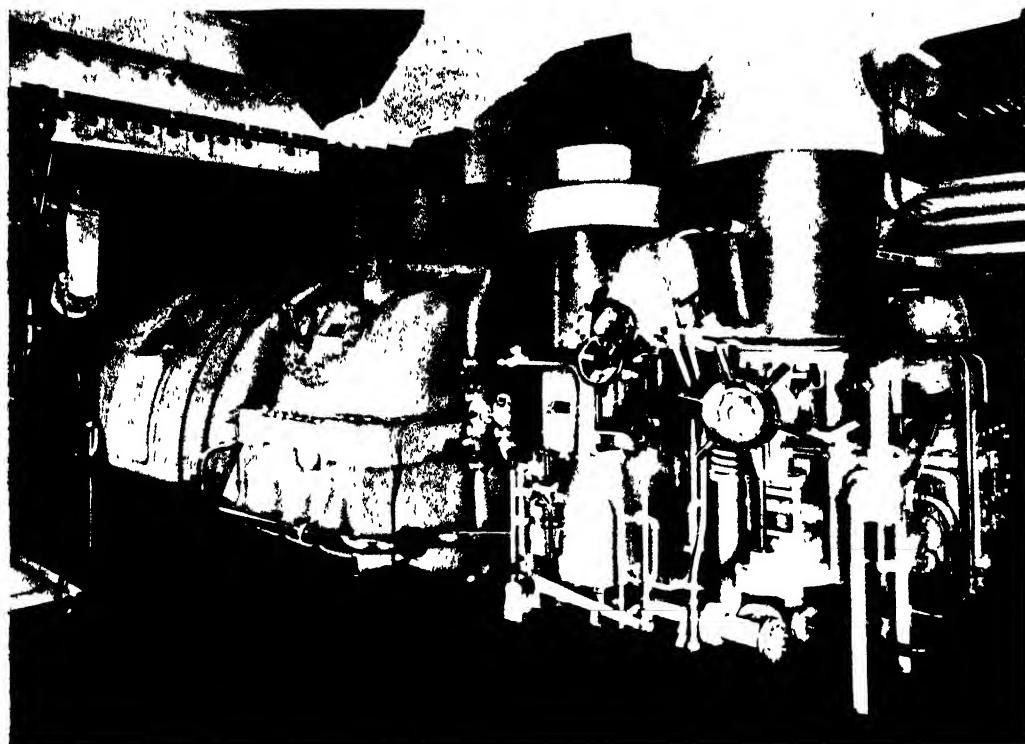
A unique incident was the use of the U.S.S. *Lewington*, airplane carrier, with its 160,000 kv-a. electrical installation, to help supply the city of Tacoma with electrical energy when the plants of the local system failed because of low water in the rivers due to drought.

Quite similar was the floating power station S.S. *Jacona*, which carries an electrical power plant of 20,000 kv-a. capacity which may be connected to the system of any seaboard city and give additional power. It was owned and operated by one of the public utilities of New England and was moved from city to city as needed.

**ELECTRIC LIGHTING.** There were sold in 1931, 557,000,000 incandescent lamps of which 350,000,000 were the large-sized lamps with metal filaments, 203,000,000 miniature metal filament lamps, and only 4,800,000 of the old carbon filament type. These figures are about the same as for 1930 but are slightly less than those for 1929. A change was made that affects many homes in that the 40-watt size was being made of the gas-

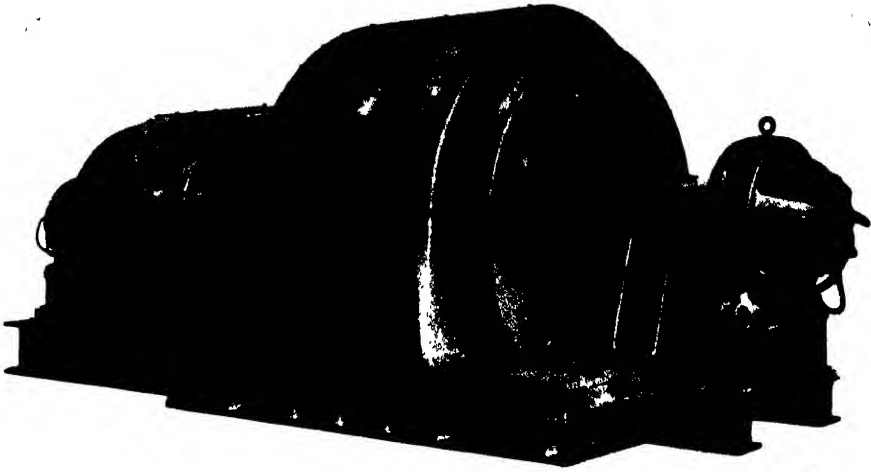


ONE OF TWO PROPELLER MOTORS



ONE OF THE TWO STEAM-ELECTRIC TURBO-GENERATORS  
THE STEAMSHIP "PRESIDENT HOOVER"

*Courtesy of General Electric Co.*



1 A MOTOR-GENERATOR SET

2 A 21,000 KVA FREQUENCY CHANGER SET

3 A LOAD DESPATCHER'S DESK

*Photograph 1 from General Electric Co. 2 and 3, from Westinghouse Electric and Manufacturing Co.*

filled type with its better economy, while the 50-watt size was no longer sold. A five-watt lamp for 115 volts, the usual home system, was brought out. This was the smallest size available for 115-volt circuits, as small sizes require filaments so frail that they are difficult to produce and to handle in the making of the lamp. The filament for this 5-watt lamp is so fine that it cannot be seen by the eye until it is coiled into the spiral in which form it is used in the lamp.

There were several new types of lamps put on the market for the purpose of giving ultra-violet rays for therapeutic purposes, and some of these had the improvement of not requiring a transformer and were therefore more convenient and were less cumbersome. The so-called Sun-lamp with its special correx glass bulb, which, it was claimed, prevents danger from excessive action, was improved and two forms became available: the larger size with an inside-frosted bulb which protects the eyes, and a smaller size which has a small screen in the line of sight in order to protect the eyes. It was claimed for the correx glass that it will not transmit the dangerous rays of light, or in scientific words, it cuts off all radiations of a wave-length less than 2800 Angstroms, —an Angstrom being one ten-millionth of a millimeter. Light of shorter wave-length than this is regarded as being unusual and dangerous, while light of greater wave-length is found in the usual bright sunlight.

The "Windowless" building had arrived and being quite favorably considered for factories which use materials affected by changes in air conditions, such as moisture and temperature. Such a building in Fitchburgh, Mass., had a lighting system combining incandescent lamps and mercury lamps in groups, and the combination gives a light which resembles daylight. The ventilating system is very elaborate and the air is given the proper and constant temperature and humidity before delivery to the rooms.

Many new ideas were being introduced in interior illumination. The scheme of illumination as well as the lighting fixtures were made use of as part of the decorative scheme of the building and were made a part of the architectural scheme, both inside and outside. Many new buildings were built with a flood-lighting system as a permanent part of the exterior architectural decorative scheme.

It has become the practice to plan the illumination, the fixtures, and the wiring at the time the original plans of the building are made, and to recognize the illuminating system as one of the major parts of the building. Formerly it was the custom to leave the arrangements for the lighting system until after the plans of the building proper had been completed. The new practice is known as "built-in" lighting.

The National Electric Light Association prepared a set of standard specifications of minimum requirements for house-wiring which should make it easier for the home-builder to plan the electrical wiring of his house with proper protection against the risk of fire and shock.

An experiment was started in a school in New Jersey to investigate the beneficial effect of a constant high level of illumination in the school rooms where children work and study. The artificial illumination supplied provided an intensity of 30 foot-candles on all desks (10 foot-candles is high for the average home) and a photo-electric cell was installed to turn on the

electric lights automatically whenever the illumination by daylight falls below 25 foot-candles.

An entirely new scheme of lighting and lighting control was installed in a New York theatre which gives much more prominence to lighting effects and introduced the "Lighting Director." This rôle is filled by the electrician who sits out in front near the leader of the orchestra and controls all the lights in the theatre, both backstage and in the auditorium. There are 50 main groups of lights, each group sub-divided in minor groups by colors. These are turned on and off and graduated through all degrees of brightness on a master keyboard in front of the director. Very small switches here operate electron tubes which control the major currents and all the power apparatus, the latter being placed out of the way in an appropriate place. A total of 200 watts at the keyboard was all that is required to control the 367,000 watts for all the lamps.

For street lighting, the tendency has been to raise the level of illumination particularly where traffic is dense or dangerous, as well as for the sake of display. Data were being accumulated tending to show a definite correlation between points of frequent street accidents and poor illumination. An interesting new example of unusual street illumination was in Buffalo where an installation of luminous arc lamps gave an illumination of 1122 lumens per linear foot of street. The Illuminating Engineering Society had prepared a *Code of Street Lighting* for the help of municipalities in city planning.

There were quite a number of athletic fields and stadia equipped with a scientifically designed system of artificial illumination so that not only may the players see, but a large group of spectators may also enjoy sport outdoors at night.

Among minor miscellaneous developments were: the general use of photo-electric cells for the testing of incandescent lamps; the use of the photo-electric cell for sorting packages by their color or marking; large water-cooled incandescent lamps for moving-picture studios; the "photo-flash lamp" for taking flashlight photos. This contains aluminium foil in a rare atmosphere of oxygen properly proportioned to consume the aluminium by combustion but without explosion. The lamp is set off by a small electric current, the flash lasts an interval of about 1/20 second, and gives an illumination equivalent to two hundred and fifty 500-watt lamps.

Of purely scientific interest was the new sodium gas-lamp which uses sodium vapor as the usual window-display lamp uses neon gas, but gives a light more suitable to the eye and much more economically. The practical difficulty as yet is that the sodium attacks the glass, and the life of the lamp is short. See **ELECTRIC INDUSTRIES**.

**ELECTRIC RAILWAYS.** The principal activity in the transportation field during the year was among the steam railroads, there being only very minor progress among the electric urban and interurban roads. The Pennsylvania Railroad was the outstanding example in its electrification of the main line from New York to Washington. The New York-Philadelphia section at the end of the year was completed except for the gap between Newark and Trenton. The 11,000-volts single-phase trolley had been installed in the New York terminal, but the 600-volt third-rail was to be left for the use of multiple unit suburban trains. This road already had completed or had under construction 150 electric locomotives, 90 passen-

ger, and 60 freight. The passenger locomotives are known as the P-5 and are of 190 tons each, having six single-phase motors of 625 h.p. each making 3750 h.p. There are three driving axles with 115 tons on drivers. The locomotives can operate at 90 m.p.h. The freight locomotives rate at 2500 h.p. and can haul a 5000 ton train.

The Reading R. R. equipped 50 miles of track with a new and simple catenary construction for 11,000 volts. It had 70 motor cars.

The New York Central completed the electrification of its West Side freight line in New York City and had 42 six-axle locomotives with geared motors operating on direct current at 600 volts. It also had 35 oil-electric-battery locomotives for operation in lower New York City through the streets and on the piers. These have the ability to operate either by power from an oil engine-generator, from a trolley, or third rail or from a storage battery.

The Delaware, Lackawanna & Western had its suburban service well in operation as far as Dover with motor-car trains operating from its 3000-volt direct current trolley supplied by mercury arc rectifier substations. The Great Northern Railway put in service several large locomotives of a new kind. The overhead trolley is for 11,000 volts single-phase and a motor-generator set on each locomotive changes this to direct current at 600 volts for the traction motors. The New Haven R. R. added 10 new high speed passenger locomotives and 24 motor cars and had 577 miles of electrified track. See RAILWAYS.

New York City purchased 500 new motor cars for its new Eighth Avenue Subway. The cars were to run in 11-car trains and each car would be a motor car having two 190 h.p. motors. This installation also includes the largest installation of rectifier substations, consisting of 50 substations aggregating 153,000 kw. capacity of rectifiers, as well as 5 converter substations aggregating 53,000 kw.

There were a number of new gas-electric cars put in operation on steam roads, the most notable being one of 900 h.p. on the Santa Fe. It was claimed for the 57 cars of this type, which had been operated for several years on the Burlington road, that the cost of operation was 36 per cent less than that of steam trains.

Among the trolley roads there were introduced two new types of cars. The light-weight high speed cars for urban service weigh about 20 tons each and are equipped with four 35 h.p. or 50 h.p. motors with double reduction or worm drive and give higher acceleration with more smoothness due to improved control. The new light-weight high speed interurban cars for long distance have four 100 h.p. motors giving a speed of 80 m.p.h., have a streamline design and are equipped with magnetic track brakes. The Cincinnati and Lake Erie Railway was an example. See RAPID TRANSIT.

The trolleybus increased its hold on popularity, there being 225 in operation at the end of 1931. These operate by electric motors taking power from an overhead trolley, but require no track and weave in traffic and draw up to the curb to make a stop, like an automobile but with lower cost of operation than trolley cars.

**ELECTRONS.** See PHYSICS; CHEMISTRY.

**ELEMENTS.** See CHEMISTRY; PHYSICS.

**ELEVATORS.** See ELECTRICAL INDUSTRIES.

**ELIOT, SIR CHARLES (NORTON EDGEUMBE).** A British diplomat and author, died at sea Mar.

16, 1931. Born in 1862, he was educated at Cheltenham and at Balliol College, Oxford, and became a fellow of Trinity College, Oxford. He entered the diplomatic service in 1886, serving as third secretary of the British Embassy at St. Petersburg (1882-92) and as chargé d'affaires in Morocco (1892-93), Bulgaria (1895), and Serbia (1897). In 1898 he was appointed secretary of the British Embassy in Washington, and from there was transferred the following year to Samoa as British high commissioner. He was British commissioner and commander-in-chief for the British East Africa Protectorate and agent and consul-general at Zanzibar from 1900 to 1904.

In 1905 he resigned to become vice-chancellor of the University of Sheffield, and in 1912 was chosen first principal of the University of Hong Kong. He was British high commissioner in Siberia during 1918-19 and British ambassador to Japan from 1919 to 1926. He was made Privy Councillor in 1919, Knight of the Grand Cross of St. Michael and St. George in 1923, and a member of the Imperial Academy of Japan in 1926. In addition to papers on marine zoölogy, he published *A Finnish Grammar* (1890); *Turkey in Europe* (1900); *The East Africa Protectorate* (1905); *Letters from the Far East* (1907); and *Hinduism and Buddhism* (1921).

**ELLIOT, DANIEL GIRAUD, MEDAL.** See ZOÖLOGY.

**ELLIOTT, MAJ. GEN. GEORGE FRANK, U. S. M. C., RET.** An American marine officer, died in Washington, D. C., Nov. 4, 1931. He was born in Alabama, Nov. 30, 1846. Entering the U. S. Marine Corps in 1870, he was promoted to 1st lieutenant in 1878 and captain in 1892. In 1894, during the war between China and Japan, he was stationed in China to guard American interests and won distinction for the forced march made by the marine guard under his command to protect the American legation in Seoul. He commanded company C of the 1st battalion of marines during the Spanish-American War and was advanced three numbers in his grade for eminent and conspicuous conduct in the battle near Guantanamo. He served in the Philippines during 1899-1900, commanding the marines in their first major engagement at Novalleta. In 1903 he was made commandant of the U. S. Marine Corps, with the rank of brigadier general, and until March, 1904, commanded the expeditionary brigade of marines on the Isthmus of Panama. He was advanced to major general in 1908 and was retired two years later.

**ELM DISEASE.** See FORESTRY under *Insects and Disease*.

**ELMIRA COLLEGE.** An institution for the higher education of women in Elmira, N. Y., founded in 1852 and operating under its present charter since 1855. The enrollment for the autumn of 1931 was 502. There were 60 members on the faculty. The endowment of the college amounted to 1,147,248; and the income for the year was \$431,251. There were 35,000 volumes in the library. President, Frederick Lent, Ph.D., D.D., LL.D.

**ELTINGE, BRIG. GEN. LE ROY, U. S. A.** An American soldier, died in Omaha, Neb., May 14, 1931. He was born in South Woodstock, N. Y., Sept. 17, 1872. On graduation from the U. S. Military Academy in 1896, he was commissioned 2d lieutenant in the 4th cavalry and was promoted through the grades to brigadier general

in 1924. He saw service in the Philippines during 1898-99 and 1901-03 and was with the Army of Cuban Pacification during 1906-07 and on the Mexican border in 1914 and 1916.

During the World War he was assigned to the general headquarters of the American Expeditionary Forces, being in charge of the operations section of the general staff until May, 1918, and thereafter deputy chief of staff. In 1921 he was sent to Manila as assistant chief of staff of the Philippine Department, and on his return in 1924 made assistant chief of staff in the war plans division at Washington. He received the Distinguished Service Medal and the Croix de Guerre with palm, and was made a companion of the Order of the Bath (Great Britain) and a commander of the Legion of Honor (France), of the Order of the Crown (Belgium), and of the Order of the Crown (Italy).

**EMERSON, HARRINGTON.** An American efficiency engineer, died in New York City, May 23, 1931. He was born in Trenton, N. J., Aug. 2, 1853, and attended the Royal Bavarian Polytechnic Institute in Munich, Germany (1872-75) and universities in Italy and Greece (1875-76). After acting as instructor in modern languages at the University of Nebraska during 1876-82, he became engaged in banking and real estate operation. He was one of the first to advocate the adoption of efficiency methods in business and industry, and in 1900 founded the Emerson Engineers in New York City so as to carry out these ideas. He remained as president of this firm until 1923. During 1898-1901 he put into operation some of the first long-distance mail routes in Alaska. He also reported on all the known coal deposits of the western coast of North America and on the advisability of the northern submarine cable route to Asia, the latter report being largely followed by the War Department in laying its Alaskan cables. In addition, he gained recognition on account of the results obtained by the efficiency methods which he installed on the Atchison, Topeka & Santa Fe Railway. In 1921 he was appointed a member of the Committee for the Elimination of Waste in Industry of the Federated American Engineering Societies. He also acted as engineering and industrial counselor to various foreign governments, including those of France, Germany, China, and Soviet Russia. He was the author of *Efficiency as a Basis for Operation and Wages* (1909) and *Twelve Principles of Efficiency* (1912).

**EMIGRATION.** See IMMIGRATION; GREAT BRITAIN, ETC., under *Population*.

**EMORY UNIVERSITY.** An institution for higher learning in Atlanta, Ga., coeducational only in the upper division of the college and in the graduate and professional schools (except the school of medicine), founded in 1836. The enrollment for the autumn of 1931 was 1225, distributed as follows: College of arts and sciences, 539; school of business administration, 119; graduate school, 61; school of theology, 67; school of law, 51; school of medicine, 209; library school, 50; junior college at Oxford, 81; junior college at Valdosta, 48. The enrollment for the 1931 summer session was 809. The faculty numbered 232. The endowment amounted to \$4,559,922, and the income for the year was \$747,317. There were 129,000 volumes in the library. In the autumn of 1931, the Thomas Fiske Glenn Memorial Church was completed

and opened for use. A new dormitory was also completed on the campus of the junior college in Valdosta. President, Harvey W. Cox, Ph.D., LL.D.

**EMPIRE FREE TRADE.** See GREAT BRITAIN under *History*.

**EMPLOYERS' LIABILITY.** See WORKMEN'S COMPENSATION.

**EMPLOYMENT.** See UNEMPLOYMENT.

**ENCYCLICALS.** See ROMAN CATHOLIC CHURCH.

**ENDOWMENTS, COLLEGE.** See UNIVERSITIES AND COLLEGES.

**ENGINEERING.** See BOILERS; BRIDGES; CANALS; DAMS; DYNAMO ELECTRIC MACHINERY; FIRE PROTECTION; GARBAGE AND REFUSE DISPOSAL; PORTS AND HARBORS; RADIO COMMUNICATION; TUNNELS, ETC.

**ENGINES, GAS AND OIL.** See INTERNAL COMBUSTION ENGINES.

**ENGINES, STEAM.** See STEAM TURBINES.

**ENGLAND.** The largest and most densely populated part of the island of Great Britain. See GREAT BRITAIN.

**ENGLAND, CHURCH OF.** The Established Church of England. Its faith is represented in the United States by the Protestant Episcopal Church (q.v.). The King is the supreme governor of the church, possessing the right to nominate to vacant archbishoprics and bishoprics. The King and the First Lord of the Treasury also appoint to certain deaneries, prebendaries, and canonries, and the Lord High Chancellor to certain canonries. For administrative purposes, the country is divided into two provinces: The Convocation of Canterbury and the Convocation of York, each under the control of an archbishop.

The church assembly, established in 1920 "to deliberate on all matters concerning the Church of England and to make provisions in respect thereof," consists of three houses, composed of bishops, clergy, and laity, respectively, the laity being elected every five years by the lay members of the diocesan conferences, which consist of representatives elected by members of the church. Every measure passed by the church assembly must be submitted to an ecclesiastical committee, consisting of 15 members of the House of Lords and 15 members of the House of Commons. This committee reports on each measure to Parliament, and the measure becomes a law if it is passed by both Houses of Parliament. Parochial affairs are managed by parochial church meetings of parishioners and by church councils elected by such meetings.

In 1930 there were 2,401,635 East communicants in the 43 English dioceses and 12,807 incumbents. Baptisms numbered 430,021. Total parochial contributions received during the year amounted to £8,833,092.

There were many indications during 1931 that the Lambeth Conference, which made 1930 a notable year in the annals of the church, had done much to direct the attention of churchmen generally to the problems discussed by the bishops at that great gathering. Of these problems the unity of the church and the question of disarmament were particularly prominent. In January the Archbishop of Canterbury appointed representatives of the Church of England to constitute, with representatives of the Patriarchates and Autocephalous Churches of the East, a doctrinal commission to prepare a joint statement on the theological points about which there is difference



and agreement between the Anglican and Eastern Churches. The commission, the chairman of which was the Bishop of Gloucester (Dr. A. C. Headlam), concluded its sittings on October 21. The Federal Council of the Evangelical Free Churches also accepted on September 22 the invitation of the Archbishop of Canterbury to resume the conferences with representatives of the Church of England which were, by consent, suspended in 1925. The conferences were resumed on November 21, and it was hoped, to quote the archbishop's invitation, "that some further step may be taken towards at least fuller understanding and fuller spiritual coöperation, or it may be by God's will towards even closer union."

An important conference was held in Bonn, Germany, beginning July 2 between representatives of the Anglican Communion and the Old Catholic Churches. At this conference, which was an outcome of the Lambeth Conference, terms of inter-communion between the Anglican and Old Catholic Churches were accepted. The terms of the agreement provided that each communion respect the independence of the other but permit its clergy to administer the Holy Communion to members of the other communion, and further insured coöperation in the ordination of priests and consecration of bishops. The agreement, which was confined to churches in communion with the See of Utrecht, was ratified by the general congress of the Old Catholic Churches in Vienna in September. On receiving the synodical approval of the Church of England it marked the first instance since the Reformation of formal inter-communion between Anglican and non-Anglican churches. See OLD CATHOLICS.

The doctrinal position of the Church of England itself continued to be the subject of inquiry by the Archbishops' commission on doctrine. This commission was appointed in 1923 "to consider the nature and grounds of Christian doctrine with a view to demonstrating the extent of existing agreement within the Church of England, and with a view to investigating how far it is possible to remove or diminish existing differences." After its session at Cambridge from September 21 to 26, the commission was able to report "steady progress with its immense task" and that "every session receives new encouragement from the realisation of unity between representatives of the most diverse schools of thought."

The declaration of the Lambeth Conference "that war as a method of settling national disputes is incompatible with the teaching and example of our Lord Jesus Christ" was affirmed, though with varying degrees of emphasis, at many diocesan and other conferences during the year, and many leaders of the church were insistent on the paramount importance of "the grave issues for world peace which are involved in the forthcoming Disarmament Conference." Widespread attention was aroused by the sermon preached by the Archbishop of Canterbury to the congregation which filled St. Paul's Cathedral at the disarmament service on December 15. Among inter-denominational gatherings at which the subject was discussed was the conference of the World Alliance for International Friendship through the Churches at Cambridge in September.

The church assembly held its usual five-day sessions in February and June. Its most important legislative achievement was the passing of the Cathedrals Measure, which in one form or

another had occupied the attention of the assembly for more than three years. The measure provides *inter alia* for the establishment of a new statutory body, known as the Cathedral Commissioners for England. Their principal function will be to provide, by means of "schemes" under the measure, for the establishment and revision of constitutions and statutes for the cathedrals and for the administration of their property and revenues. The measure received the Royal assent on July 8.

The Royal assent was also given on July 8 to the Benefices (Exercise of Rights of Presentation) Measure, which had received the final approval of the assembly at its summer session in 1930. The measure was an attempt to provide machinery for giving to parishioners an effective voice in the appointment of their incumbent, and to bishops a discretionary power of refusing any really unsuitable nominee, while avoiding any undue restriction of the patron's right of presentation or injury to the reputation of the clergyman whose name is put forward. The "appointed day" under the measure was Jan. 1, 1932. The Ecclesiastical Commissioners (Loans for Church Training Colleges) Measure, which received the Royal assent on March 27, enables the commissioners to make loans for purposes in connection with the Church of England training colleges. The other measures which became law during the year included one bringing the bishopric of Sodor and Man within the provisions of the Episcopal Pensions Measure of 1926; two measures providing for the application to the Channel Islands of measures passed by the church assembly and for the representation of the islands in the house of laity and in the Winchester diocesan conference; and a measure enabling the ecclesiastical commissioners to make provision for certain unbeneficed clergymen who did not come within the scope of the Ecclesiastical Commissioners (Provision for Unbeneficed Clergy) Measure, 1928.

At the assembly's spring session a long discussion took place on the report of the commission on staffing of parishes. The report set out the facts relating to the admittedly grave shortage of clergy and put forward a number of suggestions as to possible methods of redistributing existing resources and of increasing the supply of ordinands. The present deficiency of clergy was estimated by the commission as 1583, and the view was expressed that "the church should aim at an ordination list of 630 per annum." The assembly resolved that the report should be referred to the diocesan conferences. Most of these conferences discussed the matter during the latter part of the year. The assembly also requested the archbishops to ask the diocesan bishops of the two provinces to write a pastoral letter, to be read at one of the Ember seasons, stating the present position as to the supply of clergy, and calling upon clergy and laity "to pray, work, and give for an increase in the ministry." The archbishops and bishops subsequently appointed the third Sunday in Advent for this purpose, when pastoral letters upon the subject were read in the majority of churches throughout England.

Difficulties as to a suitable venue prevented the holding of the church congress. No Anglo-Catholic congress was held, but a successful joint anniversary meeting was held in conjunction with the English Church Union. The 104th Isling-

ton Clerical Conference met in January, the subject for discussion being "The Church of To-day and To-morrow," and the Conference of Evangelical Churchmen held at Oxford in April considered "The Basis of Anglican Doctrine and Fellowship." "Man" was the sufficiently comprehensive subject of the Modern Churchmen's Conference, held at Oxford in September under the presidency of the Dean of St. Paul's.

The religious value of broadcast services was among the subjects discussed by the Convocations of Canterbury and York during the year, both houses of the Convocation of Canterbury putting on record their appreciation of the service rendered to the cause of religion by the British Broadcasting Company and commending to the attention of the clergy, lay readers, and choir trainers the high standard of preaching, reading, and singing attained in broadcast services. A committee of both houses of the Canterbury Convocation also was appointed to consider the bearing of Resolution 11 (marriage) of the Lambeth Conference upon the practice of the church in the province and to confer with any similar committee appointed by the Convocation of York.

There were few changes during 1931 in the episcopate. The long vacancy in the see of Worcester, caused by the death of Dr. E. H. Pearce in the preceding October, was filled in January by the translation from Bradford of Dr. A. W. T. Perowne, who was succeeded by the Rev. A. W. F. Blunt, vicar of St. Werburgh's Derby. The consecration of the Rev. Mervyn G. Haigh, appointed to the see of Coventry at the close of the previous year, took place on February 24. Bishops Suffragan consecrated during the year included Canon G. A. Hollis (Taunton) on January 6, the Rev. C. R. Hone (Pontefract) on February 2, and the Rev. E. Priestley Swain (Burnley) on November 30.

The officers of the church assembly in 1931 were: Chairman, the Archbishop of Canterbury; vice chairman, the Archbishop of York; treasurer, Col. Sir R. Williams; secretary, Sir Philip W. Baker-Wilbraham; assistant secretary, Guy H. Guillum Scott; chairman of the house of bishops, the Archbishop of Canterbury; chairman of the house of clergy, the Archbishop of St. Albans; chairman of the house of laity, the Earl of Selborne. Headquarters are at 8 Dean's Yard, Westminster, S. W. 1, London.

**ENGLISH STUDIES.** See **PHILOLOGY**, MODERN.

**ENTOMOLOGY, ECONOMIC.** The devastating outbreak of grasshoppers which occurred from New York westward to the intermountain region and centering in the Dakotas and Nebraska in the Great Plains area was perhaps the most notable event of 1931 in the field of economic entomology. The complete eradication of the gipsy moth from an area in New Jersey that in 1921 covered 400 square miles was an outstanding achievement in quarantine and control work. The successful completion of the campaign against the Mediterranean fruit fly, the world's most important insect enemy of fruits, with the discontinuance on March 31 of inspection of the formerly infested area in Florida, marks an accomplishment in applied entomology that has never been equalled.

The influence of the weather conditions that obtained in 1930 a year with a prolonged dry period and extremely hot weather throughout the central and eastern United States was re-

flected in the occurrence of insects in 1931. Many, including the chinch bug, codling moth, San Jose scale and others, were favorably affected. Others as the Mexican bean beetle, oriental fruit moth, Hessian fly and European corn borer were checked. Still others such as the white grubs were not visibly influenced.

The retirement of Dr. Leland O. Howard on June 30 after 53 years of service with the Federal Bureau of Entomology, 33 of which were as Chief of the Bureau, was an event of particular interest. Following his retirement the Capper Prize for 1931, consisting of a gold medal and \$5000, was awarded to Dr. Howard for his distinguished service to American agriculture in perfecting insect control measures. The year saw the passing of Prof. John H. Comstock (q.v.), for more than 50 years a leader and teacher in the field of Entomology, on March 20 at the age of 82. He was the author of many publications including several standard textbooks.

**CODLING MOTH.** Severe infestations of the codling moth, the most important insect enemy of the apple, were quite general in the eastern part of the United States. Counts made of collections under bands in Illinois indicated that the population was from 10 to 25 times as great as at the same time in 1930. The side-sting injury of the apple was observed at harvest time to be unusually prevalent throughout the New England and Middle Atlantic States, and across the lake region into Minnesota and Iowa. The extensive work with chemically treated corrugated paper bands has shown that they can be applied successfully as a supplementary control measure. Their use in Indiana almost entirely prevented adult emergence or more than 98 per cent of the larvæ captured. Bait traps kept in orchards in Missouri and filled with a ferment caught large numbers of the moths each night when they were emerging; it is thought that these may prove to be a valuable aid in worm control. The egg parasite *Trichogramma minutum* was used in experimental control work, as many as 30,000 being shipped daily and distributed in orchards in Colorado.

**ORIENTAL FRUIT MOTH.** The unfavorable weather conditions of 1930 and the dissemination and increase of parasitic enemies appeared to have combined in reducing the numbers of the oriental fruit moth, which was much less serious in 1931. Encouraging results were obtained from control work with parasites. Mass production and distribution of the most important parasite of the larva, *Macrocentrus ancylivora*, were commenced by the Federal Bureau of Entomology in 1929 from the field laboratory in southern New Jersey. Up to the close of 1930 adults had been produced and successfully shipped and liberated in 86 colonies in 13 States. Preliminary recovery collections indicated establishment in slightly less than one half of the colonies liberated. The egg parasite *Trichogramma minutum* produced in mass and liberated in infested orchards was found to infest a high percentage of the oriental fruit moth eggs.

**SAN JOSE SCALE.** The destructive San Jose scale, enemy of fruit and other trees and shrubs, is on the increase in the East Central States, on the Atlantic seaboard from Pennsylvania to Georgia and westward over the Gulf region. It was more abundant in the apple orchards of the Niagara peninsula, Ontario, than for many years.

**MEDITERRANEAN FRUIT FLY.** The campaign

against the dreaded Mediterranean fruit fly in Florida, which was begun in April, 1929, when an infestation was found in Orange County, was brought to a successful close on March 31 when Federal inspection of the formerly infested areas was discontinued.

**MEXICAN FRUIT FLY.** An infestation of the Mexican fruit fly which attacks citrus fruit was found in April in a small lot of grape fruit in storage that had been grown near Mission, Tex. This was the first discovery of the pest in the United States since Nov. 10, 1929, when it was found in three back yards in Brownsville, Tex. It was thought that the infestation may have persisted since the original discovery in the United States in 1927. The greatly enlarged acreage and greatly increased tonnage of citrus, both constantly expanding, make more difficult the control work, which has included inspection, certification, clean culture and a host-free period of six to seven months.

**JAPANESE BEETLE.** The spread of the Japanese beetle continued, a few individuals having been found at Charleston, South Carolina, and a single beetle at Cleveland, Ohio. The beetle was generally distributed as far north as Plainfield and Metuchen, New Jersey, with localized colonies beyond this region. A local and serious infestation that was discovered in western Connecticut during the summer was traced to a quantity of sod moved to the estates the preceding summer from New Jersey. It was possible to establish the identity of those responsible for the shipment and fines aggregating \$290 were paid for violation of the quarantine law.

**EUROPEAN CORN BORER.** There were reductions in abundance in the one-generation area of the European corn borer extending from New York and Pennsylvania westward, resulting from the unfavorable climatic conditions of 1930, which averaged 25 per cent. Although the general spread was less than normal more isolated infestations were found in 1930 than any preceding year. In order to prevent the spread to the west and south of the two-generation or more important form, the regulated area under quarantine was extended on January 23 to include New York City and parts of New York State and New Jersey. Since the one-generation strain had reached the two-generation area in Massachusetts and New Hampshire, no further attempts were to be made to retard the spread of the one-generation form in New England.

The outbreak of the borer in the corn-growing counties of Ontario that commenced in 1920 and which resulted in the devastation by 1926 of all the corn within an area of 1200 square miles had as a result of the extensive cleanup each spring been reduced until the farmers felt that they could again grow corn and escape the extensive damage.

**MEXICAN BEAN BEETLE.** The Mexican bean beetle was found as far east as Washington County, R. I., in fields in southern New Jersey and on the eastern shore of Maryland. Considerable damage was done by the first generation in Connecticut but in the older infested region in the southern Middle Atlantic States there was comparatively little damage. It caused considerable injury in North Carolina and had by May extended its range southward to Albany, Ga., 37 miles south of the record for 1930.

**GIPEY MOTH.** The apparently complete extermination of the gipsy moth in New Jersey

which covered an area of 400 square miles in 1921, in which year 3,000,000 egg clusters were found, was an outstanding achievement in quarantine and control work. Substantial progress was made in the cleanup and eradication work with the infestation on Long Island. In the work in the barrier zone in New England and New York somewhat fewer infestations were found with indications that marked progress had been made in cleaning up infested locations.

**SATIN MOTH.** The continued spread of the satin moth resulted in the prohibition on December 1 of interstate movement into uninfested territory of poplar and willow trees and parts thereof capable of propagation from 51 additional towns and municipalities in Maine, Vermont, Massachusetts, and Connecticut, representing 155 square miles of territory. The amount of defoliation in June was less than in 1930, due partly to migration from densely infested areas, effectiveness of spraying, and the rather heavy winter mortality.

**ALFALFA WEEVIL.** Surveys under way in July indicated that the damage from the alfalfa weevil would, except in western Nevada and northern Utah, be almost negligible. It appeared at Casper, Wyoming, in increased numbers, in some fields the foliage of the first cutting being practically destroyed. Control measures were necessary in western Nevada.

**PINK BOLL WORM.** The eradication work with the pink boll worm in the long lint cotton fields of the Salt River Valley of Arizona failed of the success desired due to the discovery that the infestation extended over a much larger area of the State than was anticipated. Because of the discovery of many slight, widely scattered infestations the maintenance of the non-cotton zone was deemed impractical and the non-cotton restrictions were removed near the beginning of the year. An effort was undertaken through State regulation of planting dates and cultural methods to reduce the population of pink boll worms to a point where eradication may again be undertaken. The pest was present in all of the older areas of infestation from Midland County, Texas, to eastern Arizona with the exception of the Duncan Valley. See COTTON.

**DATE SCALE ERADICATION.** The cooperative State and Federal eradication work with the date scale in California and Arizona was continued as in 1930, nearly half of the infested palms found in various districts having been dug out and destroyed and the others defoliated and treated.

**OUTBREAK OF GRASSHOPPERS.** The devastating grasshopper outbreak which took place in the Great Plains area was the most serious of any since the early settlers were demoralized by the invasion of the Rocky Mountain locust in the decade following 1870. Serious outbreaks were quite generally reported from New York westward to Idaho, Nevada, and Arizona and southward to Arkansas, Oklahoma, and Texas. The Dakotas and Nebraska appear to have suffered most seriously.

**A NEW TOBACCO PEST.** The destructive moth pest *Ephesia elutella* was discovered in August, 1930, attacking stored leaf tobacco in warehouses in a restricted area in Richmond, Virginia, this having been its first appearance in tobacco. The work of eradication through fumigation was at once commenced and is thought to have resulted in its extermination.

**INSECTICIDES AND INSECT CONTROL.** The activ-

ity in work with insecticides continued. In experiments conducted the powdered root of the American plant known as devil's-shoestring was found to be efficient in the control of a number of insects, especially animal parasites. The addition of a one-half per cent Penetrol to Derrisol increased its efficiency as an arachnicide and commercial control of the red spider in the greenhouse was obtained from two applications, eight days apart. Ethylene oxide which was tested as a substitute for carbon disulphide destroyed both adults and larvæ, of the Japanese beetle and adult Colorado and Japanese bean beetles in two hours at 75° F. when used at the rate of 2 pounds per 1000 cubic feet of room space. The application of paradichlorobenzene dissolved in crude cottonseed oil at the rate of 1 pound to 2 quarts of oil, with a paint brush, was found the most satisfactory control measure for the lesser peach borer. Hydrated ferric oxide when mixed with lead arsenate increased the adhesive properties of the arsenical to apple foliage and prevented arsenical injury.

Investigations in the Pacific northwest showed that the lubricating oil emulsions had several advantages over lime sulphur in combating the San Jose scale and certain other fruit pests. The oil emulsions are more economical than lime sulphur, are easier to apply thoroughly, and are more effective against the eggs of the red spider, tree hoppers, and the fruit leaf roller and against aphids. Experiments in Idaho demonstrated that the dormant oil sprays may be applied safely to apple trees in the spring only before bud scales begin to separate. Oil of 50 to 70 sulphonation and of not less than 100 viscosity test may be safely used for dormant spraying.

PARASITES AND INSECT CONTROL. Much was accomplished in the control work with insect parasites. Two important wasp-like forms of minute size were being produced in great numbers for distribution, a larval parasite of the oriental fruit moth and the cosmopolitan insect egg parasite *Trichogramma minutum*. The introduction of parasites of the sugar cane moth borer from Peru was successfully accomplished in May through the use of air transportation. The egg parasite of the range caterpillar, a pest which ravages the grasslands in the southwestern United States, was artificially reared during the winter and liberated by the millions as a means of control. This egg parasite was similarly reared and released in orchards in many States to combat the fruit worms that cause serious injury to the apple and peach. In Louisiana the field colonization of from 5000 to 6000 egg parasites per acre was effective in preventing from one-third to one-half of the damage to sugar cane caused by the sugar cane moth borer. The eggs of the bagworm were found to be fairly satisfactory as hosts for hibernating egg parasites for periods of time from 40 days to six months at temperatures approximating 40° F. A parasite of the citrus black fly introduced from Malaysia into Cuba now effectively controls the black fly.

INSECT TRANSMISSION OF PLANT DISEASES. The work of the year resulted in a considerable advance in the knowledge of the insect transmission of plant disease. The causative organism of fire blight of deciduous fruits was isolated in Arkansas in the early spring before the development of blight, from beehive material collected and from bees themselves, indicating that this may be a way in which it is carried over and

the manner in which it is spread. Work conducted in Wisconsin indicated that while aphids probably do not disseminate ordinary tobacco mosaic disease, they do play an important part in the dissemination of this disease in tomatoes and from tomato to tobacco where the two crops are grown in close proximity. It was shown conclusively in work in New York that aphids feeding on the sprouts of seed potatoes spread leaf roll very rapidly and widely, provided the aphids are numerous.

In California yellows disease of plants was transmitted by the six-spotted leaf hopper. Non-infected leaf hoppers feeding on infected carrots and parsley plants became infective and transmitted the disease to healthy asters and celery. The disease was then transmitted from infected asters and celery back to carrots and parsley. It was also transmitted from infected carrots to healthy carrots and similarly from parsley to parsley, carrot to parsley and parsley to carrot.

In Hawaii the onion thrips was found to transmit yellowspot of pineapples, the larvæ imbibing the infection and transmitting it after reaching the adult stage. The common wilt disease of the pineapple was discovered to be transmitted by the pineapple mealybug. It was determined that the cabbage maggot may serve as an agent of dissemination and inoculation of the soft rot bacteria of the cabbage, turnip, and other crucifers.

INSECTS, TICKS AND DISEASE. The common American dog tick often referred to as the wood tick was found to be a carrier of the causative organism of tularemia, of the eastern type of Rocky Mountain spotted fever, and also to be capable of transmitting anaplasmosis of cattle, a disease that had in the last few years appeared from coast to coast as far north as Kansas and caused some heavy losses. The transmission of relapsing fever of man in Texas by the tick *Ornithodoros turicata* was demonstrated. It was proved experimentally that the tropical rat mite not only causes a dermatitis of man but that it may transmit endemic typhus, a disease widespread in the United States.

A severe outbreak of the so-called buffalo gnat occurred in portions of Mississippi and Arkansas in the spring and caused a considerable loss of livestock. Much was accomplished in the perfection of methods and technique in securing and maintaining a stock of living blowfly larvæ in adequate numbers to be used in the post-operative treatment of osteomyelitis as developed by the late Dr. William S. Baer of Baltimore (q.v.).

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ENZYMES. See CHEMISTRY, INDUSTRIAL.

EPIRUS. See GREECE.

**EPISCOPAL CHURCH.** See **PROTESTANT EPISCOPAL CHURCH.**

**EPWORTH LEAGUE.** See **METHODIST EPISCOPAL CHURCH.**

**ERITREA**, *âr-rê-trê'â*. An Italian colony on the African coast of the Red Sea, extending 670 miles from Cape Kasar to Cape Dumeirah on the Strait of Bab-el-Mandeb. Area, 44,795 square miles; population, at the census of 1928, 510,000 natives and about 3650 Europeans, mostly Italians. The seat of government is Asmara, situated 7765 feet above sea level, with a population of 18,500 (3500 Europeans). Massawah is the principal trade centre, with an estimated population of 12,275. The natives are chiefly Coptic Christians and Mohammedans. The culture of coffee, cotton, tobacco, flax, bananas, and agave (a fibre plant) has been successfully introduced. The local trade is almost entirely confined to camels, oxen, sheep, goats, and their products. Imports by sea and land in 1929 were valued at 251,557,962 lire (about \$13,232,000) and exports at 104,910,481 lire (\$5,518,000). The lira equals \$0.0526 at par. The budget for the 1930-31 fiscal year estimated colonial revenue at 58,161,980 lire, the contribution from the Italian government at 26,200,000 lire, civil expenditures at 40,754,730 lire, and military expenditures at 17,456,250 lire. There is a military force of 200 Italian officers and 4000 native troops. Railways in 1930 extended 194 miles and 65 miles of a new line from Agordat to Tessenei had been completed. Much traffic is by camel caravans. Governor in 1931, Riccardo Astuto dei Duchi di Lucchesi.

**EROS.** See **ASTRONOMY.**

**EROSION.** See **SOILS.**

**ESKIMO,** ORIGIN OF. See **ANTHROPOLOGY.**

**ESPERANTO.** See **PHILOLOGY, MODERN.**

**ESSAYS.** See **LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; SCANDINAVIAN LITERATURE; SPANISH LITERATURE; ETC.**

**ESTONIA.** A republic on the eastern shore of the Baltic, bounded by the Gulf of Finland on the north, Union of Soviet Socialist Republics (Russia) on the east, and Latvia on the South. Formerly a part of the Russian Empire, it was declared independent on Feb. 24, 1918, and its independence was recognized by Soviet Russia by the treaty of Feb. 2, 1920. Capital, Tallinn (Reval).

**AREA AND POPULATION.** The total area is about 18,358 square miles and the estimated population in 1930 was 1,117,000 (1,107,059 at the 1922 census), of whom about 87.7 per cent were Estonians, 1.7 per cent Germans (Balts), and 10.6 per cent Russians and other nationalities. The populations of the chief cities at the 1922 census, with 1930 estimates in parentheses, were: Tallinn (Reval), 122,419 (131,429); Tartu (Dorpat), 50,342 (60,933); Narva, 26,912 (25,205); Pärnu, 18,499 (20,885). Births averaged 19,653 annually for the period 1926-30 and deaths, 18,393. Five-sixths of the population are Lutherans.

**EDUCATION.** Elementary education is free and compulsory. In 1929-30 there were 98,714 pupils in primary schools, 15,991 in secondary schools, and (in 1927-28) 9124 in higher and professional schools. There is a university at Tartu (Dorpat). At the 1922 census, 5.6 per cent of the population 10 years of age and over were illiterate.

**PRODUCTION.** Agriculture and dairy farming

are the principal occupations, engaging 70 per cent of the population. In 1930, there were 2,587,000 acres of arable land, about 4,379,000 acres of permanent meadow and pasture, and 2,220,000 acres of forests. Production of the chief crops in 1930, with 1929 figures in parentheses, was: Wheat, 1,635,000 bushels (1,260,000); rye, 8,885,000 bushels (5,737,000); barley, 5,893,000 bushels (5,687,000); oats, 10,870,000 bushels (10,277,000); potatoes, 31,713,000 bushels (27,679,000); flax fibre, 23,744,000 pounds (21,498,000). Livestock in 1930 included 627,000 cattle, 467,000 sheep, 290,000 swine, and 204,000 horses. Textiles, paper, and timber are the chief industries. There were 33,093 workers employed in 757 large and medium sized industrial enterprises at the end of 1930.

**COMMERCE.** Imports for consumption in 1930 were valued at \$20,363,000 (\$32,955,000 in 1929) and exports of Estonian products at \$25,844,000 (\$31,482,000 in 1929). Exports in 1930, in order of value, were butter, lumber, cotton cloth, wood pulp, cotton yarn, wood manufactures, and flax. Imports, in the same order, were raw cotton, rye, sugar, and wheat. Of the total 1930 imports, Germany furnished 28.3 per cent, the United States 12.7 per cent, the Soviet Union 9.3 per cent, and the United Kingdom 8.6 per cent. Exports went to: United Kingdom, 32.3 per cent; Germany, 30.1. Imports in 1931 were \$16,326,400; exports, \$18,952,900 (preliminary).

**FINANCE.** Ordinary returns for the fiscal year ended Mar. 31, 1930, showed revenues of 86,287,000 crowns (\$23,125,000) and expenditures of 83,455,000 crowns (\$22,366,000). As the revenues included a surplus of 4,546,000 crowns carried over from 1928-29, there was a slight deficit in 1929-30. In the budget returns for 1930-31, total receipts and expenditures were placed at 89,752,000 crowns (\$23,954,000) and 96,967,000 crowns (\$25,987,000), respectively; for 1931-32 (estimated), 83,831,000 crowns (\$22,467,000) and 80,614,000 crowns (\$21,604,000), respectively. Expenditures for grain price stabilization in 1930-31 increased the outlay, necessitating a deficiency bill of 7,215,000 crowns. The public debt on Mar. 31, 1930, was equivalent to \$30,005,000, of which \$20,251,000 were borrowed in the United States; all but \$144,000 was held externally. One crown exchanged at \$0.267 in 1930-31.

**COMMUNICATIONS.** The railway, telegraph, and telephone systems are government owned. There were 1175 miles of railway line in operation in 1930, the gross receipts totaling \$4,120,000. Highways in the same year extended 14,424 miles. During 1929, 2496 vessels of 892,057 tons entered the ports, Tallinn (Reval) being the principal calling point. The merchant marine in 1928 included 74 steamers of 38,767 tons.

**GOVERNMENT.** According to the constitution of Dec. 21, 1920, executive power is in the hands of a state head or "State Elder" and a ministry, both chosen by and responsible to the State Assembly; legislative power, in the hands of the State Assembly of 100 members elected for three years on the basis of proportional representation and by direct, universal, and secret suffrage. Provision is made for referendum and legislative initiative. The composition of the State Assembly following the elections of May 11-13, 1929, was as follows: Socialists, 25; Farmers' Union, 24; Settlers, 14; Radicals, 10; Populists, 9; Workers' party, 6; Minority Nationals, 5; Christian



party, 4; and Houseowners, 3. Prime Minister and State Head at the end of 1930, Otto Strandmann (Radical), heading a coalition of the Farmers' Union, and the Christian, People's, Radical, and Settlers' parties.

**HISTORY.** The principal developments in Estonia during 1931 were the collapse of the Strandmann Coalition government on February 3 and the establishment in November of strict government control over approximately 40 per cent of all imports in an effort to check an alarming drain on the country's gold reserve. The fall of the Strandmann Cabinet resulted from a division in Parliament on the Government's proposals for drastic reductions in the 1931-32 expenditure budget. Minister of Agriculture Kerem resigned January 21 because his party (the People's party) refused to support the coalition on the budget issue. It proved impossible to fill the vacancy by a man acceptable to the Farmers' Union, which represented constituencies gravely discontented with the agricultural situation. The Government accordingly resigned. Nine days later (February 12) a new government was formed under Konstantin Päts, with Jaan Tõnisson as Minister of Foreign Affairs. It represented a coalition of the Farmers' Union with the Socialists and other parties.

The Government's bill establishing monopolistic control over 30 leading import commodities was passed by Parliament November 6 and went into effect five days later. It was calculated to redress the adverse balance of trade by further reducing imports and at the same time to check the outflow of gold exchange resulting from the financial crisis in Central Europe and the abandonment of the gold standard by Great Britain. Thereafter permission of the Ministry of Finance was required to import grain, coal, oil, agricultural machinery, automobiles, textiles, and other important commodities. On November 17, the sale, purchase, export, and import of currencies and commercial paper were placed under control of the Government, acting through the Eesti Bank. Finance Minister Pung resigned in protest against these measures, and was replaced by August Jürman (Farmers' Union).

That the Communist Labor party, dissolved by the Government in April, 1930, was carrying on its activities underground was indicated by the announcement on June 9, 1931, that the Estonian secret police had discovered and raided its headquarters. Fifty alleged Communists were arrested and important documents were seized, including alleged plans for a revolt and evidence that the movement was being subsidized to the extent of 60,000 Estonian crowns (about \$16,000) annually from Moscow. Fearful that the voluntary bourgeois militia was preparing for a *coup d'état*, Estonian Socialists were reported to have formed a Red Guard in Reval and a number of other towns. Charges that Minister of Interior Hünerson and the crew of a Coast Guard vessel had cooperated with an Estonian company in the illegal export of liquor were made in Parliament October 15 by Tõnis Kalbus, former Minister of Justice. Conclusion of an economic pact with Latvia was officially announced May 5 (see *LATVIA* under *History*). For a concise review of political developments in Latvia since 1920, consult Malbone W. Graham, "Stability in the Baltic States," *Foreign Policy Reports*, May 27, 1931, vol. vii, no. 6.

**ETHICS.** See *PHILOSOPHY*.

**ETHIOPIA (ABYSSINIA).** A landlocked empire of East Africa, bounded by the Anglo-Egyptian Sudan on the West, Eritrea and French and British Somaliland on the north and northeast, Italian Somaliland on the southeast, and Kenya Colony on the south. Capital, Addis Ababa, with a population of about 65,000. Emperor in 1931, Haile Selassie I.

**AREA AND POPULATION.** With an area of about 400,000 square miles, approximating the combined area of Texas and New Mexico, Ethiopia has a population of approximately 10,000,000. The Abyssinians proper, Christians of Hamitic origin who constitute the ruling race, number less than 3,000,000. The Gallas, comprising two-thirds of the population, Somalis, and Danakil are other important tribes. Besides the capital, Direddawa, with about 40,000 inhabitants, and Harar, with 30,000, are the chief cities. The gradual abolition of domestic slavery was decreed in March, 1924.

**PRODUCTION.** Agriculture and stock raising are the principal industries. The chief export products, in order of importance, are coffee, hides and skins, beans, flour, wax, civet, and ivory. Coffee is cultivated in Harar Province, eastern Ethiopia, but grows wild in the western districts. Grain, cotton, sugar cane, dates, and grapes are grown for local consumption, but all agriculture is exceedingly primitive. Valuable forests and mineral deposits remain largely unexploited due to lack of transportation facilities. The minerals found include iron ore, placer gold, potash, coal, copper, silver, and platinum.

**COMMERCE.** Imports increased sharply after 1924, while exports remained virtually stationary, resulting in a continued adverse balance of trade. The volume of imports in 1930 was estimated at 56,162 metric tons (85,456 metric tons in 1929), while exports amounted to about 33,250 metric tons (28,718 in 1929). Approximately 75 per cent of the total foreign trade passes over the Franco-Ethiopian Railway from Djibuti (French Somaliland) to Addis Ababa. The remaining trade is carried on mainly by caravan across the Sudan and Eritrea frontiers. Cotton piece goods, kerosene, salt, sugar, flour, gasoline, and building materials are the leading imports.

**FINANCE.** There is no budget, no official currency, and but meagre data on public finances. The Maria Theresa silver dollar is the only currency used and its continued depreciation aggravated the economic depression experienced in 1929 and 1930. The Maria Theresa dollar was quoted at \$0.47 in January, 1929, and at \$0.35 in May, 1930.

**COMMUNICATIONS.** The only railway in the country extends 488 miles from the port of Djibuti on the Gulf of Aden to Addis Ababa. Highway mileage in 1930 was estimated at about 2050 miles, of which 50 miles were macadamized streets, 1000 miles were primitive roads, and the remainder caravan tracks. Telegraph and telephone lines link Addis Ababa with the chief cities.

**GOVERNMENT.** The Constitution adopted Oct. 31, 1907, and modified in May, 1919, vested supreme power in a hereditary and absolute monarch. After 1907 the ruler was assisted by a cabinet and, after 1910, by a council of elders. Until 1931, there was no popular representation, the governmental system being essentially that of a feudal monarchy, in which the Coptic Church



played an influential and conservative rôle. Tafari Makonnen, born July 17, 1891, became regent in 1917, and was crowned as King Oct. 7, 1928, and as Emperor Nov. 2, 1930. Upon his coronation as Emperor he assumed the title of Haile Selassie I. Early in 1931, Asfaou Wosan, eldest son of the Emperor, was proclaimed Crown Prince and heir to the throne, the proclamation being ratified by all the feudal chieftains. On July 16, 1931, the Emperor promulgated a new Constitution, establishing a two-chamber parliament with responsible Ministers to carry out its decisions, subject to approval of the Emperor. The members of the Legislature were to be designated by the Provinces, subject to royal consent. The Crown was secured to the ruling dynasty.

A party of American engineers, sent to Lake Tsana in October, 1930, to conduct a reconnaissance survey of the site of a proposed dam at the outlet of the lake and for a connecting road to Addis Ababa, returned to the capital in May, 1931, having completed their work. Their report was to be submitted early in 1932, but financial conditions in the Anglo-Egyptian Sudan were not considered favorable to immediate conclusion of a contract for the purchase of water from the Ethiopian government. Consequently there was no prospect of an early commencement of actual work on the project pending improvement of conditions in the Sudan. See EXPLORATION.

**ETHNOGRAPHY, ETHNOLOGY.** See ANTHROPOLOGY; EXPLORATION.

**EUGENICS.** See ZOOLOGY.

**EUROPEAN FEDERAL UNION.** See UNITED STATES OF EUROPE; INTERPARLIAMENTARY UNION; INTERNATIONALISM; LEAGUE OF NATIONS.

**EVANGELICAL CHURCH.** A denomination formed by the union of the Evangelical Association and the United Evangelical Church. The former was the outgrowth of a movement started in 1800 by the followers of Jacob Albright for the religious and spiritual awakening of the German communities in Pennsylvania. In 1892 a number of ministers and members organized themselves into a separate denomination, known as the United Evangelical Church. At length the growing conviction that the two churches should be reunited led to the appointment of commissions which drew up the so-called enabling act. The new organization was officially established in Detroit, Mich., in 1922.

In 1931 the denomination had 23 conferences in the United States, 2 in Canada, 1 in Japan, 2 in Germany, and 1 in Switzerland. There was a total membership of 262,547, of whom 225,369 were in the United States and Canada; 2469 churches, of which 2128 were in the United States and Canada; 2020 itinerant preachers and 411 local preachers. Sunday schools numbered 2773, with a total enrollment of 465,730. The Christian Endeavor Society membership was 49,171. There were also 1190 local societies, with a membership of 39,577, of the woman's missionary society, which works under the general direction of the board of missions. The total value of all church property was \$38,965,388, while the amount of money raised during the year was \$7,088,769.

The chief schools of the denomination are: North Central College and the Evangelical Theological Seminary in Naperville, Ill.; Western Union College in Le Mars, Iowa; Albright Col-

lege and the School of Theology in Reading, Pa. The denomination also maintains two orphanages and five old people's homes in the United States, as well as several hospitals. Official periodicals are the *Evangelical Messenger* and *Christliche Botschafter*, published in Cleveland, Ohio. A quadrennial general conference was held in Milwaukee, Wis., in October, 1930. All questions of law in the interval between general conference sessions are decided by the board of bishops, which in 1931 consisted of Bishops L. H. Seager, M. T. Maze, J. F. Dunlap, J. S. Stamm, G. E. Epp, and S. J. Umbreit. Headquarters are at the Evangelical Press, 1900 Superior Avenue, Cleveland, Ohio, and in Harrisburg, Pa.

**EVANGELICAL SYNOD OF NORTH AMERICA.** THE. A religious communion strictly evangelical in principle as historically crystallized from the Reformation of the sixteenth century and as embodied in the Reformed and Lutheran doctrinal statements, accepting these statements as far as they agree. When they disagree the Evangelical Synod adheres to the pertinent passages of Holy Scripture and avails itself of the liberty of conscience prevailing in the Evangelical Church. The communion was founded in 1840 at Gravois Settlement, Mo., and was consolidated in 1877 with similar communions. It is organized into 19 districts and has a synodical administration, with legislative powers vested in the biennial district conferences and the quadrennial general conference; the congregations are self-governing in strictly local affairs.

The Evangelical Synod of North America, in 1930, had 1260 congregations, 1165 pastors, and 255,337 individual members, also 1300 Sunday schools with an enrollment of 195,617. Money raised by the congregations for all purposes amounted to \$6,308,322, while the total value of church property was \$43,023,856. Missionary work was carried on in the United States, India, and Honduras. The home mission board, which reported a total income of \$116,250, employed 111 pastors in 133 fields in the United States. The foreign mission board, which reported a total income of \$174,446, employed 38 missionaries and 345 native helpers in India and 12 missionaries in Honduras.

The denomination supports three educational institutions: Eden Theological Seminary in Webster Groves, Mo.; Elmhurst College in Elmhurst, Ill.; and Oakwood Institute, Cincinatti, Ohio. It also publishes the following periodicals: *The Evangelical Herald*; *The Tidings*; *The Light Bearer*; and *Der Friedensbote*. The Rev. C. W. Locher, D.D., is president. Headquarters of the synodical administration and of the administrative boards are located at the Evangelical Synod Building, 1720 Chouteau Ave., St. Louis, Mo.

**EVOLUTION.** See BOTANY; ZOOLOGY.

**EWING, ROBERT.** An American publisher, died in New Orleans, La., Apr. 27, 1931. He was born in Mobile, Ala., Sept. 27, 1859. In 1887 he became associated with the New Orleans *Daily States* as telegraph editor, becoming assistant business manager in 1893, business manager in 1898, and publisher and owner in 1900. He had also published the Shreveport *Times* since 1908 and the Monroe *News-Star* since 1930, and had established the Monroe *Morning World* in 1929. He was an exponent of personal journalism, as opposed to control by manufacturing or other syndicates, and had wielded a powerful influence in State and national politics from 1898, when

he was a member of the Louisiana Constitutional Convention, until 1928 when he was chairman of the Louisiana delegation at the Democratic National Convention in Houston, Texas. He was also Louisiana member of the Democratic National Committee from 1908 to 1919. He was active in the Associated Press and the Southern Newspaper Publishers Association, being president of the latter during 1927-28 and chairman of the board in 1929.

**EXCAVATIONS, CLASSICAL.** See **ARCHÆOLOGY.**

**EXCHANGE, FOREIGN.** See **FINANCIAL REVIEW.**

**EXHIBITIONS.** See **ART EXHIBITIONS.**

**EXPERIMENT STATIONS.** See **AGRICULTURAL EXPERIMENT STATIONS.**

**EXPLORATION.** Economic and political conditions during 1931 served to postpone a number of expeditions. Yet the boundaries of geographic knowledge were notably extended by the explorations of adventurers and scientists. Expeditions to the Arctic and Antarctic regions are discussed under **POLAR RESEARCH**, while anthropological and archaeological investigations are described under their separate headings.

The outstanding development of the year, ranking with the great explorations of history, was the crossing of the Ruba-el-Khali, or the Great Southern Desert of Arabia, by Bertram Thomas, an English Orientalist and former Wazir and Finance Minister to the Sultan of Muscat. It was the first time in history that this desert wilderness of some 300,000 square miles had been crossed by a white man. Starting from Dhofar on the southern coast of Arabia, in December, 1930, Mr. Thomas traveled north by camel some 900 miles to Dohah on the Persian Gulf, arriving there on Feb. 21, 1931. By laying his plans in secret, his caravan managed to get through without arousing the tribes of the interior, whose hostility to strangers had kept the Ruba-el-Khali one of the largest blank spots on the globe. He started with 30 Arabs and 40 camels, but reduced his party to a mere handful for the last and hardest stages of the march. One hundred miles from the coast Mr. Thomas crossed a 1000-foot plateau, whose shifting sands were rumored to conceal the ancient city of Urbar. He found evidence of an ancient commerce in this region in caravan tracks, deeply cut in the steppe. Singing sands, an inland salt water lake about seven miles long, a fairly abundant animal life, and nomads subsisting almost entirely upon camels' milk were other discoveries.

**NORTH AMERICA.** During July and August, a party headed by Dr. J. N. Henry, of Philadelphia, explored the so-called "tropical valley" of Northern British Columbia. Located in the mountains near the junction of the Racing and Toad Rivers, 400 miles northwest of Fort St. John, the valley proved to be three-fourths of a mile in length and honeycombed with hot springs. Valuable botanical specimens were collected. In the Bridge River district of British Columbia, an ice field covering about 350 square miles and providing the source of the Bridge, Whitewater, Southgate, Squamish, and Lilloet Rivers, was discovered by Major F. V. Longstaff. Father Bernard R. Hubbard, Jesuit priest, explored on foot and by airplane the Aniukchak volcano in the centre of the Alaskan peninsula, following one of the greatest eruptions of modern times, which occurred there in May, 1931. A Canadian government air survey

was made of 2000 miles of coast along King William Island and the Adelaide Peninsula, in the Northwest Territories. Dr. W. S. Ladd and two companions in June made the first ascent of Mount Fairweather, a 15,292-foot Alaskan peak, and during the same month Miss Milina Jank, of Munich, Germany, with three male companions, made the first ascent of Mount Baker from the north side. The 1931 expedition of the Oxford University Exploration Club consisted of a scientific investigation of the interior of Akpatok Island in Ungava Bay, Northern Labrador. The party was headed by H. M. Clutterbuck.

**SOUTH AMERICA.** Exploration parties in various parts of South America were unusually numerous. The Shippee-Johnson expedition, sponsored by the American Geographical Society, mapped and photographed from the air little known regions of Southern Peru, discovering a great wall built for the defense of a former civilization and 15 extinct villages in the Calca Valley. The Venezuela-Brazil border region was explored and partly mapped by a National Geographic Society expedition under Ernest G. Holt, who returned with numerous plant and animal specimens. Dr. Herbert Spencer Dickey returned once more to the Orinoco with an expedition and was successful in locating the source of the great river. He reported that his observations, if confirmed, would change the boundary between Brazil and Venezuela as shown on existing maps. The Matto Grosso region of Brazil was explored by a large expedition sponsored by E. R. Fenimore Johnson and led by Capt. Vladimir Perfilieff. Photographs and sound-films were made of Indian and animal life. Another motion-picture and scientific expedition, led by Major Leslie G. Barbrook, was working in the Andes of Ecuador and Colombia at the end of the year. Dr. Parke H. Struthers, leading a Syracuse Andean expedition, explored the mountainous region in the interior of Venezuela and returned with live animals and birds for the Syracuse zoological park. Aerial photographic surveys were made of coastal areas in South and Central America and Porto Rico by Lieut. Carleton McGauley and an American party with three planes. Count Edmondo di Robilant, of Italy, crashed in the jungle along the Parana River while surveying an air route from São Paulo, Brazil, to Bolivia. He was rescued by a river steamer after 18 days. The Chilean Ministry of South Territories early in January sent a party of nine men to explore the little-known Aysen Territory, between Puyuhuapi and Lake Rosselot. The party lost its boats in the rapids of the Bordali River when within sight of Lake Rosselot and was forced to return.

**ASIA.** The most ambitious exploration of Asia during the year was that conducted by a large French motor expedition under Gorges-Marie Haardt, with which the National Geographic Society coöperated. Utilizing specially constructed tractor-type cars, the party started from Beirut, Syria, on Apr. 4, 1931, to follow Marco Polo's ancient route to the east. Traversing Syria, Iraq, Persia, and Afghanistan, the motor caravan entered India and penetrated the Himalayas to the village of Gilgit. There the party was forced to abandon the automobiles and to cross the Himalayas by ponies. At Urumchi, Sinkiang Province of China, on October 26, the party united with another unit, which had traveled westward from Peiping in motor cars built for

desert conditions. Returning to Peiping, the expedition planned in 1932 to return to Europe via Indo-China, Siam, India, Persia, and Arabia.

An aerial survey of a large part of Eastern Turkestan was planned by a British expedition under Lieut.-Col. J. E. S. Stewart, which left London in March, 1931. The expedition was to spend 18 months in western Sinkiang, with Yarkand as a base. Its object was to inspect the possibilities for better transport facilities eastward from Sinkiang, to create a channel for trade through India, and to discover areas for profitable development. Sir Aurel Stein and Dr. Sven Hedin continued their researches in Chinese Turkestan. The former was forced to discontinue his work by Chinese officials, after he had circled and mapped the great Tarim basin, site of an ancient inland sea. Dr. Hedin turned over to Chinese assistants four meteorological stations in Kansu and Sinkiang. Dr. Folke Bergman, an archaeologist working in the same area, reported important discoveries near the site of Edsain Gol, a city visited by Marco Polo.

Two mountain climbing expeditions visited the Himalayas. A British group led by Frank S. Smythe reached the summit of Mount Kamet on June 21, conquering the highest peak yet climbed by man (25,447 feet). A German expedition under Dr. Paul Bauer made an unsuccessful assault on Mount Kanchenjunga (28,146 feet), which in 1930 had repulsed an international group of climbers. After ascending to within 2156 feet of the top, the Germans were turned back by a wall of ice unassailable because of danger from avalanches. One member, Herr Schaller, was killed by fall during the climb.

Siberia was a field of investigation for various Soviet exploring and scientific expeditions during the year. The Proletarian Tourist Society sent an expedition to the Altai Mountains in northwestern Siberia and another to the Tien-Shan Mountains in western Siberia. Both parties carried on mapping and surveying work and prospected for gold and other minerals. A third expedition organized by the Academy of Sciences and the Proletarian Tourist Society under N. B. Krylenko, Assistant Commissar for Justice of the Russian Socialist Federated Soviet Republic, explored the high Pamirs to the northwest of the Pamir plateau. Geologists, cartographers, and prospectors worked with the expedition. Numerous other scientific parties reported valuable mineral discoveries in various parts of the Soviet Union. During the year an Academy of Science expedition returned to Leningrad, after spending three years among the descendants of early Cossack colonists living on the delta of the Indigirka River in northeastern Siberia. Isolated from the world for centuries and visited by no one during the previous 18 years, the "Russkoe Uste," as they were called, spoke a broken Russian with many old Russian terms, and preserved the customs and dress carried to the Siberian Arctic by their colonist forbears. The expedition covered 5000 miles by dog and reindeer-sled during its exploration of the Indigirka. It required five months to make the return trip of over 6000 miles to Leningrad.

**AFRICA.** In Africa, the year was marked by the discovery and mapping of a new lake in Ethiopia by American engineers engaged in a reconnaissance survey of the proposed Lake Tsana dam. The lake, named Lake Southard in honor of the American Minister to Addis Ababa, lay

9000 feet above sea level in the crater of an extinct volcano. An ancient manganese mine, the first of its kind known to science, was discovered by an Italian party under Commander Gatti during an archaeological study of the Broken Hill district of Northern Rhodesia. Three Italian aviators—Lombarde, Mazotti, and Rossini—circumnavigated the continent by air, a French expedition crossing the continent from Dakar to Djibouti continued its study of native peoples, and Mr. and Mrs. Martin Johnson returned to the United States after further explorations and photographic work in the Belgian Congo, Uganda, and Kenya. An extremely small cannibalistic pigmy tribe was found in the Belgian Congo by Herbert Bradley of the Bradley-Bigelow Expedition. An expedition headed by Sir William Simpson of the Royal Society of Tropical Research and including Dr. Arthur Torrance of Los Angeles, reported the discovery of a new tribe living in underground villages in the remote interior of the Southern Sahara.

**AUSTRALIA.** About 40,000 square miles of little-known territory in Central Australia was mapped from the air during the year by the McKay Aerial Survey Expedition. Stony mountains of great size and of queer formation were shown on the map, which was presented to the Commonwealth government. The largest scientific party ever sent into Central Australia was organized by Adelaide University to study the habits of the aborigines. The party also investigated meteorite craters along the Fink River, discovered earlier in the year by two geologists, Messrs. Alderman and Winzor. The craters ranged from 220 to 10 yards wide and the largest was 50 feet deep. A Harvard University expedition under Prof. W. M. Wheeler was at work in isolated areas of Australia and Tasmania, collecting rare animals; it planned to remain in the field until July, 1932.

**OTHER AREAS.** The South Sandwich Islands, Bouvet Island, the South Shetlands, the South Orkneys, and other of the Falkland Island Dependencies were surveyed during the year by the British Royal Research ship *Discovery II*. The geography and wild life of the mountains of the island of Dominica in the British West Indies were described by Dr. Paul G. Howes of the Bruce Museum of Greenwich, Conn., in a publication setting forth the results of two expeditions.

See **ANTHROPOLOGY**; **POLAR RESEARCH**; **GEOGRAPHIC SOCIETY, NATIONAL**; and **GEOGRAPHICAL SOCIETY, AMERICAN**.

**EXPOSITIONS.** The great exposition of the year was the one mentioned under **EXPOSITIONS** (YEAR BOOK, 1930, p. 255) with the subtitle *Paris. International Colonial and Overseas Exposition*. This important exposition had for its purpose the exhibition in one small area of a living cross-section of all the colonies of France, and also of the colonies of other exhibiting nations. According to Marshal Lyautey, the commissioner general: "This exposition will enable all civilized countries to compare their methods one with the other in order that those recognized as most effective may be improved and expanded both in a social and economic way."

The site selected was in the Bois de Vincennes, near and to the east of Paris, beautiful with rolling lawns, lakes, and tree-clad hills, containing 250 acres, and easily reached from the centre of the metropolis by a new subway or busses and

tram lines to Vincennes, and these connecting with a railway that made the entire circuit of the grounds, rendering it possible to visit easily the leading objects of attraction.

The general plan of the Exposition was divided or grouped in three major sections as follows: 1, General section, 2, Colonial Sections, and 3, Foreign Sections.

The General Section included a permanent Museum of Colonies built of stone and which at the close of the exposition became a colonial Museum. On the front façade of this building was carved in white Anjou stone in a style evolved from ancient Assyrian and Egyptian art, the story of life from its beginning and culminating in the development of its modern commercial aspects. Here will be gathered and preserved the valuable collections of native arts and industries which will long serve to remind its visitors of the glory and wealth of the French Colonial possessions in 1931. Also in this section was the International City of Information, a large building containing a hall for furnishing general information, the offices of the various nationalities equipped with means for distributing descriptive matter to inquirers, and finally one assembly hall for conferences, lectures, the presentations of films, etc., and also where the international congresses were held. Finally there were the Metropolitan sections in which were grouped all the French industries that export to the colonies. These industries were subdivided into four sections which included something like 31 groups and 62 series.

The Colonial Sections contained the exhibits from the French Colonies, which were shown in buildings aligned for the most part along the Grand Avenue des Colonies and included representations from Algeria; Cameroon and Togo; French West Africa; Guadeloupe, Réunion and Martinique; Madagascar; Morocco; Somali; Syria and Laban; Tahiti; Tunis, and other minor possessions. They were housed in special buildings erected by the respective colonies and were painstaking reproductions, of original structures. These included the Mosque of Djenné (French Western Africa); the famous temple of Angkor-Vat (Indo-China); the Royal Palace of the Hova dynasty (Madagascar), and one of the palaces of Marrakech (Morocco.) They were distinctly characteristic of the peoples they represented—bizarre, colorful, and unusual—and were well worthy of careful study.

The exhibits of the colonial possessions of Belgium, Denmark, Holland, Italy, Portugal, and the United States were shown in special buildings erected by their respective governments. That of the United States was a copy of Mount Vernon, the home of George Washington. All the rooms on the first and second floors at Mount Vernon were reproduced as they were in the eighteenth century. There was the central hall with the main staircase, the west parlor, Miss Custis's music room, the family dining room, the banquet hall, Washington's room, Mrs. Washington's sitting room, the library, and Lafayette's room. Historically, the reproduction of Lafayette's room, on the second floor, was of special interest to the French. The rug in the west parlor at Mount Vernon, woven by order of Louis XVI and sent by him as a present to Washington, was produced in stencil pattern. The bronze key to the Bastille, which after the French Revolution found its way to Mount Ver-

non as a present from Lafayette, was also duplicated. It was included with other furnishings of particular French interest, especially a chair presented to Martha Washington by Lafayette, the original of which was in Mrs. Washington's sitting room in the old mansion. At the close of the Exposition the American building was presented to the French government. The exhibits of the United States came from the territories of Alaska, Hawaii, the Philippine Islands, Samoa, and the Virgin Islands.

The amusement features were not over conspicuous but included spectacular illuminated water effects, weird in their conception and brilliant in their execution. The native exhibitions of colonial every-day life were of remarkable beauty. The shops with their strange local wares and the brilliant costumes from overseas were fascinating in their interest. A collection of native animals, forming a sort of zoological exhibit at the southeast end of the grounds, attracted much attention.

This great Colonial Exposition, the product of 10 years' planning, was formally opened on May 6, when amid the gleaming sabres of an escort of 100 Moroccan horsemen, Marshal Lyautey, France's outstanding colonial proconsul, conducted President Doumergue from the Elysée Palace to the exposition grounds, just outside the gates in Vincennes. Ambassador Walter E. Edge attended the ceremonies with members of the diplomatic corps. The reproduction of Mount Vernon was formally inaugurated on May 16 with addresses by Ambassador Edge and Marshal Lyautey.

The Exposition was brought to a close with a series of gala performances of a most brilliant character, rich with oriental splendor. The remarkable exhibits of unusual products and the presentation of unique attractions of native peoples proved so fascinating that the attendance was unexpectedly great (much greater than had been anticipated) and the financial returns far exceeded the hopes of the management. It was a great success. It was proposed to extend the life of the Exposition but the temporary character of many of the buildings, some of which had already begun to deteriorate, as well as the fear that the natives would find winter weather difficult to stand, led the authorities to decide against its continuance. See ARCHITECTURE under *France*.

CHICAGO EXPOSITION. A press statement issued on November 1 by the exposition authorities announced that so well advanced were the preparations for Chicago's Century of Progress Exposition, scheduled to open in June, 1933, that the project could be completed in 1932, if necessary. Five structures at the end of 1931 were completed or were under construction, and \$10,000,000 in bonds sold, insuring ample financial backing. Contracts for exhibition space had been received in such number as to threaten the ultimate capacity. Forty-two States and twenty foreign nations had indicated their desire to send exhibits. The States were to exhibit in a single Hall of States, adjoining the Federal building, and the foreign countries in a different section. General Manager Lohr declared that the management was not depending on the sale of the exhibition space to finance the venture. Of the \$10,000,000 bond issue only about \$3,000,000 had been expended to the end of 1931. Ten per cent of the issue had been called as needed. Seven

calls, varying between \$500,000 and \$750,000, had been made. In October work was begun on the electrical buildings group on Northerly Island, on which is the Adler planetarium. The cost was estimated at \$750,000. This group, like most of the other buildings, was to be of modern architecture. The unit was to be 1200 feet long and 300 feet wide, and for a considerable portion was to be two stories high. One section was to be devoted to radio, the second to telephone and telegraph, and the third to power generation, distribution, and utilization. The power section was to be in the form of a huge G facing west, it would rise from a series of terraces and surround a landscaped court, back of which would run a hall 500 feet long and 60 feet high. An electric cascade will play on the upper terrace. The radio and communication sections will form an E-shaped structure facing the lake. The entire unit will be embellished with hanging gardens and fountains. When the exposition opens the South Park system, much of which had been reclaimed from Lake Michigan, was expected to be a continuous succession of palaces, plazas, esplanades, and driveways from Grant Park to the University of Chicago in the Jackson and Washington Park section.

No world's fair in history had been so far advanced in its preparation nineteen months before its opening date, according to Mr. Dawes. Expenditures of private corporations for exhibits and private exhibit halls would raise the total cost of the exposition to \$50,000,000.

**CUBA.** A plan for an International Exposition to be held in Havana from Dec. 20, 1931, to Apr. 15, 1932, as a preliminary step in the holding of a Universal Exposition during the years 1932 and 1933 was proposed by a French Syndicate. It was suggested that the exposition grounds be on the reclaimed land at the foot of the Prado and extending along the harbor following the same lines of the Colonial Exposition in Paris. The grounds would also contain a cabaret, a Parisian restaurant, and an amusement park. Eight nations proposed to participate in the Universal Exposition.

**RIO DE JANEIRO** was preparing for an international fair to be held on the same grounds used for the 1925 exhibition. Although it was to be international, the fair expected to display mostly national goods. The buildings were being reconditioned for this purpose.

**TEXAS.** It was proposed to hold a centennial exposition in Texas in 1936, to commemorate the hundred years of independence from Mexico and to call attention to the industrial and agricultural rank of the State. An exposition to surpass the Chicago Fair in 1933 is suggested. Cities and towns of Texas are to be asked to levy a tax to support the exposition and Congress will be petitioned to grant Federal aid. It is estimated that from \$15,000,000 to \$25,000,000 will be needed.

**TRADE FAIRS: Leipzig.** As usual the spring fair of 1931 was held in Leipzig, Germany, during March 1-7. Foreign buyers showed willingness to buy only at the lowest conceivable price. It was generally believed that the fair served chiefly to accelerate the delayed fall in manufacturers' prices in accord with lower wages and lower costs of raw materials. The demand centered on medium priced products, not on lowest quality goods, and on novelties. The buyers believed novelties would get a more rapid turnover

and were eager to borrow working capital on as short terms as possible. About 95 per cent of 1772 important companies in all parts of Europe which exhibited in the Spring Trade Fair believed that abolition of all tariff barriers would materially benefit their own businesses. This large figure was obtained from a questionnaire sent out by the Institut für Konjunkturforschung, working in conjunction with the permanent office of the fair in an effort to derive a cross-section of opinion of the European business community.

The autumnal fair was held during August 30 to September 4. Notwithstanding the world's economic crisis never was competition to obtain business keener, for with a winter of many unemployed ahead and many industrial firms in difficulties the need for orders was urgent. A fortunate circumstance was that many dealers at the spring fair put off buying to see how the economic condition would tend, and their stocks accordingly were depleted. It may be said that business exceeded expectations, which somewhat offset the effects of the existing depression. The usual home demand bulked above foreign buying, and the domestic purchases reflected the continuing tendency of consumers to convert cash into goods. The Leipzig press alluded to the dearth of American buyers. A moderate price decline was noted at the autumn fair in comparison with the spring fair in March. The decline for textiles averaged 10 to 15 per cent, with a drop amounting to 20 per cent or more for certain items.

#### EXTENSION WORK IN AGRICULTURE.

See AGRICULTURAL EXTENSION WORK.

**FAILURES.** See BANKS AND BANKING; BUSINESS REVIEW; FINANCIAL REVIEW.

**FAIRS.** See EXPOSITIONS.

**FALKLAND, fôk'lând, ISLANDS.** A British crown colony in the South Atlantic 300 miles east of the Strait of Magellan, consisting of: East Falkland, 2580 square miles; West Falkland, 2038 square miles; including in each case various adjacent small islands, about 100 in number. In addition to these are South Georgia, with an estimated area of 1000 square miles, and other dependencies, including the South Shetlands, the South Orkneys, the Sandwich group, and Graham Land, together with all unknown seas and lands of the Antarctic Ocean extending as far as the South Pole. Title to the Falkland Islands also is claimed by Argentina. The estimated population in 1929 was 2375 (1041 females). Stanley, the capital and chief city, had 1000 inhabitants in 1929. Sheep raising, whaling, and seal hunting are the chief occupations. A total of 613,052 sheep were pastured on about 2,248,000 acres in 1929. In the same year 1,047,142 barrels of whale oil were exported and sealing operations yielded 9224 barrels of oil. Exports (1929) were valued at £5,433,579; imports, £787,894; revenue, £196,413; expenditure, £98,426. There is no public debt. Arnold W. Hodson was succeeded as Governor in 1931 by Sir James O'Grady, former Governor of Tasmania.

**FALLIÈRES, fâ'lyâr', CLEMENT ARMAND.** A French statesman and eighth president of the French Republic, died June 21, 1931, in Mézin, Lot-et-Garonne, where he was born Nov. 6, 1841. On completing his law studies in Paris he practiced for several years in Nérac, where he also acted as mayor and as councilor-general of the department of Lot-et-Garonne in 1871. In 1876



he was elected to the Chamber of Deputies, sitting with the Republican Left. After serving as Under Secretary in the Ministry of the Interior during 1880-82, he held that portfolio in the cabinet of Duclerc, which fell in 1883 on account of the Premier's disapproval of the policy of expelling the royalist pretenders to the throne. Fallières became Premier in February, 1883, but resigned less than a month later through a similar defeat in the Senate over the royalist question. Subsequently he was Minister of Public Instruction under Ferry (1883-85), of the Interior under Rouvier (1887), of Justice and Public Instruction under Tirard (1887-88, 1889), and of Justice again under Freycinet (1890-92). In 1890 he was elected to the Senate, and in 1899 became president of that body, being re-elected eight successive times.

In 1906 Fallières was the successful candidate of the Radical Republican and Socialist "bloc" for President of the Republic. On assuming office on February 18 he indicated his policy by grouping in the same ministry Poincaré, Moderate (*Finance*); Savrien, Radical (*Justice*); Clémenceau, Socialist Radical (*Interior*); and Briand, Socialist (*Public Instruction*), thus displaying a tendency towards the Left and a desire to give greater recognition to the working classes. In 1909 a separate Ministry of Labor was formed to which a Socialist was appointed. His administration was marked by the consolidation of relations with the future Allies of France by such agreements as the Anglo-French-Italian treaty maintaining the *status quo* in Ethiopia (1906) and the Anglo-French-Spanish treaty of mutual guarantee in the Mediterranean (1907), and by the Franco-German accord, following the Agadir crisis in southern Morocco in 1911, which confirmed the French right to establish a protectorate in that country. He was succeeded in the presidency in 1913 by Raymond Poincaré.

**FARADAY, MICHAEL, CENTENARY.** See CELEBRATIONS.

**FAR EASTERN AREA.** See SIBERIA.

**FARM ACTIVITIES.** See AGRICULTURE; AGRICULTURAL EXTENSION WORK; AGRICULTURE, UNITED STATES DEPARTMENT OF; COÖPERATION; DAIRYING; HORTICULTURE; LIVESTOCK, ETC.

**FARM BOARD.** See AGRICULTURE and UNITED STATES under *Administration*.

**FARM BUREAUS.** See AGRICULTURAL EXTENSION WORK.

**FARM COÖPERATIVES.** See AGRICULTURE.

**FARMERS' COÖPERATIVE ASSOCIATIONS.** See AGRICULTURE; COÖPERATION; DENMARK under *Production*.

**FARMERS' INSTITUTES.** See AGRICULTURAL EXTENSION WORK.

**FARMERS' NATIONAL GRAIN CORPORATION.** See AGRICULTURE.

**FARM LAND.** See SOILS.

**FARM LAND BANKS.** See FINANCIAL REVIEW.

**FARMS, FARMING.** See AGRICULTURE; AGRICULTURAL EXTENSION WORK; AGRICULTURE, U. S. DEPT. OF.

**FAROE ISLANDS, fār'ō; fār'ō.** A group of 21 islands belonging to Denmark and lying midway between the Shetlands and Iceland. Area, 540 square miles; population in 1930, 24,200. The capital is Thorshaven, with 2896 inhabitants. Sheep farming and fishing are the main occupations. Administration is under a prefect named

by the Danish King. There is a local parliament (Lagting) of 23 elected members, which elects one representative to the Danish Landsting (upper chamber). The people elect one deputy to the Danish Folketing (lower chamber). An autonomist movement has been gaining ground in recent years. The Faroe Lagting elected in 1927 included 10 autonomists, 10 unionists, and 2 Social Democrats. Prefect in 1931, H. Ringberg. See DENMARK.

**FASCISM.** See GERMANY, ITALY, FRANCE, AUSTRIA, and FINLAND under *History*.

**FAULKNER, fak'nēr, JOHN ALFRED.** An American theologian, died in Madison, N. J., Sept. 6, 1931. He was born in Grand Pré, N. S., Canada, July 14, 1857, and was graduated from Acadia College in 1878 and from Drew Theological Seminary in 1881, studying later at the Andover Theological Seminary and the universities of Leipzig and Bonn. Ordained to the ministry of the Methodist Episcopal Church in 1883, he held several pastorates in Pennsylvania, and at Binghamton, N. Y., and in 1897 became professor of church history at Drew Seminary. He was also Stone lecturer at the Princeton Theological Seminary in 1923. His works include *The Methodists* (in the *Story of the Churches* series, 1903); *Cyprian, the Churchman* (1906); *Erasmus, the Scholar* (1908); *Crisis in the Early Church* (1912); *Wesley as Sociologist, Theologian, Churchman* (1918); *Value of Study of Church History* (1920); *Modernism and the Christian Faith* (1921); *Miraculous Birth of Our Lord* (1924); and *Burning Questions in Historic Christianity* (1930). He also contributed to Hurst's *History of the Christian Church* (1897-1900) and to the NEW INTERNATIONAL ENCYCLOPEDIA.

**FEDERAL COUNCIL OF THE CHURCHES OF CHRIST IN AMERICA.** An organization established in 1908 by 28 Protestant denominations to act for them in matters of common interest. At the end of 1931 it included most of the major Protestant denominations of the United States, as follows: Northern Baptist Convention; National Baptist Convention; Free Baptists; Seventh-Day Baptists; General Convention of the Christian Church; Churches of God in North America (General Eldership); Congregational Churches; Disciples of Christ; Evangelical Church; Evangelical Synod of North America; Friends; Methodist Episcopal Church; Methodist Episcopal Church, South; African Methodist Episcopal Church; African Methodist Episcopal Zion Church; Colored Methodist Episcopal Church in America; Methodist Protestant Church; Moravian Church; Presbyterian Church in the United States of America; Protestant Episcopal Church; Reformed Church in America; Reformed Church in the United States; Reformed Episcopal Church; United Brethren in Christ; United Presbyterian Church of North America; United Lutheran Church in America. Of these, all were full and official members with the exception of the United Lutheran Church, whose relationship was consultative, and the Protestant Episcopal Church, whose national council co-operates in certain specified areas of work.

The total number of local churches included in the constituency of the Federal Council, according to the *Handbook of the Churches*, 1931, was 110,650; clergymen numbered 135,605, and the total communicant membership, 22,385,695.

The council, made up of members designated



by the several denominations to act for them, meets quadrennially, the last meeting having been held in Rochester, N. Y., in 1928. It has an executive committee, of about 100, meeting annually. An administrative committee, including one or more official representatives from each of the denominations, meets monthly in New York City. This committee includes cooperative agencies carrying on specialized work for the churches, among them being the Home Missions Council, the Council of Women for Home Missions, the Council of Church Boards of Education, the American Bible Society, the Student Volunteer Movement for Foreign Missions, and the International Council of Religious Education. The council also serves as a connecting link between the churches and great social agencies, such as the American Red Cross, child welfare organizations, and the U. S. Bureau of Public Health.

Special tasks of the council are carried on by a group of commissions. The commission on evangelism develops a united approach to the evangelistic work of the churches. The commission on the church and social service is the centre through which the churches deal unitedly with social issues, giving particular attention to the developing of better relations in industry. During 1931 it carried on an educational campaign in the field of Christian family life, including a study of birth control. The department of research and education issues a weekly information service bulletin in which contemporary social questions are discussed from the standpoint of Christianity; it also makes special studies from time to time, the outstanding one in 1931 being an inquiry into the public relations of the motion picture industry.

The commission on church and race relations furthers efforts of the churches in promoting coöperation and good will between the white and colored peoples in the United States. The commission on international justice and good will endeavors to mobilize the Christian forces to abolish war by building up effective international agencies for coöperation, devoting its attention during 1931 especially to the development of a project for good will between children of the United States and of the Philippine Islands, to the promotion of the reduction of armaments, and to support of American membership in the Permanent Court of International Justice. Other commissions of the council deal with Christian education, relations with religious bodies in Europe, religious work in the Canal Zone, army and navy chaplains, and relations with the Eastern churches.

In part, the programme of the council in carried on with funds contributed by individuals interested in the work and in part by appropriations from the various denominations. The official organ is the *Federal Council Bulletin*, issued monthly and furnishing general religious news. The council also sponsors a series of religious radio programmes, broadcast over a nation-wide hook-up of stations and including three Sunday afternoon addresses and a daily period of morning worship.

The officers of the council in 1930 were: President, the Rev. Francis J. McConnell, Methodist Episcopal bishop of the New York City area; chairman of the executive committee, the Rev. George W. Richards, president of the Theological Seminary of the Reformed Church in the United States, Lancaster, Pa.; chairman of the

administrative committee, the Rev. Luther A. Weigle, dean of the Yale Divinity School; chairman of the Washington committee, the Rev. William F. McDowell, Methodist Episcopal bishop of the Washington area; and chairman of the Western committee, the Rev. Herbert L. Willett. National offices are at 105 East Twenty-second Street, New York City, the general secretary being the Rev. Samuel McCrea Cavert. Offices also are maintained in the Woodward Building, Washington, and at 77 West Washington Street, Chicago.

**FEDERAL FARM BOARD.** See AGRICULTURE; HORTICULTURE; UNITED STATES under Administration.

**FEDERAL PRISONS.** See CRIME.

**FEDERAL RECEIPTS AND EXPENDITURES.** See PUBLIC FINANCE.

**FEDERAL RESERVE BANKS.** See BANKS AND BANKING; FINANCIAL REVIEW.

**FEDERAL TERRITORY.** An area of 940 square miles within the State of New South Wales, set aside in 1909 as the site of a Federal capital for the Australian Commonwealth. Estimated population Jan. 1, 1931, 8541, of whom about 6900 resided in the new capital city, Canberra. The Federal Government was moved to Canberra in 1927. See AUSTRALIA.

**FEDERATED MALAY STATES.** A group of Malay states under the protection of Great Britain, constituting a large part of the Malay Peninsula. They comprise:

State	Capital	Area	Population (1921)
Perak . . . . .	Taiping . . . . .	7,875	599,055
Selangor . . . . .	Kuala Lumpur . . . . .	3,195	401,009
Negri Sembilan . . . . .	Seremban . . . . .	2,573	178,762
Pahang . . . . .	Pekan . . . . .	14,006	140,064
Total . . . . .		27,649	1,324,890

The 1921 population included 510,821 Malays, 494,548 Chinese, 305,219 natives of India, 5086 Europeans, and 3204 Eurasians. The 1931 census population totaled 1,651,573. The principal cities are Kuala Lumpur, with 80,424 inhabitants in 1921, and Ipoh, with 36,806. Port Swettenham is the principal port. In 1929, there was a total of 1475 schools, with an attendance of 79,110.

**PRODUCTION.** Tin mining and the growing of rubber are the chief industries. The leading agricultural products are rice, coconuts, rubber, sugar, tapioca, pepper, gambier (a wood extract used in tanning and dyeing), and nipa palms. The forests produce resins, canes, and gutta-percha. Gold and coal are mined extensively; lead, iron, copper, tungsten, manganese, silver, zinc, plumbago, mercury, and arsenic deposits have been found.

**COMMERCE AND FINANCE.** Excluding bullion and specie, imports in 1930 were valued at £19,602,382 (£23,495,898 in 1929) and exports (including reexports) at £24,920,067 (£40,718,135 in 1929). The aggregate revenue in 1929 amounted to £9,543,285 (£11,159,815 in 1928) and expenditure to £9,877,114 (£12,717,161 in 1928). The public debt on Jan. 1, 1930, stood at £9,355,000. Drastic revenue declines accompanied the depression of 1930 and 1931. Revenues in 1930 were 65,560,800 Straits dollars, leaving a deficit of 16,909,000 dollars. On June 1, 1931, import duties were raised in an effort to increase revenue by 5,000,000 Straits dollars (1 Straits

dollar being equivalent to \$0.5678 U. S. at par).

**COMMUNICATIONS.** Railway mileage open for traffic in 1929 totaled 1114 miles and in 1930 46 miles of new line were under construction. All railways are government owned or controlled. A 328-mile line connecting Gemas, Johore, with Tumpat, Kelantan, was opened Sept. 5, 1931, after 23 years of construction. This provided through rail connections between Singapore and the east coast of the Malay Peninsula, and passed through the States of Pahang and Negri Sembilan. Cart roads surfaced with broken stone extended 2734 miles (1929) and there were 1818 miles of bridle roads and paths.

**GOVERNMENT.** The states are under British protection, with the Governor of the Straits Settlements (q.v.) as *ex officio* High Commissioner. There is a native ruler, assisted by a British Resident, in each of the four states. High Commissioner in 1931, Sir Cecil Clementi. See **BRITISH MALAYA.**

**FEDERATION OF LABOR, AMERICAN.** See **LABOR, AMERICAN FEDERATION OF.**

**FELLOWSHIPS.** See **UNIVERSITIES AND COLLEGES.**

**FENCING.** Miss Marion Lloyd, representing the Salle d'Armes Vince team of New York City, was the foremost woman fencer in the United States in 1931. This young woman won the Metropolitan foils championship for the fifth consecutive year, led her team to its second straight national team championship, and capped the year by leading an invasion of Europe by a team of United States women. The tour was successful from every point in the winning of matches, 36 events out of 51 being won. In one match Miss Lloyd defeated Miss Helene Mayer, of Germany, 1928 Olympic champion.

Lieut. George C. Calnan, U. S. N., who was third with the épée in the 1928 Olympics at Amsterdam, retained his national foils honors, in the tournament held at the Hotel Astor in New York in April. John R. Huffman, won the sabre honors and Miguel A. deCapriles, professor of economics at New York University, captured the épée crown. The fencers from West Point won the three-weapon as well as the épée championship at the Intercollegiates, and Columbia took the sabre and Harvard the foils titles. It was the first time in many years that Yale had not captured at least one team championship, although John F. Potter of Yale did win the individual foils honors. Haakon Gulbrandsen of Columbia won the individual sabre crown and Cadet Gustave Heiss of the Army the épée title. New York University won the women's intercollegiate team title and Miss Elizabeth Ross, of Cornell won individual honors with the foil.

**FERTILIZERS.** Due mainly to the low purchasing power of agriculture, the total consumption of fertilizers for the year in the United States was only about 75 per cent of the consumption in 1930, and apparently much of this amount was moved at a loss to the fertilizer industry. There was a sharp decline in production of fertilizers throughout the world which was accompanied in most quarters by a decline in wholesale prices. Price decline was especially marked in the nitrogen industry and all the countries engaged in production on a major scale noted a marked export reduction.

However the industry continued to take advantage of the rapid developments in the production of new fertilizers, especially the more

concentrated materials and was seeking more efficient and cheaper methods of production to offset the decline in prices. The perfection and use of new inorganic fertilizers and the gradual elimination of low grade fertilizers continued. According to the National Fertilizer Association the increased concentration of the fertilizer materials sold represented a considerable increase in plant food consumption. The researches and investigations again were concentrated largely on the development of new and cheaper manufacturing processes and the improvement of those already in use, the production of new fertilizer compounds, the development of new sources of raw materials, and the more efficient utilization of available fertilizers.

Progress continued in the development of synthetic fertilizer materials, especially in the fixation of atmospheric nitrogen. The trend in the industry was definitely toward the use of the direct synthetic process. The nitrogen fixation industry in the United States increased its capacity with the result, according to the Bureau of Chemistry and Soils, that it had become a thoroughly established and functioning producer of cheap nitrogen. The *Report of the Chief of the Bureau of Chemistry and Soils* for 1931 stated that probably the most important of the recent developments in fertilizer manufacture was the direct use of synthetic ammonia in fertilizer mixtures containing superphosphate. Continued progress was made in elucidating the factors that influence and determine the activity of catalytic substances in nitrogen fixation and in determining the mechanism by which ammonia catalysts function. The conditions for the synthesis of urea from ammonia and carbon dioxide were established and progress was made in the recovery of unconverted carbon dioxide and ammonia from the urea formed. Information of both scientific and industrial importance accumulated on the effects of various poisons on the platinum catalysts used in ammonia oxidation for the production of nitrate fertilizers.

Information also continued to accumulate as to how and under what conditions light can be utilized to radically modify and activate gaseous nitrogen. The supply of nitrogen produced by industrial processes continued to be but a small part of that constantly being fixed in the soil by natural agencies. Progress was made in elucidating the chemical mechanism by which lower forms of plant life in the soil are able to utilize and fix inert nitrogen gas, it being demonstrated by the Bureau of Chemistry and Soils that the first step in the process is brought about by an enzyme known as azotase. While the United States was still dependent in considerable measure upon imports for its nitrogen supply, the nitrogen fixation industry advanced to the point at which the United States would suffer only slight and temporary inconvenience if all imports of nitrogenous materials were stopped at any time according to the Bureau of Chemistry and Soils.

Agriculture continued to be the largest user of nitrogen and led also in the variety of forms used. The growth of the world's fixed nitrogen industry was even less marked in some quarters than during the previous year. Japan and the Netherlands, however, increased facilities for the production of ammonium sulphate whereas Germany curtailed the production of ammonium sulphate and expanded the production facilities for

synthetic nitrates to meet new export agreements, with France in particular. Countries formerly importing nitrogen became exporters and old established exporting nations lost trade in markets now served by home industries according to the Bureau of Foreign and Domestic Commerce. An attempt to erect a cartel of the European-Chilean producers failed. Imports of ammonium sulphate into both Germany and the United States showed appreciable gains during the year. An important factor affecting nitrogen imports was the attempt of certain synthetic nitrogen-producing countries to restrict importation through the imposition of tariffs and import licensing decrees. The most serious loss in the German position occurred in the sale of calcium nitrate and certain other synthetic nitrogenous products including urea.

An appreciable decrease occurred in potash sales during the early months of 1931, German and French exports especially being curtailed according to the U. S. Bureau of Foreign and Domestic Commerce. Potash imports into the leading fertilizer consuming countries registered sharp declines. Both the United States and Poland placed increased supplies of potash on world markets, the former exporting double the quantity of potassium chloride during the first eight months of 1931 than was shipped during the first eight months of 1930 and the latter tripling the quantity exported.

New important potash deposits were discovered in the Karaliuk district in Russia and the Russian potash industry planned an expansion to an annual production of one million tons. American agriculture was still largely dependent on foreign sources for potash. Although the domestic production for the year was essentially the same as for the preceding year and amounted to less than 20 per cent of the requirements of the country, several developments of the industry were initiated. The plant of the largest producer was in process of expansion and a new potash mine was opened in New Mexico which already was producing crude potash salt suitable for direct use as fertilizer. The crude salt is water soluble and adapted to refining by the simple methods used in the European potash industry. According to the Bureau of Chemistry and Soils the combined outputs of this mine and of the enlarged California plant, using natural potash borax brine, will go a long way toward meeting the needs of the country for potash.

Progress continued in the development of wet extraction methods of recovering potash from minerals such as alunite, a process having been perfected for the elimination of some of the impurities such as silica. Progress also continued in the development of blast furnace processes for the volatilization of potash from various minerals such as leucite. Electrical precipitation was used successfully in this method for the recovery of the potash salts evolved as finely divided particles in the furnace gases. The entire practicability of the method was indicated particularly when the furnacing of the leucite is combined with that of phosphate rock to yield both phosphoric acid and potash.

Other potash bearing minerals such as the greensands of New Jersey, Delaware, Maryland, and Texas and the shales of Georgia showed promise as sources of agricultural potash, the former on acid extraction yielding iron and

aluminum salts and absorptive silica as useful by-products.

The principal fertilizer consuming nations except the United States continued to import all or a large portion of their phosphate requirements. Production and exports of phosphates from the principal producing nations underwent a steady decrease during the year especially those from the United States, the Pacific Islands, the North African countries and Poland, and prices suffered a decline. The production of superphosphate in New Zealand developed steadily, however, and a large superphosphate plant was opened in Canada. The production and consumption of superphosphate in the United States during 1931 were considerably less than during 1930 although phosphoric acid continued to represent an item of expense in American fertilizer practice almost as great as nitrogen. Efforts were continued to develop methods for more economically converting phosphate-bearing minerals into suitable available fertilizer materials with the conservation of important by-products.

Studies of the complete chemical composition of the various grades and types of phosphate rock were completed by the Bureau of Chemistry and Soils and a basis thus provided for this work. The furnace extraction methods used in potash manufacture were applied successfully with minor variations to the production of phosphoric acid, thereby permitting the economical utilization of low grade phosphate rock for the production of highly concentrated materials. Critical studies were continued of methods for determining the various elements in phosphate rock and several improved methods, particularly for the determination of fluorine, were developed. Information of a fundamental character continued to accumulate on the chemical constitution, preparation, and properties of the complex calcium phosphate present in phosphate rock, bone, and superphosphates that have been treated with relatively large quantities of ammonia.

Additional evidence was secured of the probable feasibility of using dilute phosphoric acid and of mixtures of phosphoric acid and sulphuric acid in the manufacture of concentrated superphosphates. Fluosilicate by-products of phosphate production continued to offer possibilities as substitutes for arsenic compounds in the manufacture of insecticides.

Interest continued in the development of new and concentrated fertilizer materials, the more important of the recent developments being the direct use of synthetic ammonia in fertilizer mixtures containing superphosphates. The use of free ammonia in the manufacture of fertilizer mixtures has the advantage that it greatly improves the mechanical condition of the mixture, prevents rotting of the bags, and reduces freight and handling charges. About 100 fertilizer plants in the United States were equipped to use either anhydrous or aqua-ammonia directly in the ammoniation of superphosphate.

Work was continued on the preparation of potassium nitrate by treating solid potassium chloride with oxides of nitrogen. The U. S. Department of Agriculture and the State Agricultural Experiment Stations continued the experimental comparison of concentrated fertilizers with fertilizers of ordinary strength. The development of special fertilizer distributing machines and methods adapted to the concentrated

materials also continued and a method of measuring the drillability of fertilizers was perfected which permits the more accurate calibration of fertilizer distributors by manufacturers. The Bureau of Chemistry and Soils also demonstrated that at least 10 per cent saving in fertilizer can be realized by uniform distribution in the field. Marked improvements took place in the technique of chemical analysis for fertilizer control. A strong desire and need for greater uniformity in the enforcement of fertilizer control laws developed, and the fertilizer control officials of eight northeastern States agreed on a uniform method of procedure in the registration of fertilizers and administration of fertilizer laws.

Fertilizer consumption in the United States during 1931 was estimated at approximately 6,000,000 tons or 25 per cent less than during 1930. The United States was again below European countries in the profitable use of fertilizers. According to the Bureau of Foreign and Domestic Commerce, Germany, the United States, and France, in the order named were the leading world consumers. These countries and Italy, Japan, Spain, the Netherlands, Great Britain, Poland, and Belgium accounted for 80 per cent of the world consumption. Expressed on an average basis of fertilizer used on each acre of arable land, the Netherlands, Belgium, and Germany, in the order named, were the chief users of fertilizers, the United States being outranked by a dozen European countries, Japan and Egypt.

**BIBLIOGRAPHY.** Sources of information regarding progress in the production and use of fertilizers are numerous. Current progress is recorded in *The Fertilizer Review* published by the National Fertilizer Association at Washington, D. C., and in *The American Fertilizer* published in Philadelphia, Pa. Statistics of the fertilizer trade and industry are found in reports of the Bureau of Foreign and Domestic Commerce, especially in the weekly *Commerce Reports*, and of the Census Bureau of the Department of Commerce. Other publications of interest are *Fertilizer Facts* published by the National Fertilizer Association (Washington, D. C., 1931), *New Fertilizer Materials* by A. R. Merz, U. S. Department of Agriculture Circular No. 185, Washington, D. C., 1931), *Added Recovery by Hydraulic Sizing of Fine Material in the Land Pebble Phosphate District of Florida*, by R. G. O'Meara, U. S. Department of Interior, Bureau of Mines (Washington, D. C., 1931), *Flotation of Low Grade Phosphate Ores*, U. S. Department of Interior, Bureau of Mines Circular No. 3105 (Washington, D. C., 1931), and G. W. Stocking, *The Potash Industry, A Study in State Control* (New York, 1930).

**FERVANITE.** See MINERALOGY.

**FESTIVALS.** See MUSIC.

**FICTION.** See FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LITERATURE, ENGLISH AND AMERICAN; PHILOLOGY, MODERN; SPANISH-AMERICAN LITERATURES; SPANISH LITERATURE.

**FIDELITY AND SAFETY INSURANCE.** See INSURANCE.

**FIELD ATHLETICS.** See ATHLETICS, TRACK AND FIELD.

**FUJI, fējē, ISLANDS.** A British Crown Colony, comprising a group of about 250 islands in the South Pacific, of which some 80 are inhabited.

Area, 7083 square miles; population on Dec. 31, 1929, including Rotuma, estimated at 180,005 (157,266 in 1921). Of the 1929 population, 91,711 were Fijians, 73,121 East Indians, 3281 half-castes, 4726 Europeans, 1464 Chinese, and 5632 of other races. The capital, Suva, on the south coast of Viti Levu, had 1741 inhabitants in 1921.

Bananas, coconuts, maize, sugar cane, tobacco, rice, pineapples, cotton, and timber are the principal products. Trade in 1930 showed the effects of the world economic depression. Imports were valued at \$5,933,160, compared with \$7,147,000 in 1929, and exports at \$7,224,446, compared with \$8,642,894 in 1929. Of the 1930 imports, Australia supplied 37 per cent; United Kingdom, 29 per cent; New Zealand, 9 per cent; and the United States, 8 per cent. Revenue in 1929 amounted to £677,944 and expenditure to £642,124. The public debt on Dec. 31, 1929, stood at £846,632. Steamers entering the ports in 1929 numbered 178 of 696,171 tons. A private narrow-gauge railway runs from Tavua 120 miles to Sigatoka. Construction of a trans-insular road on the island of Vitilevu between Tailevu and Lau at a cost of \$457,450 was authorized in 1930. Executive power is vested in a governor, assisted by an executive council and by a legislative council consisting of partly nominated and partly elected European, Indian, and native members. The Governor is also High Commissioner for the British islands of the western Pacific. Governor in 1931, Sir Murchison Fletcher (appointed 1928).

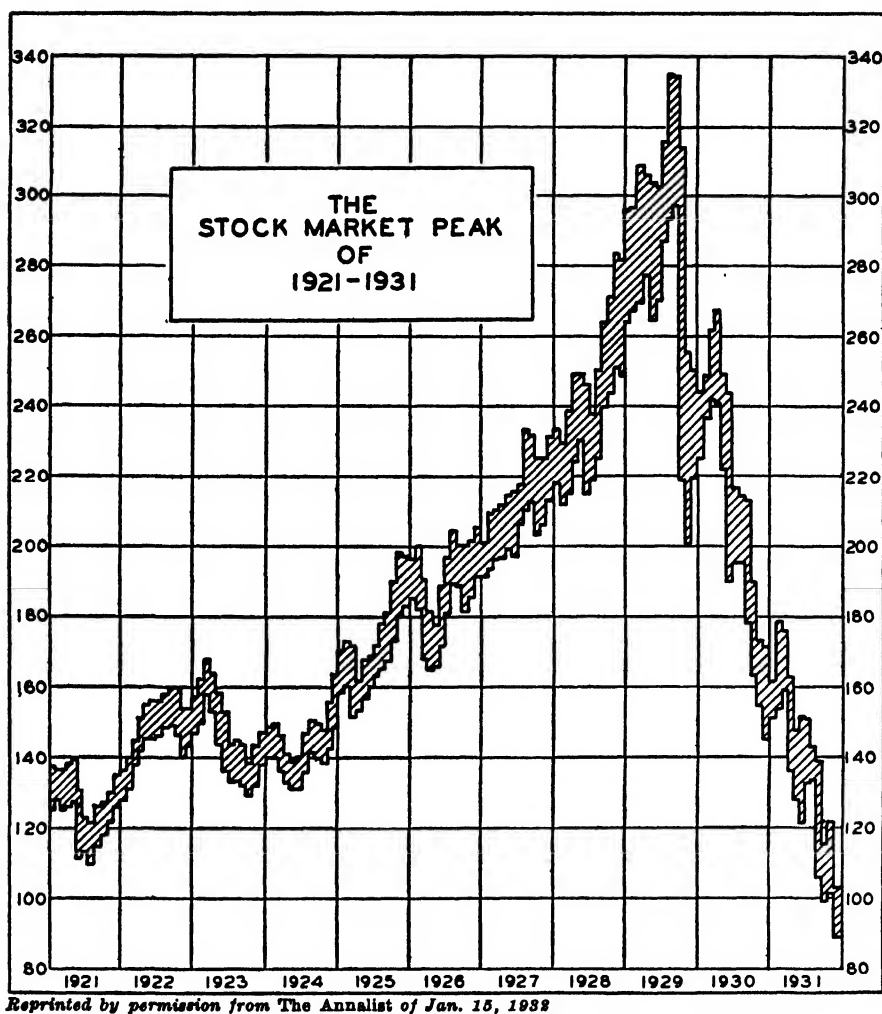
**FILMS.** See MODERN PICTURES; PHOTOGRAPHY.

**FILTRATION.** See SEWERAGE AND SEWAGE TREATMENT.

**FINANCE.** See PUBLIC FINANCE and sections under *Finance* for each country.

**FINANCIAL REVIEW.** The year 1931 in financial history, was notable as a period of remarkable, even unprecedented, changes. The disturbances consequent upon the World War had been regarded by many as having run their course before 1925, and the years subsequent to that date were often characterized as a "new era," in which economic laws had been altered or, as some put it, "suspended." The result had been financial conduct of a dangerous sort, accompanied by banking mismanagement which disregarded the familiar canons of commercial bank operation, with inflation and overtrading as a consequence. When collapse came, in 1929, it was asserted, both by banking and political authorities, that the depression consequent upon the break-down would not last long; but would be shortly overcome, and would be followed by new prosperity. Of course, these predictions were conditioned upon the maintenance of the existing monetary and financial machinery without further interruption to its functioning, and particularly upon the continuation of the various countries of the world in much the same general state of sloveny that had been attained since the war—particularly with an avoidance of any renewal of their currency difficulties.

The year 1931 brought an overturning of all these expectations and theories; and involved in its development, the collapse of two of the leading nations—Germany and Great Britain (from the financial standpoint), while in many others financial and banking conditions took an alarming turn. As has been usual in similar circumstances, during past years, these changes



**THE ANNALIST WEIGHTED AVERAGE OF 33 INDUSTRIAL STOCKS**  
 Prior to January, 1930, the Axe-Houghton Weighted Average of 20 Industrial Stocks

were of a nature to affect most profoundly the financial situation, and the financial institutions of the various countries, while, of course, exerting an important reflex effect upon commercial and business institutions, and gradually extending itself throughout every branch of trade and commercial occupation. The decline of the year, although thus conspicuously financial in nature, had come gradually to influence every branch of business. During the 12 months, the average of business activity, as shown by various indexes, fell off by about one-fourth of its total at the opening of the year, and tended generally, to approximate something like two-thirds of normal; although, in some specially-depressed branches such as steel, mill activity was as low as one-third, while in others such as textile production it was as high as three-fourths. Financially, the volume of sales of stocks held up moderately; but this was due to the heavy disposal of holdings in times of semi-panic, and the steady short selling that went on throughout the year, and so tended to swell the returns.

**STOCK EXCHANGE ACTIVITY.** Total transactions on the New York Stock Exchange for the year 1931, reached a total of 576,921,426 shares as against sales in 1930 amounting to 810,626,276 and in 1929, 1,124,990,980. Total bond sales, on the other hand, amounted to \$3,075,347,100 as against \$2,779,009,350 a year earlier, and \$3,020,316,700 in 1929. The number of days on which remarkable turnover occurred was smaller than usual, yet there were several periods in which the average daily turnover reached approximately 3,000,000 shares daily for as much as a week at a time.

Much of the selling, however, as in the preceding year, was for the purpose of realizing; so that it was not profitable to financial houses. In fact, the number of retirements from business on the New York Stock Exchange, was of record-breaking proportions, with several failures of substantial size, while the value of a seat, although never as low as during the preceding year, was at the close of the twelfth month, only about \$125,000.

Three general periods of stock trading history during the year may be recognized. The first covered practically the first five months of the year; and was, on the whole, a period of moderate revival in business activity, with improving indications in many directions. These conditions were succeeded by a short period of doubt, with conflicting tendencies, and some effort to support the market against the bad news from Germany. President Hoover's call for a moratorium in favor of Germany led to the bidding up of stocks. This preliminary movement was followed by the real second movement of the year, a partial collapse, which lasted until the opening of October; and was succeeded by effort at recovery, centring around the establishment of the National Credit Corporation by a group of leading bankers. This then led into a decisive downward movement, which continued with little intermission until the close of the year, when new readjustments were attempted.

Ever since the opening of the panic, there had been strong belief on the part of many that a time might shortly arrive at which security prices would turn upward, and that at that moment there would be opportunity to purchase heavily, and thus insure profits for the future. On various occasions, not a few were of opinion that such a moment had actually arrived, and hence the disposition at such times to buy freely of stocks. During the first of the periods just referred to, there was much purchasing of this description; and on the whole considerable warrant for it, had not international conditions proven so unfavorable. But the breakdown of Germany, the appearance of dangerous bank failures on a large scale both in that country and in Austria, and the development of hazardous prospects throughout Europe, altered the outlook materially, and brought about a new attitude of mind.

During the second period, which opened at midyear, the hopefulness that grew out of the belief that a moratorium would save Germany from disaster, was rudely shattered; and was followed by gradual development of difficulties in Great Britain, partly the result of the heavy advances that had been made to German banks by British financiers, partly the outcome of conditions in Britain herself which had long been coming to a head and which now threatened the collapse of the financial machinery of the state. The result was the decision of Britain to suspend, for the present, the exportation of gold—a step which was tantamount to the abandonment of the gold standard of value. This step not only inflicted immense losses upon all foreigners who had funds in Great Britain, since sterling at once sank by about 20 per cent of its value, and later suffered a much larger recession, but it also caused an impairment of confidence which steadily spread throughout all the more important countries of the world.

In the United States, the consequence was a decisive selling of stocks on a large scale, which was gradually accompanied by selling from all over the world. Prices receded regularly and markedly; and, when it appeared later in the summer, that foreigners were drawing away their gold holdings in the United States, alarm naturally developed among many classes. The withdrawals grew to the proportions of a "run" on Federal Reserve banks, in which foreigners withdrew, during a period of about six weeks, between the latter part of September and the

end of October, some \$714,000,000 in gold, while domestic hoarding of currency (and often of gold) began to increase, and reached by the middle of autumn proportions generally represented by estimates of about \$1,000,000,000 or higher. Meantime, bonds, which had been strong throughout the early part of the year, owing to the demand that came from former stockholders, who had shifted their investments into bond form, began to suffer after midyear. By autumn, bond values had lost a substantial fraction of their former amount, and by the beginning of November, they were in many cases from 40 to 60 per cent below their values of the spring. During the third and last period of the year, from the opening of October onward, heavy selling, hoarding, and tax-realization combined to bring prices to the lowest levels of the period, with an average value for 50 selected stocks which had fallen from 173.07 on February 24 to 87.61 on December 17, while bonds, which had ruled at 85.80 in January were 59.85 in December (average of 40 high grade bonds).

The banks which had opened the year with a definite policy of security loan reduction had continued this plan during the early months of 1931; and before July had brought the level of such security loans well toward the level which most authorities had been disposed to think of as "normal." As bank failures, however, tended to increase; and, as the securities they owned were thrown upon the market, along with issues which had been held as protection for loans, the reduction of security loans became more rapid, and during the second half of the year the volume of brokers' loans was steadily cut until it reached a level not above \$600,000,000 during the last two weeks of December—an amount lower by far than any that had been noted for many years, even prior to the period of official reports on that topic.

At the same time, the total of security loans to all persons was reduced by about \$1,000,000,000 to approximately \$5,600,000,000 at the close of the year (reporting member banks) or about the same level that had existed in 1926. The fact that the banks, however, increased their investments by about \$600,000,000 during the year, indicated that a part of the gain made by the liquidation of security loans had been cancelled, and that the banks thus continued in a partly "frozen" condition.

Meantime, the speculative use of bank credit for supporting the prices of commodities had been reduced. Commodity prices had continued their downward drive, and at the close of the year few of them had shown any recovery. There had been, during the autumn, a short period of feverish up-swing, in wheat and other grains, and in silver, due to obscure causes, but partly, it would seem, the outgrowth of threatened war in the Orient. During that time, some indications of advance in speculation had occurred, but in the main banks had begun to manifest an almost morbid desire to maintain themselves in a liquid condition; and had been disposed to refrain from any such new commitments. The year, in these circumstances, certainly witnessed, on the whole, a reduction in the quantity of goods held in store on bank credit, and a corresponding improvement in the situation of the banks as affected by speculation in goods.

**NEW ISSUES.** With the market in turmoil and with investors generally uncertain as to what to



expect, there was little favorable opportunity for the placement of new capital obligations. Accordingly, the new issue business at times sank away to little or nothing, the trade being mostly in necessary renewals and refundings or in state, government, or other public bonds which could be assured an exceptional market.

The accompanying table affords a compilation of the outstanding facts in the situation.

there was a slow general movement of the metal into the country. During the early months of the year, this continued but at midyear it was thought necessary by Federal authorities with considerable reluctance to establish a large credit in favor of the German Reichsbank, and this was later followed by a still larger credit on behalf of the Bank of England. The two, taken together, offset, in large measure, any tendencies

SUMMARY OF NEW FINANCING  
[Exclusive of refunding issues. In millions of dollars]

Year and month	Total, domestic and foreign	Domestic issues <sup>a</sup>				Foreign issues <sup>b</sup>
		Total <sup>c</sup>	Government	Bonds (and notes)	Stocks	
1922	4,895	3,631	1,072	1,845	570	764
1923	4,440	4,019	1,043	1,989	659	421
1924	5,557	4,588	1,380	2,200	829	969
1925	6,205	5,129	1,356	2,452	1,152	1,076
1926	6,282	5,157	1,312	2,667	1,087	1,125
1927	7,489	6,152	1,423	3,182	1,460	1,337
1928	7,979	6,728	1,387	2,878	2,900	1,251
1929	10,005	9,334	1,398	2,068	5,868	671
1930	6,918	6,013	1,441	2,980	1,503	905
1931—January	420	334	49	235	45	90
February	211	202	119	48	27	9
March	961 <sup>d</sup>	959 <sup>d</sup>	685 <sup>d</sup>	250	9	2
April	837 <sup>d</sup>	794 <sup>d</sup>	526 <sup>d</sup>	166	102	43
May	852	833	172	132	29	19
June	574 <sup>d</sup>	535 <sup>d</sup>	429 <sup>d</sup>	100	6	39
July	228	226	96	113	2	2
August	200 <sup>d</sup>	200 <sup>d</sup>	154 <sup>d</sup>	34	12	...
September	725 <sup>d</sup>	701 <sup>d</sup>	595 <sup>d</sup>	94	12	24
October	45 <sup>d</sup>	45 <sup>d</sup>	16 <sup>d</sup>	14	4	...
November	161	161	105	26	24	...
December	139	139	53	47	38.8	...

<sup>a</sup> Source: *Commercial and Financial Chronicle*.

<sup>b</sup> Issues publicly offered; annual totals are as finally reported by Department of Commerce; monthly figures are as compiled currently and are subject to revision.

<sup>c</sup> Includes issues of Federal land banks and Federal intermediate credit banks, not shown separately.

<sup>d</sup> Includes Treasury issues (exclusive of refunding) as follows: March, \$408,925,000; April, \$425,404,000; June, \$310,826,000; August, \$80,042,000; September, \$483,872,000; October, \$779,000.

**MOVEMENT OF GOLD.** Although the foreign balance of the United States had fallen off materially, as international trade declined during the years 1930 and 1931, it was at all times favorable up to the later months of 1931, and there was never any reason for an outward movement of gold. Excessively low discount rates established by Federal Reserve Banks and maintained by them until the late autumn of 1931, tended to keep gold from flowing to the United States, yet

to the shipment of gold to the United States for the purpose of building up investment balances in that country, and gold importation came practically to a stop after midyear.

Doubt and lack of confidence soon led to a slow withdrawal of the metal, which deepened soon after the determination of Great Britain to suspend the export of gold. Many foreign holders commenced to withdraw their balances, and as a result a sharp outward movement set in. This

ANALYSIS OF CHANGES IN MONETARY GOLD STOCK  
[From Federal Reserve Bulletin]

Month	Gold stock at end of month	Increase in stock during month	Analysis of changes		Domestic production, etc. <sup>b</sup>
			Net gold import	Net release from ear- mark <sup>a</sup>	
1931—January	4,843	49.4	34.4	11.0	3.1
February	4,685	22.0	16.1	2.5	3.3
March	4,697	32.0	25.6	3.0	3.3
April	4,726	29.7	49.5	— 7.5	— 13.3 <sup>c</sup>
May	4,798	72.4	49.6	4.0	16.8 <sup>c</sup>
June	4,956	158.0	63.8	92.3	1.9
July	4,949	— 6.6	19.5	— 29.7	3.6
August	4,995	45.7	57.5	— 16.0	4.2
September	4,741	— 254.3	20.6	— 279.1	4.2
October	4,292	— 448.4	— 337.7	— 107.6	— 3.1
November <sup>d</sup>	4,412	119.4	86.7	26.3	4.4
December	4,461	47.1	54.7	— 22.9	15.4
Total (12 mos.) <sup>e</sup>	.....	— 132.1	143.1	— 320.8	45.6

<sup>a</sup> Gold released from earmark at Federal reserve banks less gold placed under earmark.

<sup>b</sup> This figure, derived from preceding columns, represents the excess of domestic production over nonmonetary consumption of gold—chiefly consumption in the arts. In any given month, however, it may be predominantly affected by the fact that on the final day of the month (a) gold bullion or foreign gold coin recently imported may not yet have reached a reserve bank or the Treasury, and (b) gold bullion recently withdrawn from stock for export may not yet have been actually exported. The figures are subject to certain unavoidable inaccuracies in official reports of gold imports and exports.

<sup>c</sup> \$15,649,000 of gold bullion imported on Apr. 30 from France was not purchased by the New York Assay Office until May 1.

<sup>d</sup> Preliminary figures.

movement eventually increased to so large an extent that, toward the latter part of October, it settled down to the proportions of a run, foreign investors selling their securities and withdrawing the proceeds in gold. These sales having failed to cause suspension, the run gradually decreased in intensity, and there was a recovery of gold. See GOLD.

An understanding was arrived at by the Federal Reserve authorities with the Bank of France whereby that institution ceased its calls for gold and agreed to reinvest its balances to a large extent, with adequate collateral security. The consequence was a suspension of the outward gold movement to Europe at least in the main. At the same time, threatened war in the Orient led to large shipments of gold from Japan to the United States, to form a base for the establishment of war material purchases and credits. During the later months of the year, the fears of a suspension of the gold standard in the United States were temporarily dissipated, and gold resumed its net inward movement with results as shown in the table on page 304.

**INTERNATIONAL BALANCE.** The balance of trade between the United States and other countries had been seriously disturbed ever since the coming on of the panic of 1929, but had on the whole been able to maintain itself with a surplus so far as the United States was concerned, although both imports and exports had greatly fallen. As the year advanced the absence of foreign trade financing whether for import or export naturally tended to interfere very seriously with shipment of American goods to other countries. Many such

countries had relied largely upon the support of American banks in their purchases of the goods of the United States and as the decline of long term financing was followed by withdrawal of credits the trade soon came to be almost without support. The selling of long-term foreign bonds had become impossible at a much earlier date and the trade was thus left without support, except such as remained from unexpended balances of foreign credits. Only two or three of the South American countries retained their banking connections and were able to continue a normal state of trade relationship with the United States. In these circumstances it was inevitable as the year advanced, that there should have been a falling off of transactions so that the volume of business passing between the United States and other nations was continuously reduced.

The export returns of the United States, by months, for three years compare as follows (000 omitted):

	1931	1930	1929
January .....	\$ 249,598	\$ 410,849	\$ 488,023
February .....	224,346	348,852	441,751
March .....	235,901	360,549	489,851
April .....	215,077	331,732	425,264
May .....	203,970	320,034	385,013
June .....	187,077	294,701	398,186
July .....	180,725	266,761	402,861
August .....	164,817	297,765	380,564
September .....	181,000	312,207	437,163
October .....	205,000	326,896	528,514
November .....	193,000	288,978	442,254
December .....	184,000	274,856	426,551
Total .....	\$2,424,183	\$3,843,180	\$5,240,995

ESTIMATED CASH DEALINGS OF THE UNITED STATES WITH FOREIGNERS DURING 1930: A  
CONDENSED BALANCE OF PAYMENTS  
[In millions of dollars]

Classes of transactions (gross or net)	Cash claims against foreigners	Cash claims against Americans	Net
<b>COMMODITY TRANSACTIONS</b>			
Merchandise, silver, etc. (as adjusted for present purposes) .....	4,097	3,839	+ 758
<b>MISCELLANEOUS INVISIBLE TRANSACTIONS</b>			
Freight			
Ocean and Great Lakes .....	106	201	- 95
Canadian-American railway traffic, etc. ....	49	50	- 1
Tourist expenditures:			
Canada .....	86	266	- 180
Mexican border .....	18	56	- 43
Overseas, including West Indies (Canada excluded) ..	72	489	- 417
Deduct American passage payments to American vessels ..	28	...	+ 28
Foreign passage payments to American vessels .....	21	...	+ 21
Interest on all private investments (long-term and short-term) ..	904	310	+ 594
War-debt receipts .....	241	...	+ 241
United States Government transactions (except war-debt receipts) ..	46	127	- 81
Immigrant remittances .....	33	199	- 166
Charitable and missionary contributions .....	...	49	- 49
Other items (insurance, motion-picture royalties, advertising, cable charges, patents, Canadian electric power, etc.) .....	165	158	+ 7
Balance of miscellaneous invisibles .....	...	...	- 141
<b>NEW PRIVATE LOANS, INVESTMENTS, AND DEPOSITS</b>			
Net increase in American long-term investments abroad (par value) .....	...	406	- 406
Deduct bond discounts and underwriters' commissions .....	66	...	+ 66
Net cash payments for above .....	...	...	- 340
Net increase in long-term investments in the United States by foreigners .....	50	...	+ 50
Reduction in net debt of American banks to foreigners .....	...	448	- 448
Net export of capital .....	...	...	- 733
<b>OTHER BALANCING ITEMS</b>			
Gold shipped .....	116	396	- 280
Gold earmarked .....	26	24	+ 2
American paper currency exported (net) .....	20	...	+ 20
Net currency settlement .....	...	...	- 258
Discrepancy due to inaccurate figures .....	(*)	(*)	- 374

\* In the unabridged table the credits and debits were respectively 8,338 and 8,712 millions; so the "international turnover" in 1930 was 17,050 millions against 20,185 in 1929.

## ESTIMATED BALANCE OF INTERNATIONAL PAYMENTS OF THE UNITED STATES: CALENDAR YEARS 1929 (REVISED) AND 1930 (SUBJECT TO REVISION)

[In millions of dollars]

Classes of international transactions	1929 (revised)			1930		
	Credits	Debits	Balance	Credits	Debits	Balance
<b>COMMODITY TRADE</b>						
Merchandise exports and imports (as reported) . . . . .	5,241	4,399	+ 842	3,848	3,061	+ 787
Silver . . . . .	83	64	+ 19	54	43	+ 11
Bunker coal and oil sales to foreign vessels . . . . .	46	11	+ 35	44	10	+ 34
Ship chandling, ship repairs, and tonnage dues . . . . .	54	37	+ 17	46	31	+ 15
Sale of vessels . . . . .	3	10	- 7	8	8	.....
Unrecorded parcel-post shipments . . . . .	20	20	.....	20	20	.....
Adjustments for differences in year-end lags . . . . .	....	44	- 44	87	....	+ 87
Other merchandise adjustments . . . . .	....	214	- 214	....	171	- 171
Total commodity trade (as adjusted) . . . . .	5,447	4,799	+ 648	4,097	3,339	+ 758
<b>MISCELLANEOUS INVISIBLE ITEMS</b>						
Freight payments and receipts:						
Ocean and Great Lakes traffic . . . . .	142	208	- 66	106	201	- 95
Railway earnings on transit shipments, etc. . . . .	64	43	+ 21	49	33	+ 16
Foreign inland freight on United States imports . . . . .	....	21	- 21	....	17	- 17
Tourist expenditures:						
Canada . . . . .	94	296	- 202	86	266	- 180
Mexican border . . . . .	7	38	- 31	13	56	- 43
Overseas, including West Indies (Canada excluded) . . . . .	82	534	- 452	72	489	- 417
Ocean-borne passenger traffic (by "substitution") * . . . . .	47	....	+ 47	49	....	+ 49
Earnings of long-term private investments:						
Received from American investments abroad . . . . .	876	....	+ 876	826	....	+ 826
Paid to foreign investors in the United States . . . . .	....	270	- 270	....	237	- 237
Earnings of short-term interest and commissions:						
Collected from foreigners abroad . . . . .	108	....	+ 108	78	....	+ 78
Paid to foreigners abroad . . . . .	....	144	- 144	....	73	- 73
Immigrant remittances . . . . .	24	247	- 223	33	199	- 166
War-debt receipts of United States Treasury:						
Interest . . . . .	150	5	+ 145	164	....	+ 164
Principal . . . . .	62	....	+ 62	77	....	+ 77
Other United States Government receipts, United States Government payments, foreign representations here	60	152	- 92	46	127	- 81
Missionary and charitable contributions, etc. . . . .	....	49	- 49	....	49	- 49
Motion-picture royalties . . . . .	70	6	+ 64	50	6	+ 44
Insurance transactions . . . . .	70	70	.....	70	70	.....
Minor miscellaneous items:						
Imports of Canadian electric power . . . . .	....	4	- 4	....	4	- 4
Newspapers and periodicals . . . . .	5	3	+ 2	5	3	+ 2
Patents and copyright sales and royalties; legal fees . . . . .	15	15	.....	15	15	.....
Advertising . . . . .	5	50	- 45	4	45	- 41
Cablegrams, radiograms, and telephone services . . . . .	27	19	+ 8	21	15	+ 6
Total of miscellaneous items . . . . .	1,903	2,174	- 271	1,764	1,905	- 141
<b>MOVEMENT OF PRIVATE LONG-TERM CAPITAL</b>						
New American investments abroad:						
1. Foreign securities publicly offered here (par value) * . . . . .	....	696	- 696	....	1,082	- 1,082
2. Deduct for refunding to Americans . . . . .	35	....	+ 35	182	....	+ 182
3. Deduct for American underwriters' commissions . . . . .	15	....	+ 15	23	....	+ 23
4. Deduct for securities issued below par . . . . .	11	....	+ 11	43	....	+ 43
5. Add new direct investments abroad by Americans . . . . .	....	335	- 335	....	253	- 253
6. Add foreign stocks and bonds bought from foreigners in small lots . . . . .	....	578	- 578	....	360	- 360
Reductions of previous American investments abroad:						
7. Bond-redemption payments received from foreigners . . . . .	166	....	+ 166	123	....	+ 123
8. Sinking-fund payments received from foreigners . . . . .	110	....	+ 110	127	....	+ 127
9. Resale to foreigners of direct investments . . . . .	58	....	+ 58	51	....	+ 51
10. Foreign stocks and bonds resold to foreigners . . . . .	449	....	+ 449	806	....	+ 806
New foreign investments in the United States:						
11. Direct investments . . . . .	31	....	+ 31	19	....	+ 19
12. American stocks and bonds sold to foreigners . . . . .	1,585	....	+ 1,585	941	....	+ 941
Reductions of previous foreign investments in the U. S.:						
13. Redemption and sinking-fund payments to foreigners . . . . .	....	77	- 77	....	77	- 77
14. Purchase of American properties from foreigners . . . . .	....	15	- 15	....	....	.....
15. American stocks and bonds bought back from foreigners . . . . .	....	1,078	- 1,078	....	833	- 833
Total of private, funded-capital items . . . . .	2,460	2,779	- 319 °	2,315	2,605	- 290 °
<b>MOVEMENT OF SHORT-TERM CAPITAL</b>						
Net change in international banking accounts, as revealed by questionnaire . . . . .	13	....	+ 13	....	443	- 443
<b>PURE CASH ITEMS</b>						
Gold shipments . . . . .	117	292	- 175	116	396	- 280
Changes in earmarked gold, by months . . . . .	128	73	+ 55	26	24	+ 2
United States paper currency . . . . .	....	....	.....	20	....	+ 20
Total of gold and currency . . . . .	245	365	- 120	162	420	- 258
Grand total, all items * . . . . .	10,068	10,117	- 49	8,338	8,712	- 374 °

\* Largely a deduction from American tourist expenditures.

° Issued outside our balance-of-payment area. Usually statistics of public offerings include those of all Territories and possessions; although Hawaii, Porto Rico, and Alaska are parts of our customs area.

° Estimated net export of long-term private capital.

° The total of the first two columns of each year is the "international turnover."

° Preliminary discrepancy, due to net errors and omissions.

The import returns of the United States, by months, for three years compare as follows (000 omitted) :

	1931	1930	1929
January .....	\$ 183,148	\$ 810,968	\$ 868,897
February .....	174,946	281,707	369,442
March .....	210,202	800,460	883,818
April .....	185,706	807,824	410,666
May .....	179,694	464,688	409,149
June .....	173,455	250,343	353,403
July .....	174,480	220,558	352,980
August .....	166,670	218,417	369,358
September .....	171,000	226,852	351,304
October .....	169,000	247,367	391,063
November .....	150,000	203,593	338,472
December .....	153,000	208,680	300,809
Total .....	\$2,090,107	\$3,060,908	\$4,899,861

Low level was reached toward the end of the year, when the previously favorable balance was at least temporarily reversed becoming unfavorable and with an apparent prospect of continued unsettlement, due to the circumstance that so many countries had by that time quite definitely put into effect policies of trade discrimination against the United States. The reprint, on pages 305 and 306, of the United States international balance sheet, published by the Department of Commerce, furnishes the same review of the situation for the year preceding that had been supplied from the same source in former years.

**FOREIGN EXCHANGE.** The situation in foreign exchange showed little of very great moment during the early months of the year as is indicated by the accompanying table. As spring advanced, however, anxiety began to be felt with regard to the stability of certain currencies and this anxiety began to be rather acute from early in June onward. A good deal of support was furnished to the currencies of various countries, however, and before things had gone far in the way of depreciation they were quickly brought back again. After the first of July, however, conditions naturally changed. The German mark tended to fall off as a result of the moratorium although the strict measures of control of foreign exchange adopted by the Reichsbank quickly restored a technically stable condition. Great Britain's giving up of the gold standard during September after a vigorous struggle to support the exchange at par by means of large credits obtained both in the United States and in France brought a shift from a gold to a paper standard, with corresponding depreciation of values continuous from then on to the close of the year. Low point was reached early in December with a figure of about \$3.25 after which there was an increase on a small scale to a closing figure in the neighborhood of \$3.45. In South American exchange great fluctuations were witnessed, due to the fact that several South American countries found it necessary to repudiate their bonds and in some cases to take measures equivalent to the suspension of the gold standard. In all eight countries, including those of Europe as well as South America, surrendered the gold basis while Japan late in the year forbade the export of gold. The result was to make exchange quotations upon all of these countries unstable and at times highly irregular. The latter part of the year showed little or no progress toward any better condition.

**COMMODITY PRICES.** The weakness of commodity prices during the year 1930, was continued during 1931, and toward the close of the period seemed to have reached its extreme. During the

late weeks of the autumn, there had been a flurry of advance in grains and in silver which seemed likely to have force sufficient to carry the whole price level in these ranges of goods to something like a normal basis. The flurry was, however, short lived and there was no definite resumption of it, although from time to time some sporadic advances were observable. There was no indication of any influence exerted on the part of credit, with regard to the raising or strengthening of the general level of values, but conditions appeared to rest largely upon factors of supply and demand, save in so far as there might be occasional success in bringing about an effective limitation of output. In these circumstances, the general level of wholesale prices receded until at the close of 1931 it stood, according to the best commercial computations at about 95.9 or 4 points below the 1913 figure. This was a drop of 16.9 per cent or nearly as large as the 18.9 per cent decline of 1930. Since the panic the recession had been fully 36½ per cent. Prices of wheat and other agricultural products were exceptionally low running to 74½ cents per bushel (No. 2 red) against 97½ cents a year earlier, while corn was 52½ cents against 81½ cents. Cotton was 6.55 cents per pound against 10 cents at the end of 1930, while family beef which was \$14.50—\$17 at the close of the year—a figure materially better than at midyear—was thus off some 25 per cent on the average from the closing price of \$20 for 1930. Pork which had been \$28.50 was off in about the same proportion as had been true of beef. See **BUSINESS REVIEW**.

**MONEY RATES.** Money rates were less excitable and irregular during the year 1931 than had been the case for some time past. The Federal Reserve System maintained the low rate of 1½ per cent for rediscounts of all classes throughout the forepart of the year; and changed it only as a consequence of the autumn outflow of gold. The advance to 3½ per cent which occurred during the late autumn did not affect conditions very directly. Open market rates in New York City were quiet, varying from 1½ to 3 per cent at the close of the year while rates for bankers acceptances were quiet and steady varying as usual with the buying rates at Federal Reserve Banks, which, as already stated, altered but little except for the one considerable advance in the autumn quarter. Business rates the country over underwent only a slight change from time to time and such changes were after all nominal; the real problem of borrowing being to induce the banks to make advances under any circumstances. When such advances were in fact made, the rate of interest was usually fixed at a conventional standardized figure which reflected little consequence or influence of the actual difficulty of obtaining accommodation.

In the investment field there was continuation of the great price shrinkage that had already taken place in 1930. The almost continuous downward drive after July brought securities to levels not far above one half or in not a few cases, one third of the prices they had borne at the end of 1930 and the loss was particularly severe in bonds even (at the close of the twelvemonth) affecting Liberty Loan issues. Changes thus occurring probably reflected belief in the probability of dividend reductions or suspensions and the high nominal yield represented by old dividend and interest rates applied to the new quotation levels was thus, of course, fictitious so far as its

FOREIGN EXCHANGE (CABLE RATES) IN 1931  
[From the *Annalist*]

Week ended:	England Par, \$4 866		France Par, \$0.0392		Italy Par, \$0.0586		Germany Par, \$0.2389		Austria Par, \$0.1407		Belgium Par, \$0.1390	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
January 3 .....	4.851½	4.851½	.03921½	.03921½	.05231½	.05231½	.2382½	.2380½	.1412	.1412	.1395¾	.1395¾
February 7 .....	4.86½	4.851½	.0392¾	.0392¾	.05231½	.05231½	.2379½	.2377	.1412	.1412	.1396¼	.1394¾
March 7 .....	4.86½	4.851½	.0392½	.0392	.0524	.05231½	.2378	.2377½	.1400	.1400	.1394¾	.1394¾
April 4 .....	4.86½	4.86	.0391½	.0391½	.0524	.05231½	.2384½	.2381½	.1400	.1400	.1391¾	.1390½
May 2 .....	4.861½	4.86½	.0391¼	.0391½	.0523¾	.0523¾	.2383½	.2383½	.1395	.1395	.1392¼	.1391½
June 6 .....	4.87	4.86½	.0392¼	.0391½	.0523¾	.0523¾	.2376	.2373½	.1405	.1405	.1393¾	.1393¾
July 4 .....	4.86½	4.86½	.0391½	.0391½	.05231½	.05231½	.2374½	.2374	.1405	.1405	.1392½	.1392½
August 1 .....	4.86½	4.85½	.0392½	.0392	.0523½	.0523½	.2376	.2351	.1405	.1405	.1397	.1396
September 5 .....	4.86¼	4.851½	.0392¾	.0392¾	.0523¼	.0523¼	.2376	.2368	.1404	.1404	.1394¾	.1392¾
October 3 .....	3.99½	3.82¾	.0395½	.0394	.0517¼	.0474¼	.2375	.2312	.1404	.1404	.1398	.1390
November 7 .....	3.81½	3.71½	.0398½	.0392¾	.0518¾	.0511¾	.2375	.2357	.1375	.1375	.1398	.1393
December 5 .....	3.44½	3.29¾	.0392½	.0391½	.0517	.0506	.2379	.2314	.1400	.1400	.1390½	.1388½
December 28-31 .....	3.43¾	3.37¾	.0392½	.0391½	.0503¼	.0507	.2382	.2372	.1400	.1400	.1394	.1389
Range for 1931 .....	4.87	3.25	.0398¼	.0388¼	.0524½	.0474¼	.2385	.2301	.1412	.1412	.1408	.1387

Week ended:	Czechoslovakia Par, \$0.0296		Denmark Par, \$0.2680		Finland Par, \$0.0325		Greece Par, \$0.0130		Holland Par, \$0.4020	
	High	Low	High	Low	High	Low	High	Low	High	Low
January 3 .....	.029687	.029687	.2674	.2673½	.0252½	.0252½	.0129¾	.0129¾	.4027	.4026¾
February 7 .....	.029625	.029625	.2677	.2674	.0252½	.0252½	.0129¾	.0129¾	.4019½	.4016¾
March 7 .....	.029662	.029637	.2675½	.2674½	.0252½	.0252½	.01291½	.0129¾	.4012½	.4008½
April 4 .....	.029669	.029669	.2675½	.2673¾	.0252½	.0252½	.0129¾	.0129¾	.4007½	.4407
May 2 .....	.029662	.029662	.2678½	.2676¾	.0252½	.0252½	.01291½	.0129¾	.4033½	.4020½
June 6 .....	.02961½	.02965½	.2679¾	.2677¾	.0252	.0252	.0130	.0130	.4024	.4020½
July 4 .....	.0296½	.0296½	.2678½	.2677	.0252	.0252	.0130½	.0130½	.4027	.4024
August 1 .....	.0296½	.0296½	.2676	.2673	.0252½	.0252	.0129¾	.0129¾	.4025½	.4023
September 5 .....	.0296½	.0296½	.2674¾	.2672¾	.0252½	.0252½	.0129¾	.0129¾	.4032½	.4031
October 3 .....	.0296½	.0296½	.2350	.2175	.0251¾	.0251¾	.0129¾	.0129¾	.4034	.4029½
November 7 .....	.0296¾	.0296¾	.2200	.2140	.0225½	.0225½	.0129½	.0129½	.4039	.3986
December 5 .....	.0296¾	.0296¾	.1925	.1820	.0185½	.0185½	.0129½	.0129½	.4046	.4018
December 28-31 .....	.0296½	.0296½	.1905	.1875	.0160	.0160	.0128¾	.0128¾	.4041	.4013
Range for 1931 .....	.02961½	.02961½	.2679¾	.1795	.0252½	.0160	.0130½	.0128¾	.4015	.3986

being regarded as a measure of rates of yield was concerned. See BANKS AND BANKING; BUSINESS REVIEW; PUBLIC FINANCE; UNITED STATES; and articles on leading countries under *Finance and History*.

**FINE ARTS.** See ART MUSEUMS; LITERATURE, ENGLISH AND AMERICAN; PAINTING; SCULPTURE.

**FINLAND.** An independent republic of Europe, bounded on the east by the Union of Soviet Socialist Republics, on the north by the Arctic Ocean and Norway, on the west by Sweden and the Gulf of Bothnia, and on the south by the Gulf of Finland. Formerly a grand duchy of the Russian Empire, it was declared independent Dec. 6, 1917, and became a republic under the constitutional law of July 17, 1919. Capital, Helsinki (Helsingfors).

**AREA AND POPULATION.** Finland has a land area of 132,597 square miles and a population estimated at 3,634,047 in 1929, as compared with 3,364,807 at the census of 1920. The urban population is estimated at 16 per cent of the total. From 1925 to 1929, births averaged 76,856 annually, and deaths, 49,990, the respective rates per 1000 of population being 21.5 and 14. Emigration in 1929 totaled 6383. The chief cities, with the estimated population in 1930, are: Helsinki (Helsingfors), 235,223 (197,848 in 1920); Turku (Åbo), 63,617; Tampere (Tammerfors), 53,187; and Viipuri (Viborg), 59,368. Of the 1920 population, 2,754,228 spoke Finnish, 340,963 Swedish, 4806 Russian, 2378 German, and 1603 Laponic. Finnish and Swedish are both official languages, Swedish names being given above in parentheses. The population is overwhelmingly Lutheran in religion.

**EDUCATION.** Only 1 per cent of the population over 15 years of age were illiterate in 1920. In 1928-29, there were 351,689 pupils in primary schools, 47,839 in secondary schools, and 5170 in the universities. Enrollment in the three universities in 1930 was: Helsinki, 5126; Turku (Åbo), 411 in the Finnish and 222 in the Swedish university.

**PRODUCTION.** About 65 per cent of the population gain a livelihood from the cultivation of 5,411,000 acres, or 6.4 per cent of the total area. Soil and climate combine to make Finland unsuited for agriculture. In 1929, there were 2,879,000 acres of permanent meadows and pasture, 17,000 acres of orchard and shrubs, and 76,553,000 acres of forests and waste land. The forests, chiefly pine and spruce, constitute the chief source of industrial wealth, covering three-fourths of the total area; 40 per cent of the forest area is state owned. The value of Finnish crops in 1930 was estimated at \$100,800,000, compared with \$126,000,000 in 1929. Production of the chief crops in 1930 was: Wheat, 1,189,000 bushels (1,095,000 in 1929); rye, 14,104,000 bushels (10,999,000); barley, 6,223,000 bushels (6,168,000); oats, 41,458,000 bushels (37,968,000); potatoes, 28,856,000 bushels (28,858,000); flax fibre, 3,527,000 pounds (3,527,000); hay, 2,733,000 metric tons (2,448,000). Dairying is important. In 1929, there were 1,902,600 cattle, 1,130,000 sheep, 426,000 swine, and 394,850 horses; the output of butter was 54,409,000 pounds, and of cheese, 10,298,000 pounds.

Lumber production in 1930 was reduced 25 per cent owing to poor export markets, and sales declined to 907,000 standards from 1,207,000 standards during 1929. The value of all indus-

trial production was officially estimated at \$302,400,000 in 1930, as against \$327,600,000 in 1929 and a yearly average of \$207,045,000 for the period 1921-25. The chief industries, in order of the value of production in 1929, were woodworking, paper, food and drink, machinery and shipbuilding, textiles, leather, clay and stone, light and power. The 1930 production of chemical pulp was 696,000 metric tons (624,131 in 1929) and of paper, 320,000 metric tons. While industry was relatively depressed during 1931, conditions were not as bad as in many European countries. There were 12,176 unemployed at the end of September, 1931, compared with 9336 on Dec. 31, 1930.

**COMMERCE.** Imports and exports both declined about 10 per cent in quantity in 1930, but the value declines from the 1929 totals were 25 and 16 per cent, respectively, resulting in the first export surplus since 1925. Imports were valued at 5,247,904,000 Finnish marks (\$132,247,000) and exports at 5,398,336,000 marks (\$136,038,000), compared with 1929 imports of 7,001,413,000 marks (\$176,436,000) and exports of 6,429,734,000 marks (\$162,029,000). The value of paper exports remained unchanged, but that of the other leading export commodities—sawn timber, plywood, chemical pulp, mechanical pulp, and cardboard—declined. Machinery, iron and steel, chemicals and medicines, wheat flour, coffee, sugar, coal and coke, and oil products were the chief imports. Germany continued as the chief source of supply, furnishing 36.9 per cent of all imports, as against 13.6 per cent from the United Kingdom and 12.2 per cent from the United States. The United Kingdom took 39 per cent of all exports, while Germany took 12.4 per cent and the United States 7.6 per cent. Preliminary figures for 1931 placed exports at 4,455,500,000 marks and imports at 3,458,000,000 marks, giving a favorable trade balance of nearly 1,000,000,000 marks.

**FINANCE.** The state accounts for 1930 closed with a deficit of 340,600,000 marks, covered from cash reserves which were thus reduced to 312,500,000 marks. Ordinary receipts were lower than in 1929, in spite of higher customs collections due to tariff increases, and ordinary expenditures increased by nearly 200,000,000 marks. No new long-term loans were negotiated, but a short-term loan of 300,000,000 marks was floated in the United States in July, 1930. Ordinary receipts and expenditures were estimated in the budget at 4,372,000,000 and 3,797,000,000 marks, respectively, for 1930 and at 4,294,000,000 and 3,823,000,000 marks, respectively, for 1931. Revenues during 1931 failed to reach estimates and the preliminary 1932 budget estimates were sharply reduced, total ordinary and extraordinary revenues being calculated at 2,648,800,000 marks (4,400,900,000 marks in 1931).

According to the Finnish Treasury, the net state debt on Dec. 31, 1930, was 3,057,100,000 Finnish marks (\$77,039,000), of which \$68,037,000 was held externally, including \$8,604,000 due the United States government. The net debt at the end of 1929 was \$89,400,000. The unit of currency is the markka, or Finnish mark, which was revalued at \$0.0252 on Jan. 1, 1926.

**COMMUNICATIONS.** Railway lines in operation during 1930 aggregated 3195 miles, of which all except about 200 miles were government owned. In that year the government railways carried 21,252,000 passengers (23,716,000 in 1929) and



8,574,000 metric tons of freight (10,707,000 in 1929), earning gross receipts of 789,747,000 marks (\$19,902,000), as against 879,248,000 marks (\$22,157,000) in 1929. There were (1930) about 29,337 miles of highway, including 18,956 miles of gravel and 20 miles of macadam roads. The telegraph system and a small part of the telephone system (22,828 miles of wire in 1929) belong to the state. During 1930, 6775 vessels, of 4,442,000 net registered tons, entered Finnish ports, and 6831 vessels, of 4,376,000 tons, cleared.

NAVY. See NAVAL PROGRESS.

GOVERNMENT. Executive power is vested in a president elected for six years by 300 electors, who are chosen by direct election in the same manner as members of the Diet. Legislative power is exercised by the Diet (single chamber) in conjunction with the President. The latter governs through Ministers appointed by him, his decisions being taken in the Council of State of 10 Ministers, who are responsible to the Diet. Members of the Diet are elected for three years by a direct vote of all citizens over the age of 24. The composition of the Diet following the elections of Oct. 1 and 2, 1930, was: Social-Democrats, 66; Agrarians, 59; Finnish Coalition party, 42; Swedish People's party, 21; Finnish Progressive party, 11; Small Farmers' party, 1. President at the beginning of 1931, Dr. Lauri Kristian Relander, elected Feb. 16, 1925, for a six-year term. The conservative Cabinet, formed July 4, 1930, through a coalition of the Finnish Coalition, Agrarian, Finnish Progressive, and Swedish People's parties, was headed by Pehr Evind Svinhufvud.

### HISTORY

The Lapuan movement to eradicate communism from Finland was brought to a successful climax in 1931, with the election of Premier Svinhufvud as President. Thereafter the attention of the country was once more focused upon the prohibition controversy. A national referendum held Dec. 29 and 30, 1931, showed an overwhelming majority in favor of repeal of the prohibition law.

THE PRESIDENTIAL ELECTION. The anti-Communist (Lapuan) movement of 1930, which forced the resignation of the Kallio Cabinet, the dissolution of the Diet, and the adoption of drastic anti-Communist measures by the bourgeois majority in the new Diet, had increased the authority of the President by conferring upon him wide emergency powers. With the approach of the expiration of President Relander's term, the country plunged into an exceedingly bitter campaign to elect his successor. The Lapuan, bourgeois, and conservative forces nominated Premier Svinhufvud, a national hero who had played a dominant rôle in Finnish history under Czarist rule, as conservative leader during the civil war of 1918, and as dictator-regent previous to the establishment of the republic. The candidate of the Progressives and Social-Democrats was the Progressive leader and former President K. J. Stahlberg, a personality with great moral prestige.

In the balloting for an electoral college of 300 members on Jan. 16, 1931, the Socialists secured 90 electors, the Agrarians 69, the Finnish Coalition 64, the Progressives 52, and the Swedish People's party 25. By comparison with the October, 1930, elections to the Diet, the Agrarians and Socialists lost about 10 per cent

of their followers, the Swedish party lost 2 per cent, and the Lapuan movement barely maintained its strength. The Progressives, on the other hand, registered decided gains, a result attributed to Stahlberg's prestige among all classes. The vote for President taken in the electoral college on February 16 gave Svinhufvud 151 ballots to 149 for Stahlberg, with the Agrarian, Coalition, and Swedish party delegates voting almost unanimously for the winner. Svinhufvud resigned as Premier on March 1 and assumed the Presidency. The Premiership was filled on March 20 by J. E. Sunila (Agrarian), who retained six members of the Svinhufvud Ministry and distributed the remaining Cabinet portfolios among four Coalitionists, two Swedish party members, and one Progressive. The Sunila Cabinet controlled 133 out of the 200 seats in the Diet.

Meanwhile the Lapuan movement, which had been organized on a purely political and religious basis, had joined forces with the so-called "Finnish lock" movement, for the economic eradication of communism. Throughout 1931 they maintained pressure upon the Government to repress Communist activities and upon employers and others to discharge Communist employees and to boycott the businesses of known Communists. Information furnished by Estonian authorities led to the discovery of a subterranean Communist organization in Helsingfors in June, the arrest of seven alleged Communists, including the chief organizer in Finland, and the seizure of documents relating to Communist propaganda in Finland. On July 15, the Supreme Court of Appeals reversed the conviction of Gen. M. Wallenius, former Chief of the Army General Staff, who had been sentenced to three years in prison and dismissed from the army for his part in the kidnaping of former President Stahlberg in 1930. The sentence of Colonel Kuussaari, an associate of Wallenius also imprisoned for three years, was reduced to one year. As General Wallenius made a full confession of his guilt previous to his trial in 1930, the Supreme Court's decision that the case against him had not been proved aroused much unfavorable comment.

REPEAL OF PROHIBITION. The rising tide of opposition to Finland's prohibition law induced the Government on Jan. 27, 1931, to appoint the Björkenheim Committee, of eight members, to investigate the problem and propose any changes in the existing law considered desirable. The committee had scarcely begun its study when a mass petition signed by about 118,000 women and demanding repeal of the law was presented to the President. The prohibition forces in the Diet showed definite disintegration during the spring session and on April 14 a law was passed raising the alcoholic content of beer to 2.84 per cent (by volume). Great public excitement and an unprecedented demand were reported when the new beer was placed on sale early in May. The Diet also removed all penalties for drunkenness, except in cases resulting in public annoyance.

While Finnish coast guards were battling an unusual invasion of rum runners from the nearby Baltic states, the sentiment for repeal was furthered by publication of a number of official or semi-official statements. The Ministry of Interior reported that convictions for intoxication had risen from 21,253 in 1920 to 79,400 in 1929. The Federation of Finnish Judges on September 8, the Minister of Interior on September 17, and

finally the Cabinet on December 3 assailed prohibition on the ground that it had effected none of the expected changes in the nation's habits and, on the contrary, had encouraged disrespect and violation of the laws. The Cabinet statement mentioned the increase in drunkenness and in crimes of violence, called attention to the building up of a special criminal class, declared that prohibition had had unfavorable financial effects, and asserted that the taxation of liquor was necessary to balance the budget.

Meanwhile the Cabinet had been faced with the threat of a Lapuan *coup d'état* (November 28) growing out of the prohibition debate. The Lapuan movement was alleged to have been bought over by the liquor and industrial interests and induced to espouse the anti-prohibitionist cause, even at the cost of a violent overturn of the Government. The Cabinet met the situation on December 3 by calling for a nation-wide referendum on December 29 and 30, a bill to that effect being passed by the Diet with only 14 dissenting votes on December 12. The campaign was marked by bitter charges and counter-charges and the breaking of many party lines. Out of an electorate of about 1,700,000, a total of 774,487 voted in the referendum, 337,418 votes being cast by women. For repeal of prohibition, the vote was 546,332, or 70.6 per cent of the total vote cast; for continuing the prohibition law, 217,208, or 28 per cent; for modification, 10,947, or 1.4 per cent. Of the total women's vote, 226,820, or 67.2 per cent, favored outright repeal. The wet vote was highest in the cities and lowest in the country districts, where prohibitionist strength had always centred. See PROHIBITION.

The Cabinet had previously announced that it would convene an extraordinary session of the Diet in January, 1932, to enact repeal legislation, in the event of an anti-prohibitionist victory. The report of the Björkenheim Committee, submitted late in 1931, advocated 3.2 per cent beer and 12 per cent wines, and a system of local option providing for the restriction of manufacture or sale of alcoholic beverages but not the limitation of importation for home consumption. It further urged the establishment of a single company to control the liquor traffic on behalf of the Government.

**ECONOMICS AND FINANCE.** The financial crisis which shook Germany and Central Europe during the summer and forced Great Britain to abandon the gold standard in September had wide repercussions in Finland and the other Scandinavian countries. The Bank of Finland did not join with the central banks of Norway, Sweden, and Denmark in their efforts to maintain the parity of currency. Despite the statement of the Governor of the Bank of Finland on September 28 that Finland would be able to maintain the mark on a stable basis, the Bank was forced to raise the discount rate from 6 to 7.5 per cent on October 1. On October 12 the rate was again raised to 9 per cent and at the same time the gold standard was abandoned. During this period the Finnish mark had depreciated about 25 per cent with relation to United States currency, and since 60 per cent of the country's foreign obligations were payable in dollars, the burden of servicing the foreign debt was increased to an extent which threatened a budget deficit for 1932. The Diet convened in special session October 19 to confirm the Bank of Finland's action in suspending gold redemption, to enact

amendments to the Bank's regulations, and to pass financial legislation calculated to balance the budget. Tariff increases, expected to add \$3,000,000 to the Government's income during 1932, were made effective November 14.

**RELATIONS WITH RUSSIA.** Relations between the Governments of Finland and the Soviet Union became definitely strained during 1931. A series of sharp notes was exchanged, commencing on May 17. The Finnish notes protested the alleged mass deportations from Ingria of peasants of Finnish origin and the persecution of Finnish minorities in Karelia. The Soviet notes called attention to the anti-Soviet (Lapuan) campaign in Finland, alleged military activities along the border, the expulsion of Finnish communists into the Soviet Union, the alleged obstruction and persecution of Soviet trade and diplomatic representatives in Finland, and the propaganda in certain Finnish circles for the annexation of the Finnish sections of Ingria and Karelia. Neither Government obtained a satisfactory response to its protests and the final Soviet note of June 23 placed responsibility for the consequences of the anti-Soviet campaign in Finland upon the Finnish government. See KARELIA; UNION OF SOVIET SOCIALIST REPUBLICS, under *History*.

**FIRE INSURANCE.** See INSURANCE; FIRE PROTECTION.

**FIRE PROTECTION.** The function of the public fire department, originally solely fire extinguishment, gradually was being extended to include fire prevention activities. In 1921 fire prevention bureaus were maintained in the fire departments of only about 20 of the larger cities of the United States. Since its inception in 1924, the field engineering service of the National Fire Protection Association had consistently advocated the development of fire prevention work in public fire departments, and at the close of 1931 there were at least 70 cities that maintained a division of the fire department for the purpose of preventing fires by eliminating unnecessary accumulations of combustible material and other conditions that create a fire hazard. In addition to the cities that maintain organized fire prevention bureaus, some fire prevention inspection work was to be found in the great majority of municipal fire departments.

The effect of this increasing fire prevention activity was clearly registered in 1931 for the first time. The estimates of the United States fire loss for that year showed a substantial reduction from 1930. A variety of factors may be responsible for offsetting the usual effect of business depression upon the fire loss, and it is probable that no single factor should receive all the credit. The deflation of commodity values, with consequent decrease in the money loss for a fire of the same physical magnitude and decreased inventories, are doubtless significant factors. The most important factor, however, was probably the vigilance of fire protection authorities. The capable fire chief knows the danger spots and can concentrate the efforts of his fire prevention bureau upon them. Experience shows that with uniformed inspectors going through a property at frequent intervals, the fire that the chief has feared seldom occurs.

With an efficient arson squad investigating every fire that is in any way suspicious, the would-be incendiary realizes the futility of attempting this crime. The conspicuous results in



The occupancies involved were about equally divided between mercantile establishments (wholesale and retail), industrial plants and miscellaneous occupancies.

Occupancy	No. of fires	Estimated loss
Mercantile Establishments	12	\$ 4,617,000
Wholesale	6	\$2,004,000
Retail	6	1,713,000
Industrial Plants	12	4,628,000
Miscellaneous Occupancies	16	13,843,000
Armory	1	5,000,000
Ship under construction	1	2,000,000
Railway shops	2	1,750,000
Apartment buildings	2	750,000
Piers and wharves	1	750,000
Resort hotels	2	718,000
College building	1	625,000
Horse show	1	500,000
High school	1	500,000
School under construction	1	400,000
Church	1	300,000
Penitentiary	1	300,000
Dwelling	1	250,000
Conflagrations	3	2,300,000
Total	43	\$25,388,000

**LARGE LOSS FIRES, 1931.** During the year 1931 there were 43 fires involving a loss estimated at \$250,000 or more as compared with 68 such fires during the previous year. Every section of the country showed a decrease in large loss fires, except the Southern States, where the number increased from seven in 1930 to eleven in 1931, and in the Rocky Mountain area which reported one fire in 1931 and none in 1930. The location of these fires is shown on the accompanying map.

**PRIVATE FIRE PROTECTION.** Owing to the decrease in the usual industrial and mercantile expansion, private fire protection did not show normal development during 1931. However, the year was marked by the completion of the largest automatic sprinkler installation in the world, that protecting the wharves and warehouses of the New Orleans Waterfront. After a long period in which the fire loss in this small area averaged over \$1,000,000 annually, this inherently hazardous property is now amply safeguarded. See **INSURANCE**.

**FISH COMMITTEE.** See **COMMUNISM**.

**FISHES.** See **ZOOLOGY**.

**FISK, EUGENE LYMAN.** An American physician and co-founder of the Life Extension Institute, died in Dresden, Germany, July 5, 1931. He was born in Brooklyn, N. Y., Jan. 1, 1867. On graduation from the medical college of New York University in 1888, he became connected with the medical department of the Equitable Life Assurance Society of the United States. In 1898 he was appointed medical director of the Provident Savings Life Association and in 1910 of the Postal Life Insurance Company. On the organization of the Life Extension Institute in 1913 he was made medical head and late vice president. In collaboration with Irving Fisher he wrote *How to Live* (1915) and *Health for the Soldier and Sailor* (1918). He was also the author of *Alcohol: Its Relation to Human Efficiency and Longevity* (1916); *Health Building and Life Extension* (1923); and *How to Make the Periodic Health Examination* (1927).

**FISK UNIVERSITY.** A coeducational institution for colored people in Nashville, Tenn., founded in 1866. It consists of a liberal arts

college, a music school, and a graduate department. The total enrollment of 449 for the autumn of 1931 included 166 men and 283 women. The faculty numbered 46, and there were 44 administrative officers and assistants. The productive endowment for 1930-31 was \$1,509,014, and the total income was \$348,281. The library contained approximately 35,000 volumes. Thomas Elsa Jones, Ph.D., was president; A. A. Taylor, A.M., dean; and Jesse F. Beals, treasurer.

**FITZPATRICK, SIR (JAMES) PERCY.** A South African statesman, died in Cape Town, Jan. 25, 1931. He was born in King William's Town, July 24, 1862, and received his education at St. Gregory's College, Downside, England. In 1884 he returned to South Africa, following the discovery of gold in the Transvaal, and in 1891 accompanied Randolph Churchill on an expedition through Mashonaland. The following year he became associated with the mining corporation of H. Eckstein & Co. in Johannesburg, being chosen a partner in 1898 and being elected president of the Witwatersrand Chamber of Mines in 1902. He was also chosen honorary secretary of the Reform Committee, which pressed the demand of the Uitlanders in the Transvaal for the franchise and for the redress of grievances restricting their privileges imposed by the Boers. Following the defeat and capture of Dr. Jameson, leader of the famous raid of December, 1895, he was arrested, imprisoned, and later released only on giving his pledge to the British Government that he would abstain from active politics. After the Boer War he was requested by Lord Milner to assist in the formation of the Union of South Africa, and in 1910 was elected a member for Pretoria East in the South African Parliament, holding that seat until 1920. His publications include *Through Mashonaland with Pick and Pen* (1892); *The Outspan* (1898); *The Transvaal from Within* (1899); and *Jock of the Bushveld* (1907).

**FIVE-DAY WEEK.** See **LABOR**.

**FIVE-YEAR PLAN.** See **UNION OF SOVIET SOCIALIST REPUBLICS**.

**FLANDERS.** See **BELGIUM** under *History*.

**FLATWORMS.** See **ZOOLOGY**.

**FLAX.** The flaxseed production in 1931-32 of 14 countries reporting to the International Institute of Agriculture was estimated at 116,909,000 bushels, which was 0.5 per cent below the yield of 117,500,000 bushels in 1930-31 and 3.9 per cent below the average annual yield for the five years 1925-26 to 1929-30. Crops of important countries not including the United States were India 15,120,000 bushels, Canada 2,847,000 bushels, Poland 1,968,000, Lithuania 1,107,000 bushels and Latvia 582,000 bushels. The production reported for Lithuania and Latvia included the yield of hemp seed. The Canadian crop was 35.3 per cent below the yield of 1930 and 37.5 per cent below the average annual yield for the five-year period mentioned. Argentina, the leading flaxseed producing country south of the equator as well as of the world, reported a yield of 70,265,000 bushels for the crop year 1930-31 as compared with an average of 73,391,000 bushels for each of the five preceding years. The area sown for the Argentine crop of 1931-32 was reported as 8,640,000 acres, which was 15 per cent above the acreage of the preceding crop year and nearly 25 per cent above the five-year average; estimated production (1931-1932) 82,674,000 bushels. For the Soviet Republics the average

annual yield for the five-year period was 23,670,000 bushels and the acreage 4,267,000.

The flaxseed production of the United States in 1931 was estimated by the Department of Agriculture at 11,018,000 bushels as compared with 21,240,000 bushels in 1930 and 15,910,000 bushels in 1929. The area harvested in the three years was 2,313,000, 3,732,000 and 3,047,000 acres respectively. Severe drought in the summer of 1931 reduced both acreage and yield. In North Dakota, South Dakota, and Montana only about half the acreage planted was harvested and the average yield for the whole country was only 4.8 bushels per acre while in 1930 it was 5.7 bushels, and in 1929 5.2 bushels. In spite of the low yield the average farm price on Dec. 1, 1931, was only \$1.202 per bushel and the total value of the crop on this basis only \$13,243,000 as against \$29,684,000, the total value of the preceding crop. The four leading States among the ten States reporting flaxseed production and their yields were given as follows: Minnesota 6,027,000 bushels, North Dakota 3,521,000 bushels, South Dakota 462,000 bushels, and Kansas 336,000 bushels. In acreage North Dakota ranked first with 1,006,000 acres followed by Minnesota with 861,000 acres, South Dakota with 185,000 acres, and Montana with 144,000 acres.

During the fiscal year ended June 30, 1931, the United States exported 129,000 tons of linseed oil cake, 7 tons of linseed oil cake meal, and 1,298,000 pounds of linseed oil and imported 7,813,000 bushels of flaxseed, 256,000 pounds of linseed oil and 22,646,000 pounds of linseed oil cake and meal.

Estimates of flax fibre production published by the International Institute of Agriculture placed the yields of the nine countries reporting materially below the yields of 1930 and with the exception of Bulgaria at much below the five-year average. The leading flax fibre producing countries and their yields were reported as follows: Poland 66,139,000 pounds, Belgium 19,156,000 pounds, Estonia 13,008,000 pounds, Germany 11,684,000 pounds, Czechoslovakia 8,344,000 pounds and the Netherlands 8,234,000 pounds. Austria reported a yield of 10,935,000 pounds of dried flax straw and Lithuania 51,765,000 pounds and Latvia 33,056,000 pounds of flax and hemp fibre.

**FLEMISH AUTONOMY MOVEMENT.** See BELGIUM under *History*.

**FLEMISH LANGUAGE DISPUTE.** See BELGIUM under *History*; also PHILOLOGY, MODERN.

**FLIES.** See ENTOMOLOGY, ECONOMIC.

**FLOOD AND FLOOD PROTECTION.** In contrast with the great floods of recent years 1931 will pass into history, at least in America, as a year of unusually low stream flow. Until the last few days of the year not a single important flood had been recorded by the U. S. Weather Bureau. In spite of the fact, however, that the almost unprecedented drought had reduced the flow of the Mississippi to a point approaching the zero datum established in 1864 (only once, in 1910, had the water level been below this datum) the upper delta region, particularly the Tallahatchie River valley, experienced heavy rains, resembling cloud-bursts, in late December. The crest of the flood thus produced was predicted for December 28 and flood warnings were issued in the affected area. It was estimated that some 75,000 acres would be inundated in southern Tallahatchie Co., Miss., and several towns were menaced

by possible failure of levees and by backwater from the Tallahatchie and Coldwater Rivers.

#### LOSSES BY FLOOD IN THE UNITED STATES DURING THE YEAR 1931

<i>Drainage</i>	<i>Reported losses</i>	<i>Lives</i>
Atlantic .....	\$1,081,000	1
Gulf (except Mississippi River) ..	176,100	..
Mississippi (except Ohio River) ..	991,625*	..
Ohio .....	1,000	8
Great Lakes .....	..	..
Pacific .....	598,000	2
Interior (i. e., Great Basin) ...	25,000	..
Total .....	\$2,867,725	6

\* Probably about 75 per cent of actual.

† Losses which may be caused by the floods in the lower Mississippi Valley which are listed below are not included above:

Yazoo River (in Mississippi) which reached flood Dec. 23, 1931; Black River (in Arkansas) which reached flood Dec. 31, 1931; St. Francis River (in Missouri) which reached flood Dec. 31, 1931; Ouachita River (in Louisiana) which reached flood Dec. 25, 1931; Atchafalaya River (in Louisiana) which reached flood Dec. 27, 1931; Tallahatchie River (in Mississippi) which reached flood Dec. 15, 1931.

While America was thus in general suffering from wide-spread drought and while there was only this unfortunate flood in the Mississippi to be recorded, China experienced one of the worst floods on record. During July and August a flood exceeding the high record of 1870 caused great damage, loss of life, and suffering in the Hankow area. In this city and its suburbs many public utilities were forced to cease operations and the collapse of the big Chiakow dike, protecting the city's western suburbs, resulted in the flooding of the principal native industrial district, including big flour, cotton, and silk mills. See CHINA under *History*.

In Great Britain work had been commenced on a \$3,650,000 project for the improvement of the channels of the River Lee in the Stratford district, to relieve flooding and aid navigation. There are many important drainage and flood works in England, among which the historic drainage of the Great Level of the Fens by the Dutchman Vermuyden during the seventeenth century is a landmark in reclamation history. The new work is comparatively small in size but indicates the increasing interest throughout the world in flood protection undertakings.

During 1931 an impasse predicted in the 1930 YEAR BOOK was reached in connection with the greatest of all flood projects—the protection of the Mississippi Valley. Although the flood-control plan covering the Mississippi work was enacted in 1928 a complete reconsideration of the plan was to be one of the major problems facing Congress in 1932.

As previously noted the so-called Jadwin plan involved an improved and strengthened channel for ordinary floods with provisions for discharging part of the waters of extraordinary floods through special floodways, in particular those in the Boeuf and the Atchafalaya basins. The basic economic assumption made in this plan was that there would be no cost for flood damages in these floodway areas.

General Lytle Brown, who, as Chief of Engineers, had inherited this great problem, approved in general the Jadwin plan. He advocated, however, the construction of permanent control works, concrete weirs or spillways, to control the discharge of flood of waters into the Boeuf and

Atchafalaya floodways, instead of General Jadwin's much disputed "fuse plug" levees. General Brown was also keenly alive to the economic problems involved and was convinced that the state of development of the Boeuf and Atchafalaya basins was not such as to justify such costly plans as those proposed by the Louisiana Board of Engineers for totally preventing flooding in these areas.

In the meantime, the claim of the landowners in the proposed floodway areas, that the Federal Government had no right deliberately to route flood waters through these areas without compensating the landowners, had been upheld by both the U. S. District Court and the Circuit Court of Appeals. This action stopped work on these projects.

On Jan. 4, 1932, the Supreme Court was to undertake a review of the case and in particular of the necessity of the government acquiring property or flowage rights in these basins, which incidentally have always been subject to flooding under high water conditions. It was believed that the Supreme Court would make a complete study of the legal phases of the flood control act and that much will be done to remove the legal uncertainties now connected with and holding up the construction of the Mississippi works. A decision in these matters, however, will not relieve Congress of the necessity of making the intentions of the act clear. Congress will have to declare the purpose of the act, whether partial control or the complete protection of the Mississippi Valley is to be secured, and it must furthermore determine whether the costs shall be borne by the nation or divided between the nation and States involved. Until this is done there can be no progress in the construction of flood works on the Mississippi. In short, the act of 1928, as was suspected by many observers, was not a final solution of the Mississippi problem.

One other matter of flood interest should be noted. The United States, although one of the youngest nations, had secured more data on stream flow and water supply than was available in any other country. Steps to economize in government expenditures, however, were going to result in the curtailment of stream flow observations. The War Department no longer was to assist the U. S. Geological Survey in their efforts to determine the country's water resources. This means that the maintenance of some 654 stream-gaging stations, established three years previously under a programme of the U. S. Corps of Engineers, was in doubt. Definite provisions had been made for only 120 stations and only further support by the States, a very uncertain factor, would prevent the discontinuance of many of these important records.

CALIFORNIA. In northern California the completion of the Hogan Dam (137 ft. high) marked the advent of the first flood-control structure on the north Pacific Coast. Voters at a special election on September 15 approved a flood control project for the American River, which will protect the city of Sacramento and a large area north and east. The Los Angeles County Flood Control District completed (See DAMS) the Big Tujunga Dam, the first of four flood control and conservation structures which are planned. This dam controls flood peaks and permits the complete absorption of flood waters, into ground storage and flow, by spreading grounds. Following the abandonment of the San Gabriel Dam site studies were

made of other possible sites and also of a flexible type of dam. Funds were available but plans had been delayed by the San Gabriel difficulty and by uncertainties in connection with the storage of water from the Colorado to be carried by the new aqueduct.

RIO GRANDE. The New Mexican project, a four-year \$13,000,000 work, for flood control, drainage, and irrigation, was started in March, 1930. Although about one-fifth of this sum was expended in 1931, it was necessary as the year closed to reduce forces due to the failure of loan agreements and the exhaustion of funds. In December, 1930, the U. S. Government was asked to undertake the completion of the lower Rio Grande flood control work in Texas. The Commissioners of Hidalgo Co. offered to turn over without reimbursement the works as they stand and it was expected that Cameron Co. would join in this move.

FLORIDA. POPULATION. According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 1,488,211; in 1920, 968,470. According to origin, the population of 1930 contained 976,148 native whites, 59,057 foreign-born whites, 431,828 Negroes, 587 Indians and small groups of other origin. Of the 599,010 persons in the State having gainful occupations, 133,648 engaging in agriculture formed the largest group. The manufacturing and mechanical industrial group numbered 128,739, including 30,082 in the building industry; in trade, 92,460; domestic and personal service, 99,985; transportation, 54,148; professional service, 40,145.

Among the cities, Jacksonville, with 129,549, had the largest population in 1930; in 1920 it had 91,558. Miami had 110,637 (1930), 29,571 (1920); Tampa, 101,161 (1930), 51,608 (1920); St. Petersburg, 40,425 (1930), 14,237 (1920). Tallahassee, the capital, had 10,700 (1930), 5637 (1920).

AGRICULTURE. The following table shows the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Oranges	1931	.....	15,000,000*	\$25,500,000
	1930	.....	19,000,000*	36,100,000
Grapefruit	1931	.....	11,000,000*	15,400,000
	1930	.....	16,000,000*	28,800,000
Corn	1931	674,000	5,729,000	3,036,000
	1930	648,000	5,832,000	5,249,000
Potatoes	1931	28,000	3,640,000	4,004,000
	1930	32,000	2,560,000	4,786,000
Sweet potatoes	1931	21,000	1,638,000	1,147,000
	1930	19,000	1,520,000	1,444,000
Cotton	1931	114,000	43,000*	.....
	1930	120,000	50,000*	.....
Peanuts	1931	297,000	172,260,000*	3,790,000
	1930	251,000	140,560,000*	4,638,000

\* Boxes.    † Bales.    ° Pounds.

MINERAL PRODUCTION. The mining of phosphate rock, the predominant feature of the State's mineral industry and the line in which Florida led the States of the Union and was the majority producer, was unusually active in 1930. The total produced exceeded that of 1929 in point of value as well as of quantity. For 1929, the latest year as to which figures by States were available, Florida's production of phosphate rock was 3,088,298 long tons, and for 1928, 2,883,446; in value, \$9,901,074 for 1929 and \$9,424,022 for 1928. There was a growing production of zircon or zirconium ores, which attained as early as 1927 a yearly total value of \$364,000; the statistics for later years were withheld.



Stone, of chiefly low grades, quarried in 1929 to the value of \$1,688,224, and clay products, raw clay, sand and gravel furnished the bulk of the remainder of the mineral total. The total value of the mineral products of the State was \$14,803,606 for 1929; for 1928, \$15,227,123.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$17,629,758 (of which \$5,272,427 was for local education); for interest on debt, \$679,471; for permanent improvements, \$7,530,827; total, \$25,840,056 (of which \$8,334,436 was for highways, \$1,422,160 being for maintenance and \$6,912,276 for construction). Revenues were \$26,297,749. Of these, property and special taxes furnished 29.9 per cent; departmental earnings and compensation to the State for officers' services, 7.8; sale of licenses, 54.1 (in which was included a gasoline sale tax that produced \$8,764,806). Funded debt outstanding on June 30, 1930, totaled \$189,000, which did not include a contingent or special-assessment debt of \$11,744,686, incurred on account of the project for draining the Everglades. On an assessed valuation of \$613,720,306 the State levied in the year ad-valorem taxes of \$8,761,400.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 represented the number of the State's manufacturing establishments as 2214, or 16 per cent above the number for 1927. These employed 64,936 wage earners, an increase of 6.1 per cent. The manufacturing wages paid in 1929 totaled \$54,061,968, which was not quite 4 per cent more than had been paid in 1927. Materials used in manufacture, plus fuel and purchased electricity, cost in 1929, \$97,102,524, or 6.7 per cent more than in 1927. The manufactured product of 1929 was valued at \$232,912,161, or 6.5 more than for 1927. Value added to materials, etc., by manufacture was reckoned for 1929 at \$135,809,737. Tampa, leading as to number and total pay of wage earners, had 241 manufacturing establishments, 13,182 wage earners, wage payments of \$13,883,453 and a product of \$53,289,196. Jacksonville, leading as to value of product, had 209 establishments, 6231 wage earners, wage payments of \$7,182,170 and a product of \$55,178,183.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 5665.69. Additional line put in operation in the course of the year preceding totaled 12.12 miles, but 32.87 miles of line were abandoned. No building of new line or trackage in 1931 was reported.

**EDUCATION.** As reported in December, 1931, the school-age population of the State was 460,181, and there were enrolled in the public schools 346,434 pupils. Of these, 301,298 were in common schools or elementary grades, and 45,136 were in high-school grades. For the year 1929-30, the expenditures for public-school education were: current expenses, \$13,419,351; all payments, \$25,003,234. Salaries of teachers by the month averaged \$113.80. By classes they averaged: for white male teachers, \$169.20; white women teachers, \$115.80; Negro men teachers, \$84.20; Negro women teachers, \$61.60. An enactment of the Legislature in 1931 made eight months the minimum yearly period of free instruction in both high and elementary schools.

Appropriation was made, also, to augment the county-school fund.

**LEGISLATION.** The Legislature met in regular session in January and, after the expiration of its constitutional limit of 60 days, was twice immediately reassembled in extraordinary session by Governor Carlton. It carried out a great amount of fiscal and financial legislation needful to restore revenues and aid public credit. The State millage tax was sharply reduced to the rate of 4½ mills, as against a levy of 14½ mills for 1930. Considerable retrenchment was effected in the biennial appropriation bill for the operation of the State government, which carried a total of only \$14,126,000. New revenue was provided from many sources. The tax on sales of gasoline was raised to 7 cents a gallon, from 6 cents, to yield an estimated additional \$2,225,000. A State levy on intangibles was enacted, from which \$500,000 a year was expected. A stamp tax placed on documents was to yield another \$1,000,000. Other fiscal enactments and their anticipated yields were: utilities tax, \$700,000; tax on corporate franchises, \$500,000; taxes on chain stores and merchandise stock, \$500,000 to \$750,000; mileage tax on busses and automobile trucks, \$100,000. An inheritance tax, of uncertain yield, was also enacted, in amended form, after Governor Carlton had vetoed the first measure to this end, doubting its conformity with the Federal act. The voters approved in the previous November a constitutional change to permit inheritance taxation. The measure was to give the State the Federal allowance on death duties collected.

Over the Governor's veto was enacted a bill to permit horse racing and betting at horse races under the pari-mutuel system, with 3 per cent of the wagers and 15 per cent of the admittance receipts accruing to the State. It was required that bonds to be issued by a municipality be approved by referendum. Proceeds of the gasoline tax were reallocated, 3 cents of the receipts by the gallon to go to the State Road Department and 3 cents to counties, proportionately to their relative areas and expenditures on highways. State salaries were generally reduced by from 5 to 15 per cent. A measure was passed to permit the gradual payment of delinquent taxes by installments over a period of 5 years. The office of State Auditor was abolished and its functions were distributed between the Governor and the Comptroller.

**POLITICAL AND OTHER EVENTS.** Because the Mediterranean fruit fly was judged to have been eradicated, the State Commissioner of Agriculture terminated the permission that had been given to citrus growers to use arsenical fruit sprays. The State courts tended to uphold the validity of defaulted bonds of State subdivisions as against the property in such subdivisions. Notably the State Supreme Court held valid the claims of a bondholders' committee as to the \$3,532,000 issue of Coral Gables. A start was made on Federal work to continue the reclamation of the Everglades at a cost of \$9,000,000 by the construction of levees and canals for flood control and navigation. The initial work was done on the Caloosahatchee River near Fort Myers. A movement was set under way to have Congress create a National Park in the Everglades for the preservation of birds, animals, and fishes there found.

**OFFICERS.** Governor, Doyle E. Carlton; Secretary of State, R. A. Gray; Attorney-General, Cary D. Landis; Comptroller, Ernest Amos; State Treasurer, W. V. Knott; State Superintendent of Public Instruction, W. S. Cawthon; Commissioner of Agriculture, Nathan Mayo.

**JUDICIARY.** Supreme Court: Chief Justice, Rivers Buford; Associate Justices, W. H. Ellis, James B. Whitfield, Armstead Brown, Glenn Terrell, Fred H. Davis.

**FLORIDA, UNIVERSITY OF.** A State institution of higher education for men in Gainesville, Fla., founded in 1905. In the autumn of 1931 the registration totaled 2445, distributed as follows: Arts and sciences, 567; commerce and journalism, 564; engineering, 353; education, 293; agriculture, 216; law, 202; graduate, 129; architecture, 68; and pharmacy, 53. The registration for the summer session of 1931 was 638 men and 892 women. The faculty numbered 165. The cost of operating and maintenance was \$2,330,276; the annual endowment was \$315,488. The library contained 90,000 volumes. President, John James Tigert, LL.J.

**FLORIDA STATE COLLEGE FOR WOMEN.** An institution for the higher education of women in Tallahassee, Fla., founded in 1905. The enrollment for the autumn of 1931 was 1691, distributed as follows. Graduate school, 12; college of arts and sciences, 628; school of education, 787; school of home economics, 198, school of music, 66. The enrollment for the summer session was 913. The faculty numbered 163 members. The income from endowment for the year was \$6150; State appropriations amounted to \$639,197. There were 41,238 volumes in the college library. President, Edward Conradi, Ph.D.

**FLOUR.** See **WHEAT**.

**FLOWERS.** See **HORTICULTURE**.

**FOG SIGNALS.** See **LIGHTHOUSES**.

**FOLKLORE.** See **PHILOLOGY, MODERN**.

**FOOD AND NUTRITION.** **FOOD PRICES.** *United States.*—The index number for wholesale prices of foods reported by the Bureau of Labor Statistics, U. S. Department of Labor (*Mo. Labor Rev.*, vol. 33, no. 6, p. 235) was 72.6 for October, 1931, as compared with 88.6 for October, 1930, (1926 = 100). Among the principal food groups meat again showed the greatest percentage decline, the index number falling from 96.7 to 71.1. The index number for milk and dairy products fell from 98.7 to 86.4 and for other foods from 79.8 to 67.7. The wholesale purchasing power of the 1926 dollar was \$1.377 for all foods, \$1.157 for milk and dairy products, \$1.406 for meats, and \$1.477 for other foods. *Bradstreet's* food index number based on the wholesale prices per pound of 31 articles of food was \$1.97 for the

week ended December 26, as compared with \$2.47 for the week ended Dec. 27, 1930.

The combined retail prices of 42 articles of food, as reported by the Bureau of Labor Statistics (*Mo. Labor Rev.*, vol. 33, no. 6, p. 226), were 17.5 per cent lower on Oct. 15, 1931, than on Oct. 15, 1930, with substantial decreases in practically every item. The decreases in meats varied from 12 to 23 per cent, milk and dairy products from 11 to 21 per cent, vegetables from 11 to 42 per cent, fruits from 3 to 44 per cent, and cereals and cereal products from 4 to 23 per cent. Strictly fresh eggs were 15 per cent, sugar 3, tea 2, and coffee 18 per cent lower. The combined index number for all of the articles included was 119.1 as compared with 144.4 for the preceding year.

The even greater downward trend in food prices in the United States in 1931 than in 1930 emphasized the truth of the statement noted in the 1930 report that food prices reflect in large measure the fluctuations in business activity and the buying power of the consumer. Until business shows a marked upward trend it is to be expected that food prices will remain low. In a talk given in November to potato growers in Florida, L. H. Bean of the Bureau of Agricultural Economics, U. S. Department of Agriculture, stated that while the trend of commodity prices during the next five or ten years could not be clearly foreseen, many believed that the factors making for a declining price level were stronger than those tending in the opposition direction.

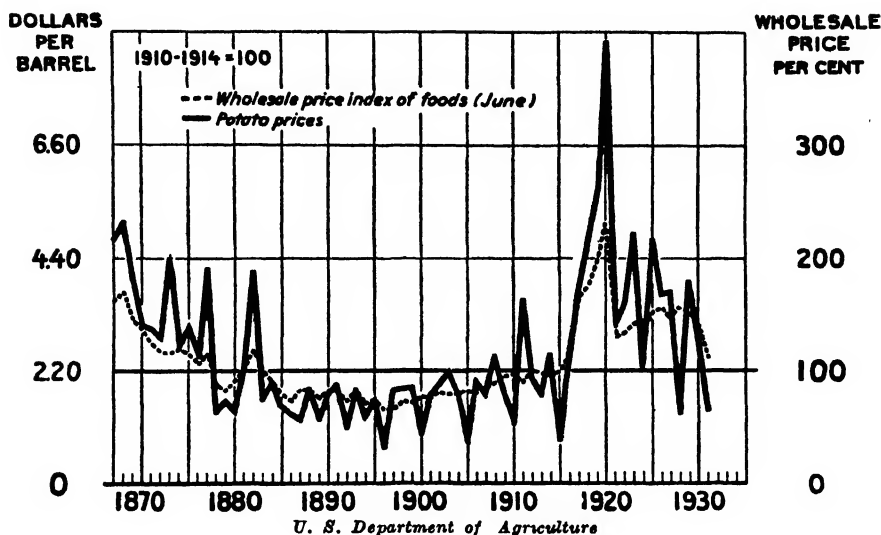
The chart on page 318, prepared by the Bureau of Agricultural Economics, shows the general trend in the wholesale price index for foods and in the wholesale prices received for a single commodity, early potatoes in Virginia, from 1867 to the present time. The curves for these two items showed a downward trend for 30 years after the Civil War, followed by a fairly level period until the World War, then an abrupt rise to the 1920 peak, followed by the decline to the present low level. The prices of other farm products show the same trend, fluctuating from year to year with the size of crops and changes in demand condition, but following the general commodity price levels as affected by business conditions.

*Other countries.* The general trend of retail food prices throughout the world may be seen from the accompanying table compiled from data reported by the Bureau of Labor Statistics (*Prices, Wholesale and Retail*, November, 1931). The index numbers, constructed by the various national statistical offices, were based on the prices of a number of articles of food weighted according to different standards, but unless otherwise noted referable to a 1914 basis of 100. These

INDEX NUMBERS OF RETAIL FOOD PRICES IN THE UNITED STATES AND OTHER COUNTRIES  
[1914 = 100]

Year and month	United States *	Canada *	Belgium	Czechoslovakia	Finland	France <sup>b</sup> (Paris)	Germany
1930, September . . . .	146	141	874	839	976	129	142
1931, September . . . .	119	109	786	761	844	119	125
Year and month	Italy *	Norway	Sweden	United Kingdom	India (Bombay)	Australia	New Zealand
1930, September . . . .	508	151	139	144	134	141	140
1931, September . . . .	438	136	130	128	100	124	124

\* 1918 = 100. <sup>b</sup> In gold.



WEIGHTED AVERAGE FARM PRICE OF EARLY WHITE POTATOES IN VIRGINIA AND WHOLESALE PRICE INDEX OF FOODS, 1867 TO 1930

Prices received for early potatoes tended downward for 80 years after the Civil War as did the general commodity price level, then rose to a peak in 1920 and have declined since then. The yearly fluctuations are due usually to changes in the crop and at times to changes in demand conditions.

index numbers likewise are found to show marked decreases for all countries.

**EMERGENCY FOOD RELIEF AND CHILD HEALTH.** The increasing amount of unemployment and resulting poverty during the year created emergency problems of food relief. Realizing this the President's Organization on Unemployment Relief, in cooperation with national welfare and scientific organizations, issued fundamental recommendations urging that wherever possible children of needy families be provided with proper food in their homes and that enough be allowed for the entire family.

For distribution among needy families and use by emergency relief agencies pamphlets on emergency nutrition and food at low cost, written by well-known nutrition authorities, were published by the American Child Health Association. Pamphlets and leaflets along the same line were issued jointly by the Children's Bureau of the U. S. Department of Labor and the Bureau of Home Economics of the U. S. Department of Agriculture. All of these publications emphasized the importance, particularly in childhood, of the protective foods—milk, fruits, and vegetables. It was considered absolutely essential that every child should have one pint of milk, one vegetable, and one fruit a day, with plenty of bread, cereals, and other energy and body-building foods. For every child under two years of age a daily allowance of two teaspoonfuls of cod-liver oil was recommended, not as an additional safeguard but as an imperative necessity.

In order to get the most for the money spent for food, the general recommendation was made that a family with children should spend one-fourth of every food dollar for milk, one-fifth for vegetables, one-fifth for bread, cereals, and legumes, one-fifth for fats and sugars, and the rest for eggs, cheese, meat or fish, and accessory articles.

**FOOD SELECTION AND EXPENDITURE.** In times of

prosperity the chief concern in regard to food selection is the adequacy of the diet with cost a minor consideration. In periods of economic depression, however, it becomes a matter of paramount importance, as pointed out in the various food emergency publications, to select food wisely from the standpoint of cost as well as nutritive value. A study by Muse and Gillum (*Vermont Agr. Expt. Sta. Bul. 327*) of household account books kept during 1928-30 by 50 farm women in Vermont showed that the total food costs averaged \$101 per man a year, or 45 cents a day. No diet costing under 40 cents a day was adequate in all respects and only two adequate diets cost as much as 50 cents. The average cost of the 19 diets considered fully adequate was 52 cents.

Somewhat lower costs were reported by McKay and Brown (*Ohio Agr. Expt. Sta. Bul. 492*) in a similar but more extensive investigation of food selection and expenditures by Ohio farm families. The average money values of the diets analyzed for three consecutive years, 1926-28, were \$134, \$121, and \$120 per man per year. The average expenditures for each of the principal food groups in percentage of the total cost were remarkably constant from year to year for milk and cream, bread and cereals, and fats, sugars, and other foods, which averaged 16, about 11, and 22 per cent, respectively, of the total expenditures. The other two groups—meat and protein-rich foods and fruits and vegetables—showed greater fluctuations, the percentage spent for one decreasing as the other increased.

In this Ohio study there were 18 families from which accounts were secured for the three consecutive years. The diets of 11 of these families were considered adequate or more than adequate in the averages for the entire period. The principal differences between the adequate and inadequate diets were in the two groups which in general showed the greatest fluctuations, the adequate

diets containing a lower percentage of meat and protein-rich foods and a higher percentage of fruits and vegetables than the inadequate.

The money values of the inadequate diets ranged from 34 to 50 cents, with an average of 41 cents, per man per day as compared with a range of from 22 to 51 cents, and an average of 31 cents, per man per day for the seven diets which were considered inadequate in some respects. The wide range in cost in both adequate and inadequate diets suggests the probability that slight changes in the spending plan would have made possible the selection of adequate diets at no greater average cost than that of the inadequate diets.

General improvement during the past 15 years in the habits of food selection by New York City families of low income was shown by Gillett and Rice (*Influence of Education on the Food Habits of Some New York City Families*) in a comparison of foods purchased by about 100 low income families in 1928 with those reported in a comparable study made in 1914-15. The earlier study, by Sherman and Gillett, was the basis of the well-known simple rule proposed by Sherman of dividing the food dollar roughly into fifths for each of the five principal food groups. This rule was used in the food instruction given by the Nutrition Bureau of the New York Association for Improving the Condition of the Poor under whose auspices both of these dietary studies were carried out. Each study included a few families which had been receiving instructions on the essentials of a proper diet and a much greater number which had received no direct instruction. The percentage expenditures of the uninstructed families in the 1928 study approached the standard far more closely than did the corresponding group in the earlier study, showing a decided increase in the expenditure for fruits and vegetables and decrease in that for meat and fish. The expenditure for milk and cheese, although greater than in the earlier study, was still slightly below the standard.

The expenditures for food of the families which had received some instruction were very close to the standards set. That the improvement in food selection did not involve any greater total expenditure for food, but on the contrary a lower expenditure, was shown by the fact that the average cost of foods purchased by the uninfluenced families receiving the poorer diet was 60 cents, and of the influenced families receiving the better diet only 53 cents per man per day.

**INFANT FEEDING.** Although it is well known that cow's milk varies widely in composition and that it can be enriched in certain constituents by proper feeding, it has generally been assumed until fairly recently that human milk is always of good quality and the best possible food for infants. With the discovery of the vitamins, it became recognized that the primary cause of infantile beriberi in the Philippines was the deficiency in breast milk of the antineuritic vitamin B. As shown in a paper by Albert (*Philippine J. Sci.*, vol. 45, p. 297) there has been a steady decrease in the incidence of infantile beriberi in the Philippines subsequent to the discovery that it is a deficiency disease curable by antineuritic vitamin concentrates such as tikitiki.

Attention was called in the 1930 report to an extensive investigation which was being conducted in Detroit on women who were superior milk producers of the Mother's Milk Bureau of that

city. An extension of this investigation by Macy and associates (*Am. J. Diseases Children*, vol. 42, p. 569) to the composition of the milk produced by these women during the first and last halves of the nursing period showed that as nursing progresses the milk becomes much richer in fat, protein, casein-nitrogen, total solids, and phosphorus. These findings are of practical significance. A small weak baby unable to nurse for more than a few minutes might benefit by having the first portion of milk removed before it was allowed to nurse. At the other extreme the fact that eczema, which develops in some vigorous, breast-fed babies, has been cleared up by shortening the nursing period, thus permitting the baby to get only the first and more dilute portion of the milk, suggests that the skin condition had been caused by the richness of the milk, probably in fat.

Samples of milk produced by three of these superior milk producers were tested by McCosh, Macy, and Hunscher (*J. Biol. Chem.*, vol. 90, p. 1) for their content of the vitamin B complex before and after yeast had been added to the diet of these women in 10-gram daily amounts. The vitamin potency of the milk varied with the different subjects and appeared to be inversely proportional to the quantity of milk secreted. Yeast improved the quality of the milk.

Much attention has been paid in recent years to the quality of cow's milk used for infant feeding and to the possibilities of enriching it in certain constituents by suitable feeding of the dairy cattle. The discovery of Hill (*Utah Agr. Expt. Sta. Bul.* 227) that there is a great variation in breed and in individual cows in the character of the curd of the milk produced and that for infant feeding soft curd milk is greatly to be preferred has been taken up by milk distributing organizations and soft curd milk was or was soon to be available in several cities in 20 States.

The principal vitamin deficiencies in cow's milk are in vitamins B ( $B_1$ ), C, and D. It is the general practice to give orange or tomato juice to artificially fed babies to provide vitamin C, and it has become common, though not universal, hospital practice to supply some supplementary source of vitamin B. The relative efficiency for this purpose of extracts of wheat germ and brewer's yeast was tested by Hoobler (*J. Am. Med. Assoc.*, vol. 96, p. 675) on approximately 125 babies in a children's hospital in Detroit, with the conclusion that brewer's yeast concentrate or powdered yeast was more effective than the wheat germ extract.

The feasibility of enriching cow's milk with vitamin D by feeding the cows irradiated yeast received clinical support from Hess and associates (*J. Am. Med. Assoc.*, vol. 97, p. 370) who reported the prevention and cure of rickets in a large number of babies from 1½ to 6 months of age receiving no other source of the antirachitic vitamin than milk from cows which had been fed irradiated dried brewer's yeast. Hess was of the opinion that this method of supplying vitamin D to babies is promising from a clinical point of view in that it functions automatically in the diet, relieving the physician of dependence on the coöperation of the mother.

**NUTRITION AND GROWTH OF CHILDREN.** The changes which had taken place in the past few years in theories concerning the proper feeding of children were well illustrated by a comparison of a Department of Agriculture bulletin entitled

*Food for Children* (U. S. Dept. Agr., Farmers' Bul. 1674), published during the year, with the previous edition published 15 years earlier. Less emphasis was placed in the revised edition upon milk and more upon a carefully chosen variety of foods, although it was stated that "every child should have at least a pint of milk a day" and that "many child nutrition specialists recommend a quart a day to insure sufficient calcium during the years of rapid growth." Rather more emphasis was placed than formerly upon using a considerable part of the milk allowance in the preparation of a variety of dishes in place of milk as a beverage, in which form the child's appetite for solid foods may be impaired.

Increased knowledge of vitamin values led to the recommendation of two servings each day of vegetables in addition to potatoes and two of fruits instead of one vegetable and one fruit as recommended in the earlier edition. Egg yolk and liver received more emphasis on account of their high content of iron. The chief difference in the suggested menus was in the much greater variety in the supper or evening meal. In planning the midday dinner and evening supper for children the slogan "one menu for all" was followed by careful selection and slight adjustments in the menus for adults. Greater attention was paid than formerly to variety in meals, and to flavor, color, texture, and consistency of foods and food combinations, in recognition of the psychological value of variety and attractiveness in helping to influence the desire to eat.

Many pediatricians who had to struggle with what had been aptly called the "hunger strike" in children were of the opinion that insistence upon a quart of milk a day has been the cause of loss of appetite and failure to eat on the part of some children, particularly those of the so-called linear type (tall and thin). Lucas and Pryor (*Am. J. Diseases Children*, vol. 41, p. 249) found that the diets of children of this type who were suffering from anorexia, or refusal to eat, were generally very high in fat. As the first step in correcting diets of this type they recommended substituting for the accepted quart of milk a day a quart of fruit juices. In general, diets of low residue, low fat, and high vitamin content were recommended, with insistence on abundant rest.

An illustration of the beneficial effects of rest and regularity in habits upon the health and growth of young children was afforded by monthly growth records, covering a total of three years, obtained by McKay and Brown (*Ohio Agr. Expt. Sta. Bul.* 482) for a large number of pre-school children. These records showed a decided tendency to greater gains in weight during the summer than the winter—both in the averages of large groups and in the individual records. There were several children, however, who gained more during the winter than the summer. Nearly all of these children had been in nursery schools during the winter with supervised recreation and rest, while in the summer their afternoon naps were shortened or given up entirely. This suggests that with general environmental conditions as good in winter as in summer the rate of growth during the winter season would be equal to that of the summer season.

**TRACE ELEMENTS IN NUTRITION.** The term "trace elements" was coming into use to designate certain inorganic elements which occur in such small quantities in food materials as to require sensitive methods for their quantitative deter-

mination, but which are recognized as just as essential to nutrition as the better-known constituents occurring in much larger quantities.

One of these trace elements is iron, which has long been recognized as essential for blood formation and regeneration. Within the past two or three years it has been quite definitely proved that traces of copper are necessary as supplements to iron in the treatment of nutritional anemia readily produced in young rats by feeding them nothing but milk. Investigations carried on by Mendenhall (*Wisconsin Agr. Expt. Sta. Bul.* 420) indicated that certain secondary anemias in babies also respond to treatment with iron and copper salts. Lewis (*J. Am. Med. Assoc.*, vol. 96, p. 1135) reported that in a group of 34 children suffering from secondary anemia there was much more rapid improvement after treatment with iron salts had been supplemented with suitable doses of a copper salt. In the experience of Parsons, however (*J. Am. Med. Assoc.*, vol. 97, p. 973), cases of simple nutritional anemia which did not respond to iron therapy and a varied diet were not benefited by copper supplements. Since the iron salts used always contained traces of copper this does not necessarily disprove the theory that copper is essential as a supplement to iron.

Many such cases of anemia would probably have been prevented by proper feeding. A good method of testing the efficacy of different foods as sources of iron and copper in favorable proportions is to produce anemia in young rats by feeding them nothing but milk and then to supplement the milk with known quantities of the food to be tested. Sorghum and sugar cane sirups and turnip greens, all familiar articles of diet in the South, were found by Sheets and associates (*Mississippi Agr. Expt. Sta. Rpt.* 1930, p. 23) to be quite effective in this respect. Oysters were found by Levine and associates (*J. Nutrition*, vol. 4, p. 469) to be effective. An editorial comment (*J. Am. Med. Assoc.*, vol. 97, p. 1970) states that this discovery will probably be followed by other comparable discoveries. "making the administration of copper a gustatory delight rather than the mere ingestion of 'a dose of medicine.'"

Manganese is another trace element which may have an important, though as yet not fully understood, function in nutrition. Calculations by Hodges and Peterson (*J. Am. Dietetic Assoc.*, vol. 7, p. 6) of the manganese, copper, and iron content of serving portions of foods entering into menus recommended by a well-known authority on food selection showed that cereals were the chief contributors of manganese, vegetables and cereals of iron, and fruits important sources of all three elements in these diets. The quantities of these three elements in a diet recommended as suitable for a child three or four years old were 0.8 mg. of manganese, 4.5 mg. of iron, and 0.03 mg. of copper—traces only in comparison with other constituents of the diet.

A striking illustration of the harmful effects of another trace element, fluorine, was afforded during the year by the announcement by Smith and coworkers (*Arizona Agri. Expt. Sta. Tech. Bul.* 32) that mottled enamel, a disfiguring and destructive condition of the teeth endemic in certain sections of the country, had been traced quite definitely to excess fluorine in the drinking water of the afflicted communities, although the

amount present in the water of localities in which the condition was endemic did not exceed 7.5 milligrams per liter.

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See also; **CHEMISTRY, INDUSTRIAL; VITAMINS.**

**FOOTBALL.** The University of Southern California and the Tulane University elevens were probably the most powerful football teams in the country in 1931—a season in which the strength was remarkably well distributed and in which no one really outstanding team was conspicuous. Both the students from Los Angeles and those from the bayous of Louisiana were extraordinarily powerful and the question of definite superiority was scheduled to be settled New Year's Day in Pasadena. Tulane swept through the South like a veritable typhoon, winning all its games, and earning laurels by soundly beating a University of Georgia eleven that has defeated Yale and New York University, two of the East's best. Southern California ran into a snare in the first game of the season, September 26, when St. Mary's from San Francisco won by the margin of a single touchdown. After that the Los Angeles Trojans began to move with power and at the end of the season St. Mary's had fallen from its high estate and the previous triumph was considered an early season gesture rather than a serious obstacle in the path of U. S. C.'s claim to national supremacy.

Southern California visited Notre Dame, Ind., November 21, and defeated Notre Dame University in football. The Notre Dame team, swept along by the spirit of Knute Rockne (q.v.), coach, who died in a tragic airplane accident over Kansas in March, had marched through early season opponents in much the same manner it had done when Rockne was alive. At the end of the third quarter, at Notre Dame, November 21, Notre Dame was leading, 14 to 0, but the Trojans, with gigantic man power, sparkled in the fourth quarter and won out, 16 to 14. This game was probably the most sensational and important of the entire season,—a season that continued into winter by the playing of numerous post-season games for the benefit of the unemployed. This game meant the setting of the Notre Dame sun, but many were surprised the following week when an Army team, that had been defeated by Pittsburgh (which had been beaten badly by Notre Dame) outplayed Notre Dame completely at New York.

With the Army near the peak followed Yale, tied by Dartmouth and Army but lone conqueror of Harvard in turn victor over Army. Pittsburgh, smarting under that Notre Dame defeat probably, was the strongest team in the East at the end, despite the unbeaten record of Bucknell. Bucknell was tied three times, however, and earned most of its reputation by a 14-13 triumph over strong Fordham in New York. New York University and Columbia were other strong Eastern teams with Holy Cross not far behind.

All the glory, however, went to the Pacific Coast. California was good, and Stanford, defeated in its own territory, traveled across the

continent to down Dartmouth at Boston. The University of Oregon eleven also took the long journey and defeated New York University, in one of the most amazing upsets of the season. As N. Y. U. was considered among the leaders in the East, it is interesting to note that Southern California defeated Oregon, 53 to 0.

The Big Ten title ended in dispute between Northwestern and Purdue; Tulane, Georgia, Tennessee (conqueror of New York University in a charity game played in December) and Kentucky were all good in the South; Southern Methodist stood out in the Southwest (S. M. U. was downed by St. Mary's when it invaded the Pacific Coast); the University of Nebraska captured title honors in the Big Six Conference; the University of Utah retained the Rocky Mountain Conference championship; Drake, badly beaten by Notre Dame and Fordham in outside games, won the Missouri Valley title; Williams defeated Wesleyan and Amherst for the Little Three crown; and the University of Chattanooga captured laurels in the Southern Intercollegiate A. A.

Death was a familiar word in connection with the game of football in 1931. Forty youths died of causes attributed to the sport. Many of these deaths laid at football's door were not really the result of the game but of poor care of injury or illness. The deaths, it is safe to say, were about the same in number as in former years, but the fact that two of the men who died were from major colleges brought the matter into public discussion. Richard Brinsley Sheridan, end on the Army team, was fatally hurt in the Yale game at New Haven in October and never regained consciousness. He died two days later. Cornelius Murphy, Fordham University tackle, received concussion of the brain in the Bucknell game, and died twelve days later when a blood clot that had formed broke. Changes in the game were recommended from all sides and the rule-makers discussed the game seriously when they met in New York, December 30 and 31. At the Coaches' Association meeting and at the meeting of the National Collegiate A. A., the discussion was mainly about the deaths and injuries of the season and there was every likelihood that some changes would be advocated by the rules committee in an effort to minimize danger.

As a general rule football suffered from the depression, most of the colleges reported decreased gate receipts totals, but the depreciation was not large and the game continued to draw huge crowds, whenever a good game was scheduled. Two colleges announced their figures publicly at the close of the season, New York University reporting a total receipt of \$500,000 and Southern California estimated that \$1,300,000 would cover its income from football.

The scores of some important games follow:

Southern California, 16—Notre Dame, 14; Yale, 3—Harvard, 0; Fordham, 0—New York University, 0; Pennsylvania, 3—Lafayette, 0; Alabama, 9—Kentucky, 7; Williams, 33—Amherst, 7; Pittsburgh, 26—Army, 0; Harvard, 14—Army, 13; Holy Cross, 7—Boston College, 6; Colgate, 13—Brown, 7; California, 6—Stanford, 0; Yale, 27—Chicago, 0; Columbia, 19—Dartmouth, 6; Cornell, 13—Columbia, 0; Dartmouth, 14—Cornell, 0; Cornell, 7—Pennsylvania, 0; Stanford, 32—Dartmouth, 6; Harvard, 35—Texas, 7; Notre Dame, 0—Northwestern, 0; Purdue, 7—Northwestern, 0; Pittsburgh, 40—Nebraska, 0; Yale, 51—Princeton, 14; St. Mary's, 7—Southern Methodist, 2; Notre Dame, 49—Pennsylvania, 0; Notre Dame, 25—Pittsburgh, 12; Tulane, 20—Georgia, 7; Tulane, 28—Washington State, 14; Georgia, 7—New York University, 6; Fordham, 6—Holy Cross, 6; Holy Cross, 33—Brown, 0.



**FOOTE, JOHN A.** An American physician, died in Washington, D. C., Apr. 11, 1931. He was born in Archbald, Pa., June 9, 1874, and was graduated with the M.D. degree from Georgetown University in 1906. In addition to his practice in Washington, he was assistant professor of therapeutics and materia medica at the Georgetown University medical school (1906-08), assistant professor of anatomy (1908-10), associate professor of therapeutics and pharmacology (1911-17), associate professor of clinical medicine and diseases of children (1917-20), professor of diseases of children (after 1920), and dean of the faculty of medicine (after 1929).

He was also pediatricist to the Providence and Children's Hospitals and consulting pediatricist to the Foundling and Gallinger Hospitals. During the World War he was member of a subcommittee of the General Medical Board of the Council of National Defense and was also lecturer on social hygiene for the Bureau of Training Camp Activities and the U. S. Public Health Service. He was president of the Association of American Teachers of Diseases of Children during 1922-24, and was official delegate from the United States to the Pan-American Child Welfare Congress in Havana, Cuba, in 1927 and to the International Congress of Pediatrics in Stockholm, Sweden, in 1930. His works include *Essentials of Materia Medica and Therapeutics* (1910); *Diseases of the New Born* (1925); and *Diseases of Bones and Joints in Children* (1926).

**FORAGE CROPS.** See HAY; ALFALFA.

**FORAIN, FÔRÂN, JEAN LOUIS.** A French caricaturist, died in Paris, July 11, 1931. He was born in Reims, Oct. 23, 1852, and studied for a short time under Gérôme at the École des Beaux-Arts, but was largely self-taught, receiving his chief inspiration from Manet and Degas. His first drawing appeared in *La Cravache* in 1876, and he later contributed to *Le Figaro*, *Le Rire*, *Le Courrier Français*, *L'Écho de Paris*, *La Vie Parisienne*, and other periodicals. Many of these drawings were republished in album form under the titles *La Comédie parisienne* (1892), *Le Temps difficiles* (1893), and *Doux pays* (1897). At the time of the Dreyfus agitation in 1898 he founded, with Caran d'Ache, the anti-Semitic periodical, *Le Fils du Psst*. Among the best of his lithographs are "The Strike," "Le Cabinet Particulier," "At the Folies-Bergère," and "Papa's Pictures," while his most noted etchings include "The Prodigal Son," "Mlle. Mere," and "The Prisoner and His Child."

As a caricaturist Forain carried on the tradition of Daumier, becoming an unsurpassed master of elimination and suggestion. His satire, though restricted in innuendo, penetrated to the very heart of the social, political, and judicial life of Paris, which he caricatured with refined but caustic wit. During the World War his weekly cartoons in *L'Opinion* were notable, and later he executed an important series of etchings in which he gave a graphic description of the human misery which war causes. He was a member of the Académie des Beaux-Arts, president of the jury of painting of the Société Nationale des Beaux-Arts, and president of the Société des Dessinateurs humoristes.

**FORDHAM UNIVERSITY.** A Roman Catholic institution for higher education, under the Society of Jesus, at Fordham, New York City, founded as St. John's College in 1841. It is the

largest Roman Catholic educational institution in the United States. The enrollment for 1931-32 totaled 8754 students, including 1236 in the teachers' college and 652 in the graduate school, and a distribution among the other colleges as follows: Law, 1071; St. John's College, 1392; downtown college, 839; business administration, 284; pharmacy, 358; social service, 486; extension, 600; preparatory school, 525. The registration for the summer session of 1931 was 1251. The schools of law, business administration, and sociology and social science, and the graduate school and teachers college are at 233 Broadway, New York City; the other departments are at Fordham. There were 384 faculty members. The endowment fund amounted to \$486,000. There were 110,000 volumes in the library. President, the Rev. Aloysius J. Hogan, S.J., Ph.D.

**FORECASTING.** See METEOROLOGY.

**FOREIGN EXCHANGE.** See FINANCIAL REVIEW.

**FOREST FIRES.** See FORESTRY.

**FORESTRY.** Beset by the overdevelopment of the sawmill industry in the Pacific Northwest, the demoralization of markets and the general business instability, the lumber industry suffered a disastrous year in 1931. Lumber reached the lowest prices in many years and even at reasonable prices did not sell satisfactorily. In response to solicitations on the part of the lumber industry and other forestry interests, President Hoover appointed a Timber Conservation Board made up of prominent leaders such as Robert P. Lamont, Chairman; Arthur M. Hyde, Secretary of Agriculture; Ray Lyman Wilbur, Secretary of the Interior; John C. Merriam, President of the Carnegie Institution; Charles L. Pack, President of the American Tree Association; John H. Kirby, representing the soft wood lumber manufacturing interests; and John W. Blodgett, representing the timberland owning interests; to study the problems thoroughly and prepare recommendations. The members served without compensation, gladly contributing their services to help aid in the restoration of an important national industry. The first report of the board was issued on July 1 and contained recommendations for a drastic reduction in the lumber output until the surplus stocks were utilized.

An optimistic note was struck in the general forestry situation when the people of New York State in face of the generally difficult business situation voted a large expenditure for the purchase of additional units to be added to the already immense State forest holdings. There appeared to be no question in the people's mind of the intrinsic worth of the forest.

**THE NATIONAL FORESTS.** According to the Report of the Forester of the U. S. Department of Agriculture, the net area of the national forests was increased by 696,870 acres during the year ended June 30, 1931, making a grand total of 100,787,687 acres in these properties. The policy of purchasing land on the watersheds of important streams was continued and forest lands were purchased in States hitherto not represented. The income from the national forest properties was greatly reduced during the year due to a great decline in sales of timber from 1,488,096,000 board feet in 1930 to 1,052,616,000 board feet in 1931, a drop due in part to lesser demands and in part to a definite policy of reduction formulated by the United States Gov-

ernment to lessen competition with private owners and manufacturers. Grazing receipts, on the other hand, showed a slight increase in 1931, indicating the stability of this enterprise.

In addition to conserving timber, protecting watersheds and furnishing grazing, the national forests were recognized as an ever increasing factor in the recreational activities of the people, particularly so as national forest areas are purchased in the Eastern States near the great population centres. The Forest Service estimated that more than 31 million visitors entered the national forests in 1930. A total of 4238 miles of roads and 8611 miles of trails were constructed during the twelve months ended June 30, 1931, to facilitate the freer use of the national forests and, incidentally, to aid in their fire protection. The development of water power facilities within the national forests was also encouraged by leasing rights to various commercial enterprises.

**LUMBER TRADE.** The unfavorable international trade in lumber and lumber products in 1931 was indicated by figures presented in the U. S. Department of Commerce monthly summary of foreign commerce covering the ten months ended October 31 and corrected to Nov. 25, 1931. Exports of naval stores, gums and resins declined from \$19,546,899 in 1930 to \$12,327,388 in 1931; unmanufactured wood decreased in value from \$8,522,618 to \$5,708,871; sawmill products from \$69,287,256 to \$39,023,852; wood manufactures from \$25,761,372 to 16,518,124; paper and manufactures from \$26,257,038 to \$19,130,046. At the same time imports also show important losses in value, unmanufactured wood from \$10,943,307 in 1930 to \$6,044,384 in 1931; sawmill products from \$31,120,816 in 1930 to \$17,453,767 in 1931; wood manufactures from \$7,263,717 in 1930 to \$4,381,173 in 1931; paper base stock from \$90,963,742 in 1930 to \$62,387,884 in 1931; paper and manufactures from \$109,492,512 in 1930 to \$94,114,816 in 1931.

**FOREST FIRES.** The U. S. Forest Service, reporting for the period up to October 10, stated that a total of 584,000 acres of the national forests had burned over in 1931 as compared with an annual average of 594,000 acres for the five preceding years. In the eastern United States the fire losses were small as compared with 1930, a year of unprecedented drought. However, in Idaho and Montana moisture shortage was a serious factor but fortunately wind movement was lower than usual and lightning caused fires were fewer in number.

The development of specialized equipment such as portable pumps and the extension of the forest road system contributed materially to the control of fires. One State, Connecticut, commenced a programme of dividing the forest area into units of not more than 500 acres by the construction of fire trails. Obviously such a programme was impossible in the larger States of the South and West, but did at least forecast a hopeful future when annual losses running into millions of burned over acres will be no longer possible. Improved knowledge, better training of the workers and more effective equipment were combining slowly to diminish the tremendous forest fire hazard.

**INSECTS AND DISEASES.** Vast areas, difficult terrain and lack of roads all combined to make the fighting of pests exceedingly difficult in the forests even when the methods of control were

well established. Blister rust, present in the great western white pine region of the Northwest, may be controlled by the eradication of wild currant and gooseberry bushes, but obviously the clearing of weed plants from a million and one-half acres constitutes a truly Herculean task. Chestnut blight continued its rapid sweep of the Southern Appalachian forests, eliminating therefrom the chestnut as completely as would fire. Unfortunately no remedy is known for this pest and no hope is held for the chestnut. Bark beetles occurred in epidemic numbers at certain points in the white pine forests of Idaho, Montana and Wyoming but were successfully combated by the felling of the infested trees and the burning of the bark.

The discovery in Ohio of four elm trees infected with the serious European malady known as the Dutch elm disease caused considerable worry among foresters and other friends of the American elm. The seriousness of the disease is indicated by its behavior in Europe where it had become extremely destructive to elms, destroying their beauty and in some cases causing their death. It appeared hopeful that the early discovery of the disease in the United States might preclude its spread.

**FORESTRY RESEARCH.** With approximately 21,000,000 acres of cut-over lands in the Great Lakes area producing only low quality aspen, the U. S. Forest Service studied the situation and found that aspen stands may be converted into potentially valuable forest by underplanting the aspen with white pine and white spruce. Norway pine did not thrive, apparently because of an inability to endure the shading of the aspens. Investigations in the western white pine region showed the necessity of slash disposal following logging. Where more than 10 per cent of the soil was covered with slash, reproduction was inadequate to insure fully stocked stands. Studies in the Pacific Northwest Douglas fir region revealed the fact that seed of this valuable species probably does not live more than one year after it falls and that seed may be scattered as much as 1000 feet away from the parent tree. Studies of white pine growth in Wisconsin and in New England showed practically the same rates of growth in both localities. On average quality sites, white pine yielded at the rate of 10,500 board feet per acre at 40 years and 36,500 board feet at 60 years.

Erosion studies conducted by the U. S. Forest Service and the University of Wisconsin showed the necessity of forest growth and limited grazing on slopes of more than 25 per cent gradient and the advisability of plowing slopes of more than 15 per cent gradient only at rare intervals if at all. In Utah the U. S. Forest Service discovered that the scanty vegetation on the watersheds was an important factor in determining the degree of injury caused by floods. The runoff from partly denuded slopes was both rapid and destructive.

The Forest Products Laboratory of the U. S. Forest Service continued its important work in the utilization of odd sized and inferior lumber and in the most efficient use of good lumber. The results of studies in California led to the recommendation that it is not profitable to saw lumber from western yellow pine or sugar pine logs 14 inches or less in diameter. In the case of white fir the minimum profitable diameter was 20 inches and for incense cedar 13 inches.

Pulping experiments indicated that Douglas fir should prove a desirable source of paper pulp. Slash pine from the Southern States was found a potentially valuable source of paper.

**MISCELLANEOUS.** On February 4, the Connecticut Legislature appropriated \$100,000 for improvement work in the State forests and parks as a measure of relief for the unemployed. As a result, useless trees were weeded out, much fire wood was obtained, fire lines were established and over 800 acres of seedlings were planted, a worthy example for other States and municipalities in which unemployment was a trying problem.

Duke University Forest School and the School of Forestry of the University of Idaho were elected to membership in the International Union of Forest Research Organizations, making a total of eight American forest institutions to be so honored. A contract was let for the construction at Madison, Wisconsin, of a Forest Products Laboratory Building to cost approximately one million dollars and to be equipped with dry kilns, controlled temperature chambers and other refinements necessary to the conduct of effective research. As evidence that despite the economic situation, business carried on in 1931, one trade journal reports that as an advertising feature a single train of 117 cars of high grade redwood lumber left California for the eastern markets.

Measurements of the famed General Sherman sequoia tree in Sequoia National Park showed it to be 272 feet in height, 88 feet in circumference at the base and to contain over 600,000 board feet of lumber. The General Sherman tree and its neighbor, the General Grant, are believed to be the oldest living things on earth, their age being estimated between 4000 and 5000 years. Under the protection of the Federal government, these trees will be carefully protected.

**BIBLIOGRAPHY.** In addition to the extensive number of articles appearing in magazines, journals and as bulletins, a considerable number of books on forestry appeared during the year. Among these are: T. Gill, *The Tropical Forests of the Caribbean* (Baltimore); C. R. Heck, *Handbuch der Freien Durchforstung* (Stuttgart); E. F. Hubert, *An Outline of Forest Pathology* (New York); A. Jacquot, *Sylviculture* (Paris); E. Maxwell, *Afforestation in Southern Lands* (London); H. Wodera, *Über den Forstlichen Wirtschaftsplan und Seine Grundlagen* (Vienna); T. S. Woolsey, *Riding the Chuck Line* (New Haven).

**FORMOSA or TAIWAN.** An island about 75 miles off the southern coast of China, ceded by China to Japan on June 2, 1895. The area is 13,840 square miles, including the adjacent Hokoto (Pescadores) islands, with an area of 48 square miles, and other small islands. The population at the census of 1930 was 4,594,161 (3,993,408 in 1925). The 1930 population included about 210,000 Japanese, 130,000 aborigines, and 40,000 foreigners. Taihoku, the capital, had 205,613 inhabitants in 1920. Other leading towns were Tainan, 87,930; Keelung, 68,649; and Kagi, 47,894. In 1928-29, there were 132 primary schools for Japanese, with 28,872 pupils, and 575 schools for natives, with 223,687 pupils. The University of Formosa was opened in 1928. Japanese is the official language, but the native population, for the most part, speaks a Chinese (Amoy) dialect.

Rice, tea, sugar, and various fruits are the chief agricultural products, but the island produces in commercial quantities nearly every tropical and subtropical product. It supplies all of the world's Oolong tea and nearly all of the natural camphor. Indigo, hemp, sweet potatoes, cereals, and peanuts are other crops. Production of the chief crops was: Rice, 36,579,134 bushels (1930); tea, 7,137,000 pounds (1929); raw sugar, 774,700 metric tons (1929-30). Much of Formosa is heavily forested with camphor and other valuable trees. The total value of mineral production during 1928 was 16,513,301 yen (1 yen exchanged at \$0.464 in 1928). Gold, copper, silver, sulphur, petroleum, and coal are the principal minerals worked. Manufacturing is confined mainly to the making or refining of flour, sugar, tobacco products, oil, iron-work, glass, bricks, and soap. The manufacture and sale of opium, alcohol, salt, sake, camphor, and tobacco products are government monopolies. In June, 1931, a \$22,800,000 loan was negotiated in New York to finance construction of a 100,000-kilowatt hydroelectric plant at Lake Jitsugetsutan in the centre of Formosa. When completed, the project will be the largest in the Far East and will supply electric current to all Formosa.

Trade is chiefly with Japan. In 1929, when exports totaled \$125,343,000 and imports \$94,464,000, 87.8 per cent of all exports went to Japan proper and 68.5 per cent of all imports came from the same place. China, the Netherland East Indies, Hong Kong, and the United States were the other principal customers. The budget estimates for the fiscal year ended Mar. 31, 1931, balanced at 111,446,000 yen (about \$58,547,000), including both ordinary and extraordinary accounts. Actual returns for 1929-30 showed total receipts of 150,241,000 yen (\$74,895,000) and total expenditures of 122,296,000 yen (\$60,964,000). The public debt outstanding on Mar. 31, 1930, was about 117,098,000 yen (\$58,373,000). In 1930, there were 549 miles of Government railway lines, a number of private (plantation) railway lines, about 2500 miles of highways suitable for motor traffic, and 759 miles of telegraph and 2060 miles of telephone wire.

The civil government of the island is administered by a Japanese governor-general, supported by a force of Japanese police. To guard the settled areas against inroads of the still unsubdued aborigines in the northern mountains, a frontier zone of over 300 miles has been established, of which about 230 miles are protected by charged barbed wire. Governor-General in 1931, Eizo Ishizuka. See JAPAN.

**FOSSIL RACES OF MAN.** See ANTHROPOLOGY.

**FOSSILS.** See GEOLOGY; ZOÖLOGY.

**FOSTER, SIR GEORGE EULAS.** A Canadian statesman, died in Ottawa, Ont., Dec. 30, 1931. He was born in Carleton Co., N. B., Sept. 3, 1847, and was graduated from the University of New Brunswick in 1868, later studying at the universities of Edinburgh and Heidelberg. After several years of teaching in Grand Falls and Fredericton, N. B., he was appointed in 1872 professor of classics at the University of New Brunswick. He resigned his professorship in 1879, and after two years spent in lecturing on temperance in Canada and the United States, he entered politics and was returned in 1882 to the Dominion House of Commons as a Liberal-Conservative from King's Co., New Brunswick. In 1885 he

entered Sir John A. Macdonald's cabinet as Minister of Marine and Fisheries. In this office he was called upon to prepare the case for Canada to be presented to the joint commission in Washington, which had been appointed to settle the long-standing dispute over the deep-sea fisheries. His brief for Canada was an able presentation and left its impress on the Bayard-Chamberlain Treaty of 1888.

In 1889 Foster became Minister of Finance and continued to hold this portfolio in the succeeding cabinets of Sir J. J. C. Abbott, Sir John Thompson, and Sir Mackenzie Bowell until 1896. In 1896-1900 he represented York Co., New Brunswick, in the House of Commons, and from 1904 to 1921 sat for North Toronto, Ontario. He visited the West Indies in the interest of improved trade between Canada and those islands in 1890, was a delegate to the first intercolonial conference at Ottawa in 1892, and in 1895 supported a resolution in the House of Commons for the extension of the Dominion franchise to women. In 1903, on the invitation of Joseph Chamberlain, he delivered a series of public speeches in Great Britain in support of imperial trade preference. He was also a strong supporter of adequate protection for Canadian industries and the development of Canada by railway and steamship facilities. In 1911 he became Minister of Trade and Commerce in the cabinet of Robert Laird Borden, and continued in this office until his appointment to the Senate of Canada in 1921.

Foster was Canadian representative during 1912-17 on the Dominions Royal Commission, appointed to inquire into the resources and commerce of the United Kingdom and Overseas Dominions. In 1916 he was made a member of the Privy Council of Great Britain and Ireland, and was one of the four representatives of the British government at the economic conference of the Allies held in Paris in June, of that year. He represented Canada at the Paris Peace Conference in 1919 and was head of the Canadian delegation to the first Assembly of the League of Nations in Geneva in 1920, being elected a vice president of the League on that occasion. He also attended the League's seventh and ninth Assemblies (1926 and 1928) in the same capacity. He was created a Knight Commander of St. Michael and St. George in 1914 and a Knight of the Grand Cross of St. Michael and St. George in 1918.

**FOUNDATIONS.** The year 1931 apparently was lacking in the construction of any bridge or building foundations of unusual interest. In New York City, the centre in recent years of some of the most remarkable foundation constructions ever attempted, the depressed condition of building greatly reduced such construction. Attention was centred largely on three operations.

Work in the block between Wall and Pine Streets and Broadway and Nassau Street resulted in the first great difficulty encountered in the recent rapid extension in the use of non-pneumatic methods. This trend was noted in recent YEAR BOOKS and attention called to the danger involved in such construction. In excavating in the open for new construction on this block the settlement of an adjacent building was such as to endanger its stability, and it was condemned and tenants have been forced to vacate.

Two great constructions on West Street, the Hudson River water front, were of interest

largely because of their size. The foundations of the new New York Central R. R. Terminal Warehouses, which will cover three city blocks, were being put down by the combination of the open dredging process with pneumatic closing, which was so successfully used on the Hackensack River Crossing, described in the 1930 YEAR BOOK. Circular steel forms were used in making concrete caissons, which were added to as excavation with clamshell buckets, in the space enclosed, caused them to sink. The final closing and sealing of these caissons to rock was done under air pressure and they were then filled with concrete to form solid piers.

In the Inland Terminal construction of the Port of New York Authority, further north on the West Side, an ingenious adaptation of the sheeting methods employed on the Houston Street subway were being employed. At this point some of the water bearing fine red sand, known locally as "bull's liver," was encountered. Steel H-beams were driven vertically to support horizontal "breast boards," and the excavation was carried down in a series of levels or berms permitting a progressive shoring of the work and the gradual unwatering of the material.

**BIBLIOGRAPHY.** The publication by the Columbia University Press of *Underpinning* by E. A. Prentis and L. White marked the first important work on this subject and contains many valuable notes from the wide experience in this field of these engineers. See BRIDGES.

**FOUNDATIONS, EDUCATIONAL.** See EDUCATION IN THE UNITED STATES; UNIVERSITIES AND COLLEGES; BROOKINGS INSTITUTION; CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING; ROCKEFELLER FOUNDATION; RUSSELL SAGE FOUNDATION; UNEMPLOYMENT.

**FOWL, FOWL DISEASES.** See LIVESTOCK; VETERINARY MEDICINE.

**FRANCE.** A republic of western Europe, whose land frontiers are bounded by Belgium, Luxemburg, Germany, Switzerland, and Italy on the north and east and by Spain on the south. Capital, Paris.

**AREA AND POPULATION.** The acquisition of Alsace-Lorraine as a result of the World War increased the area of France from 207,054 to 212,659 square miles (see ALSACE-LORRAINE). The population (census of March, 1931) was 41,834,923, as compared with 40,743,897 at the census of 1926 and 39,209,518 at the census of 1921. Slightly more than half of the population was rural in 1931. In the same year there were 2,890,923 foreigners in the country (2,295,642 in 1921). In 1929, for the first time since the World War, the French death rate exceeded the birth rate. Deaths numbered 741,104 and births 728,540, or a net loss in population of 12,564. In 1930 the normal excess of births was restored. Births numbered 748,911 and deaths 649,125, or an excess of births of 99,786. Marriages in 1930 totaled 342,098, as against 333,841 in 1929, while divorces numbered 20,409, as against 19,353 in the previous year.

According to the preliminary returns received from the 1931 national census, greater Paris had 4,474,357 inhabitants, of whom 2,891,020 were in the city proper and 1,583,337 in the suburbs. The total population was 305,218 greater than in 1926, and the population of Paris proper compared with 2,871,429 in 1926 and 2,906,472 in 1921. Other cities with a population of more than 200,000 at the 1931 census,

with 1926 figures in parentheses, were: Marseilles, 800,881 (652,196); Lyons, 579,763 (570,840); Bordeaux, 262,990 (256,026); Nice, 219,549 (184,441); Lille, 201,569 (201,921).

**EDUCATION.** Elementary education is free and compulsory between the ages of 6 and 13. The school system is centralized and divided into primary, secondary, and superior classes, all under the administrative direction of the Superior Council of 52 members, which acts in collaboration with a consultative committee and the Minister of Education. Nearly 10 per cent of the 1928 conscripts were unable to write. In the school year 1929-30, there were 3691 infant schools with 369,290 pupils (of which 3146 schools with 336,588 pupils were public) and 80,224 primary schools with 4,358,887 pupils (of which 68,437 schools with 3,515,123 pupils were public). In addition, there were 531 higher elementary schools, with 79,667 pupils on Nov. 15, 1929. For secondary education, there were in November, 1929, 360 schools for boys, with 119,311 pupils, and 205 schools for girls, with 54,788 pupils. The 17 free universities in France had a total of 66,961 students on July 31, 1929, of which 17,381 were studying law, 14,574 medicine, 14,090 sciences, 15,060 letters, 4955 pharmacy, and 301 theology. Various other institutions provide technical and professional instruction.

**AGRICULTURE.** Although industry is important, agriculture is the bulwark of the French national economy. About 41 per cent of the working population is engaged in agriculture, as compared with 36 per cent in Denmark, 31 per cent in Germany, and 7 per cent in Great Britain. The land is more widely distributed among peasant proprietors than in any country in Europe, there being about 5,500,000 farm owners, with an average holding of 24 acres. At the census of 1928, 54,755,528 acres, or 41 per cent of the total rural area, were devoted to crops; in addition, there were 28,193,889 acres of permanent meadow and pasture, 2,328,450 acres of orchards and vineyards, 25,830,407 acres of woodland, and 11,281,033 acres of waste land. Despite her large farm production, France is obliged to import cereals and colonial produce; there is normally a considerable surplus of wine, dairy products, fruits, and vegetables for export. The 1930 crop yields were much smaller than the abnormally large harvest of 1929, as shown in the accompanying table from the *Commerce Yearbook* for 1931.

FRENCH CROPS: AREA AND PRODUCTION

Crop	Area (thousands of acres)		Production †	
	1929	1930	1929	1930
Wheat .....	12,750	13,202	319,861	281,115
Rye .....	1,936	1,878	39,493	29,255
Barley .....	1,853	1,799	59,025	45,338
Oats .....	8,665	8,583	395,755	302,749
Corn .....	852	762	19,646	22,023
Potatoes .....	3,644	3,491	610,601	493,423
Sugar beets ...	607	679	5,361*	8,815*
Beet sugar ‡	.....	.....	897*	1,187*
Grapevines ...	3,559	3,465	1,661,672	1,109,810*
Olives §	.....	.....	107,520*	90,362*
Olive oil ¶	.....	.....	1,414*	2,318*
Hay .....	7,245	7,131	10,082*	12,793*
Fodder beets ..	1,932	2,039	24,704*	81,206*
Green forage ..	1,789	1,759	9,818*	12,588*

\* Unit, metric ton.

† Seasons ended following year.

‡ Unit, gallon of wine.

§ Unit, pound.

¶ Unit, gallon of oil.

† Thousands of units—bushels except as indicated.

Livestock in 1929 included 15,005,080 cattle, 10,415,010 sheep, 6,016,940 swine, 2,936,020 horses, 1,372,200 goats, 249,700 asses, and 166,280 mules. Silk culture is extensively carried on; the 1929 production totaled 2,515,000 kilograms, valued at 43,374,000 francs (1 franc equals \$0.0392 at par).

**MINING.** France controls great iron ore deposits in Alsace-Lorraine, but is obliged to depend upon Germany for part of her coal supplies. The bauxite deposits are estimated at 60,000,000 metric tons, sufficient to last 100 years at the 1930 rate of production. The consumption of coal in 1930 aggregated 87,000,000 metric tons, of which 53,880,000 tons were mined in France (53,736,000 tons in 1929); consumption in 1929 was 90,200,000 tons. The output of other leading mineral products in metric tons in 1930, with 1929 figures in parentheses, was: Coke, 4,678,000 (4,764,000); briquets, 4,409,000 (4,632,866); pig iron, 10,098,000 (10,452,000); steel (ingots and castings), 9,402,000 (9,664,000); iron and steel (finished products), 6,598,000 (6,762,000); iron ore, 48,821,000 (51,024,000); iron pyrites, 198,000 (194,000); potash (K<sub>2</sub>O content), 507,000 (493,000); bauxite, 538,000 (643,000).

The index figure for the average monthly metallurgical production, calculated on a base of 100 for 1913, stood at 129 for 1929, 125 for 1930, and 103 for the month of August, 1931.

**MANUFACTURES.** Up to the spring of 1931, France was less affected than any other leading European country by the world economic depression. The decline in general economic activity (to April, 1931) was only about 10 per cent. The general index of industrial production showed a steady decline during the remainder of the year, however; the figure representing the average monthly output (calculated on a base of 100 for 1928) fell from 110 for both 1929 and 1930 to 95 for August, 1931. France in the autumn of 1931 was face to face with an economic depression only less severe than that experienced in Germany and Great Britain. The number of unemployed workmen in September, 1931, was officially given as 38,524, as compared with 964 in August, 1930. Responsible labor leaders, however, estimated the number at nearer 600,000; in addition, several million workers were employed only part time.

Statistics of manufacturing production in 1929 and 1930 are shown in the accompanying table.

MANUFACTURING PRODUCTION OF FRANCE

Product	1929		1930	
	1929	1930	1929	1930
Silk (conditioned at Lyon) .1,000 lbs.	12,487	10,661		
Wool (conditioned at Roubaix-Tourcoing) .....	220,425	204,049		
Wool (conditioned at Mazamet) .do...	57,196	52,328		
Cotton consumption* .....	790,611	795,529		
Cotton cloth .....	1,423			
Artificial silk .....	17,237	18,870		
Boots and shoes (estimated) 1,000 pairs	80,000			
Alcohol .....	66,615			
Vessels launched .....	81,607	100,917		

\* Including waste.

For industrial conditions during 1931, see under *History*.

French cotton mills in 1929 reported 11,754,000 spindles and 208,200 looms, the number of operatives being 212,160. There were in the same year 110 sugar mills, employing 28,550 workers, and producing 815,861 metric tons of refined

sugar (1928-29). The alcohol output (1928) was 47,360,000 gallons.

**COMMERCE.** The adverse foreign trade balance of 9,514,717,000 francs (about \$372,977,000) registered in the calendar year 1930 was the largest in French history. Imports were valued at 52,344,369,000 francs and exports at 42,829,652,000 francs, as compared with imports of 58,220,022,000 francs and exports of 50,139,151,000 francs in 1929. The decline in imports by value in 1930 was accordingly 5,876,253,000 francs, or about 10 per cent, and in exports, 7,309,499,000 francs, or about 15 per cent. Imports fell off faster than exports during the first eight months of 1930, but thereafter the visible balance of trade became more unfavorable with each succeeding month. By volume, however, imports increased about 2 per cent and exports decreased about 8 per cent, compared with 1929.

A reduction of 1,353,172,000 francs, or about 10 per cent, in imports of foodstuffs was explained by the excellent French wheat crop of 1929. While the volume of all raw-material imports increased 3 per cent, the value shrank 17 per cent. Purchases of foreign manufactured articles, however, increased 1,302,021,000 francs, or 13 per cent, in value over 1929. The chief export loss was registered in manufactures, which were valued at 4,535,379,000 francs less than for the previous year. Raw material exports fell off by 2,577,572,000 francs and exports of foodstuffs by 196,548,000 francs. Imports, by principal categories, were divided as follows: Manufactures, 11,230,791,000 francs; raw materials, 20,299,328,000 francs; foodstuffs, 11,814,250,000 francs. Exports were divided into: Manufactures, 26,957,684,000 francs; raw materials, 9,990,600,000 francs; foodstuffs, 5,881,368,000 francs. The increase in French foreign trade since 1913 on a quantity basis was shown by the fact that the 1930 imports were 37.5 per cent higher than in 1913, and exports were 64 per cent greater. During 1931, French imports totaled 42,190,000,000 francs (about \$1,654,200,000), a decrease from 1930 of 10,145,000,000 francs (about \$397,680,000), according to preliminary figures. Exports totaled 30,421,000,000 francs (about \$1,192,500,000), a decline of 12,409,000,000 francs (about \$486,433,000). The 1931 imports were divided by categories as follows: Foodstuffs, 4,285,000,000 francs; raw materials, 7,180,000,000; manufactures, 18,956,000,000. Exports included: Foodstuffs, 13,999,000,000 francs; raw materials, 19,038,000,000; manufactures, 9,163,000,000.

Germany replaced the United States as the leading source of French imports in 1930, supplying goods valued at 7,908,075,000 francs, as compared with 6,249,291,000 francs by the United States, 5,241,291,000 francs by the United Kingdom, 4,161,916,000 francs by Belgium, 1,518,393,000 francs by Italy, and 1,508,135,000 by Spain. French exports went principally to the United Kingdom (6,839,003,000 francs), Belgium (5,439,938,000), Germany (4,153,932,000), Switzerland (3,096,570,000), United States (2,435,523,000), Italy (1,679,803,000), and Spain (1,130,611,000).

Revenue from the tourist trade, which plays an important rôle in offsetting the adverse merchandise trade balance, was estimated to have declined from about 8,000,000,000 francs in 1929 to 6,000,000,000 francs in 1930 and to about 4,500,000,000 francs during the year 1931.

**FINANCE.** At the close of the fiscal year ended Mar. 31, 1931, total receipts amounted to 45,681,000,000 francs; but this figure was not final, as receipts continued to be collected for some time after the end of the fiscal year. In spite of important reductions in tax rates, by the law of Apr. 26, 1930, collections were satisfactory, exceeding the budget estimates for the period. Nevertheless, a deficit of more than 2,641,000,000 francs (about \$103,000,000) was reported in preliminary returns, owing to supplementary credits voted after adoption of the budget law. The budget estimates for the year placed revenues at 50,465,000,000 francs (about \$1,977,000,000) and expenditures at 50,398,000,000 (\$1,974,000,000). For the fiscal year 1931-32, a deficit of between 2,550,000,000 francs (about \$100,000,000) and 5,102,000,000 francs (\$200,000,000) was forecast; the budget estimates had anticipated revenues of 50,643,000,000 francs (\$1,985,000,000) and expenditures of 50,640,000,000 francs (\$1,985,000,000).

On Mar. 31, 1930, the French internal debt stood at 279,873,514,855 francs. The foreign debt included \$3,900,000,000 owed to the United States government (\$3,865,000,000 on Jan. 1, 1931), £771,500,000 owed to the British Treasury, a commercial debt due United States bankers aggregating \$261,669,050, and Argentine bank credits totaling 8,220,000 pesos (1 Argentine gold peso equaled \$0.9648 at par). The gold reserve of the Bank of France increased from about 54,109,000,000 francs at the beginning of 1931 to about 68,863,000,000 francs on Dec. 31, 1931.

**SHIPPING.** Vessels in the foreign trade entering French ports in 1930 numbered 32,312 of 60,990,809 tons (32,071 of 58,091,343 tons in 1929) and vessels clearing numbered 25,684 of 51,051,611 tons (25,961 of 49,192,613 tons in 1929). Marseilles, Havre, Cherbourg, Bordeaux, Boulogne, Dunkirk, and Rouen were the leading ports. The shipping traffic of the port of Havre increased from 10,921,000 tons in 1920 to 20,410,000 tons in 1930. Improvements to the port were under way in 1931. The French mercantile marine in 1928 had a gross tonnage of 3,441,000. In July, 1931, the Government was forced to assist the French Line, which had been hard hit by the World depression. See under *History*.

**INTERNAL COMMUNICATIONS.** France's railway mileage, totaling about 26,177 miles in 1930, is divided among seven systems, the largest (5665 miles) being operated by the state. The other six systems are owned by the state and leased to private companies. New railway construction authorized for 1931 and 1932 aggregated 759 miles. By April, 1931, 1041 miles of line were electrified and projects planned or under way were expected to increase the total to 1743 miles. Total operating receipts of the seven railway systems in 1930 amounted to 15,399,576,000 francs, as compared with 15,533,433,000 francs in 1929. The highway mileage in 1930 aggregated 405,028 miles, of which 22,369 miles were macadam and 380,173 miles were improved earth, sand, clay, or gravel roads. There were about 6800 miles of navigable waterways. Five subsidized and one unsubsidized air-transportation companies operated regular services over about 20,000 miles of lines within France and beyond its borders at the beginning of 1931. During 1930, planes on the six lines flew about 6,126,000 miles, transported 28,938 passengers,



3,600,000 pounds of freight, and 440,000 pounds of mail. An all-French air line from Marseilles to Saigon, French Indo-China, was opened in January, 1931. The operating deficit of the state railways was about 2,944,000,000 francs in 1931 and 1,894,000,000 francs in 1930.

**ARMY AND NAVY.** See **MILITARY PROGRESS; NAVAL PROGRESS.**

**GOVERNMENT.** The French Constitution vests executive power in the President of the Republic and the Ministry, and legislative power in the Chamber of Deputies and the Senate. The legislative branch has steadily encroached upon the prerogatives of the executive, however, and the President wields little influence in executive matters, which are decided by members of the Ministry directly responsible to Parliament. The President is elected for seven years by an absolute majority of votes in the Senate and Chamber of Deputies, and selects his cabinet ordinarily from among the members of both bodies. The Senate is made up of 314 members not less than 40 years of age and elected by an electoral college for nine years, one-third retiring every three years; the Chamber of Deputies is made up of 612 members elected by direct popular manhood suffrage for four years. The composition of the Chamber elected Apr. 22-29, 1928, was as follows: Communists, 16; Democrats, 22; Independent Radicals, 64; Left Republican Democrats, 34; Socialists, 104; Radicals and Radical Socialists, 110; Republican Socialists and French Socialists, 46; Republicans of the Left, 94; Democratic Republican Union, 110; Conservatives, 12. President at the beginning of 1931, Gaston Doumergue, who was succeeded on June 13, 1931, by Paul Doumer. For the election of President Doumer and for the composition of the Laval Ministry formed Jan. 27, 1931, see below under *History*.

### HISTORY

**INTERNAL DEVELOPMENTS.** France's rôle on the international stage during 1931 largely overshadowed her domestic problems. Yet developments in this field were important, as well as explanatory of events in the international arena. Foremost of these was the overthrow of the Steeg Cabinet on Jan. 22, 1931, just 11 days after the opening of Parliament and somewhat more than a month after the formation of the Ministry on Dec. 13, 1930. The Steeg Ministry was defeated 293 to 283 in the Chamber of Deputies on an inconsequential issue which served to confirm the delicate balance between the forces of the Left and Right. The Steeg Government had been formed of the parties of the Left and Centre, with the Left overwhelmingly predominant. The new Cabinet formed January 27 by Senator Pierre Laval—the twentieth since Clemenceau's defeat on Jan. 17, 1920—was composed of the Right and Centre parties. Aristide Briand remained at his post in the Foreign Office, although the Laval Cabinet was nationalist, in contrast to the Steeg Ministry, which was considered in closer sympathy with Briand's policy of international coöperation.

Briand's position in the Laval Cabinet was decidedly anomalous, providing the major source of controversy between the parties of the Right and Left throughout the year. His policies were those of the Left, but the Socialist and Radical-Socialist parties repeatedly voted against the Cabinet because they felt that Briand was out

of his place and lending unmerited support to reactionary groups. On the other hand the Right majority supported Briand's policies, although distasteful to them, because his participation in the Ministry was essential to its continuance in office. The situation was all the more paradoxical because of the overshadowing importance which French foreign policy, particularly toward Germany, assumed during the year. As the country anxiously watched developments across the Rhine, the Left parties in the Chamber stressed the need of peace and disarmament, while the Right saw in the Austro-German customs union proposal, the Stahlhelm demonstration at Breslau May 30, and the continual gains of the Hitlerites in German elections reasons for a firmer attitude toward Germany and increased preparedness. Yet repeatedly in May and June, when Briand was under attack, the parties voted in opposition to their convictions. In each case, however, the Cabinet was sustained by majorities ranging from 35 to 76 votes.

This abnormal alignment of the political parties was evidenced, although not quite so strongly, in the Presidential election of May 13, in which Paul Doumer, President of the Senate, was elected on the second ballot by the Chamber of Deputies and the Senate voting jointly as a National Assembly. Briand had entered the Presidential race on May 11, with little enthusiasm, after 50 Senators and Deputies had invited him to run. The contest immediately narrowed to a struggle between Briand, supported by the Radical Socialists and the Socialists, and Doumer, who was championed by the parties of the Right and the Nationalists, even though he was a member of the Left group of the Senate. In the first ballot, Briand received only 401 votes to Doumer's 442. He immediately withdrew, and on the second ballot Doumer polled 504 votes to 334 cast for Senator Marraud. Many interpreted Briand's defeat as a victory for the Right and a repudiation of the Foreign Minister's conciliatory policies. On the other hand, *Le Temps*, the semi-official government newspaper, and other experienced observers maintained that Briand's policy was not an issue and that Doumer's election was to be explained on the ground that he more nearly represented the traditional bourgeois virtues deemed desirable in the President.

Briand offered his resignation from the Cabinet, but it was not accepted. And upon his return on May 22 from Geneva, where he represented France as president of the European Union Commission and at the discussion of the Austro-German customs union before the League Council, he was prevailed upon to remain in the Cabinet.

The weakness of the Laval Ministry was again demonstrated during the winter sessions of Parliament, which opened November 12. On the first day M. Laval survived a vote of confidence in the Chamber by a margin of 39 votes, the issue involving the Government's proposal to approve an increase in railway fares without a full debate by the Chamber. On December 17, his majority was cut to nine in a vote on an electoral bill to suppress the second ballot in elections when any candidates obtained 40 per cent of the total votes. The following day, he won a majority of 59, when the Socialists and other Left parties sought to increase state aid to the unemployed. These trials of strength were symptomatic of

the increased tension in parliamentary circles due to the approach of the national elections, scheduled for the spring of 1932, at which the entire Chamber of Deputies was to be replaced. Party feeling was further excited by the increasing rigor of the economic depression, and by the disquieting aspect of French foreign relations.

The abandonment of the gold standard by Great Britain, Japan, and other countries served as a decided barrier to French exports and as a stimulus to imports from abroad. French industry suffered another heavy blow through the imposition of protective tariffs by Great Britain. During 1931 foreign trade showed an unfavorable balance of \$471,000,000, compared with \$373,000,000 in 1930.

Unemployment was increasing at the rate of 10 per cent weekly. The registered unemployed on December 5 reached 104,000, a record figure, while the total unemployed were estimated variously at from 300,000 to 1,000,000. A \$200,000,000 deficit was forecast for the French railways. To meet the situation, the Cabinet on December 5 secured the passage of a law appropriating \$140,000,000 for public works. It was estimated that this sum would keep 100,000 persons at work in many different trades for at least a year. In order to defend France "from a veritable swamping of our markets by foreign products," the Government adopted a policy of imposing quotas on certain imports, restricting imports from various countries, and levying surtaxes on imports from Great Britain and other countries whose currencies had depreciated. This policy aroused energetic protests from Great Britain, Denmark, Norway, Belgium, and Rumania, while Canada and Lithuania abrogated their trade agreements with France and the commercial treaty with Italy was likewise denounced.

The Government completed its programme on December 23, the day before the termination of the extraordinary session, of Parliament, by pushing through bills authorizing aid to both the French Line and the Bank of France. A credit of \$12,000,000 was extended to the French Line (*Compagnie Générale Transatlantique*) to save it from bankruptcy. At the same time the Government assumed ownership of a majority of the shares of the company and the right to appoint a majority of the board of directors. The Bank of France was forced to take a loss of 2,500,000,000 francs through the decline in the value of its sterling holdings following the abandonment of the gold standard by Great Britain in September. The steady decline of its shares on the Bourse induced the Government to cover the Bank's sterling losses by giving it a Treasury bond of equal value. The bill provided that the Government sinking fund would exchange other negotiable bonds for the Treasury bond. Repayment was to be made partly by the Bank itself and partly by a government budgetary annuity.

**RESULT OF THE NEGOTIATIONS.** After ten days of discussion, during which France refused to consider any proposals involving possible abrogation of the unconditional annuities under the Young Plan, the German government on November 19 asked the Bank for International Settlements to convoke a special advisory committee, provided for under the Hague agreements of January, 1930. The advisory committee convened at Basel December 7 to study Germany's capacity for the resumption of reparation payments (see **REPARATIONS AND WAR DEBTS**). In the mean-

time, however, Premier Laval had stated France's policy before the French Chamber of Deputies November 26 as follows:

"We will accept no new reparations arrangement except for the period of the economic depression; we will accept no reduction on what is due us, save in proportion as a reduction is granted to us on the war debts; and we will not consent to giving German private debts priority over reparations."

On the question of Germany's private debts, M. Laval took a stand in direct opposition to the British policy expressed a few days earlier of giving precedence to private obligations. Despite the conflict of interest between the two countries on this point, and with regard to monetary policy, France and Great Britain toward the end of December appeared to have reached an agreement for joint action on reparations and war debt. It was indicated that at the Reparations Conference called for January, 1932, they would seek a temporary rather than a permanent solution of the German situation, retaining the principle of the Young Plan. Both countries were moved to joint action by the hostility to debt cancellation evidenced during December in the United States Congress. The French press thereafter reflected much hostility to the American position.

The text of the draft treaty of non-aggression, between France and the Soviet Union, published in Paris, December 21, also aroused much criticism. If ratified, the treaty would pledge both Governments to refrain from acts of aggression or recourse to war against each other, to remain neutral in case either country was attacked by a third, to remain outside of any agreement for an international commercial boycott against the other party, to abstain from propaganda and subversive activity against each other, and to establish a system of mutual conciliation.

**THE OUSTRIC AFFAIR.** The investigation into the collapse of the Oustrie Bank in 1930, which swept away about 1,500,000,000 francs in small savings, continued throughout most of 1931. On February 14, the Parliamentary Commission appointed to inquire into the relations of members of Parliament with the bank, recommended to the Chamber that the case be examined by the Senate, sitting as a High Court of Justice. The commission also recommended the trial by the Senate of Raoul Peret, former minister of Justice in the Tardieu Ministry; Senator René Besnard, former Ambassador to Rome; and of Albert Favre and Gaston Vidal, former Under-Secretaries and former Deputies, on charges of having allowed Oustrie to use their influence to further his financial speculations in exchange for large retainers.

The recommendations were adopted by the Chamber March 25 and the Senate on April 2 constituted itself a High Court, fixing May 19 as the date of trial. The spectacular trial ended with the acquittal of all four defendants on July 23, although the verdict censured some of their acts as "deplorable."

**ELECTORAL TRENDS.** In general, the local elections held throughout France on October 18 and the cantonal elections of October 25 showed a moderate trend toward the Left Centre rather than toward the Right. The Communists and Socialists on the extreme Left and the nationalist candidates on the extreme Right were the heaviest losers, while the Radicals registered the

greatest gains. In Alsace the autonomist movement showed its strength, electing a majority of the general council of the Department of Bas-Rhin as well as an autonomist Deputy, M. Roos, from Strasbourg. The Communists, Autonomists, and Catholics of Alsace combined under the banner of the Popular Union to oppose the regular parties.

FRANCE AND THE EUROPEAN CRISIS. The triumph of French diplomacy in 1931 may be attributed directly to the financial reforms inaugurated by Premier Poincaré in 1926, the stabilization of the franc in 1928, the subsequent phenomenal inflow of gold into the vaults of the Bank of France, and the rapid increase of liquid French capital to a total estimated at 100,000,000,000 francs (about \$3,920,000,000). The gold stock increased from \$1,160,000,000 in June, 1928, to \$2,382,000,000 on Aug. 20, 1931, a total exceeded only by the gold stock of the United States. In its later stages, the gold influx was accompanied by an unhealthy restriction of credit, abnormally high prices, and an increasing budget deficit. But in the struggle to retain French political supremacy, which opened in a new and more serious phase with the announcement of the Austro-German customs union proposal on March 21, the large French gold and capital surplus played a decisive rôle.

To the French, the customs union proposal was the first step toward the political union of Germany and Austria, which had been prohibited by the peace treaties. It was regarded as the culmination of a long series of incidents which pointed toward the alliance of Germany, Russia, Italy, and the dismembered states of Central Europe in an anti-treaty bloc, determined to end French domination of the continent. To a large extent, the German government had abandoned Stresemann's policy of peace and was continually pressing France for additional concessions.

Mussolini during 1930 had aligned Italy with the agitation for treaty revision and was building up a series of alliances with the enemy states of Austria, Hungary, Bulgaria, and Turkey. Both Germany and Italy had concluded important trade agreements with Russia and Russia had supported the German disarmament demand before the Preparatory Commission on Disarmament at Geneva. On June 24, 1931, the Russo-German neutrality treaty of 1926 was renewed. The French also envisaged the possibility that Italy, Rumania, Hungary, and other Central European states might accept the invitation to enter the Austro-German customs union and thus be drawn into the orbit of Germany.

The general revulsion from Briand's policies of moderation and conciliation caused by the customs union announcement was heightened by the Hoover moratorium proposal of June 20 (see REPARATIONS; GERMANY and the UNITED STATES under *History*). To France, President Hoover's proposal for a year's postponement of reparation and war-debt payments seemed an effort to aid Germany in sabotaging the Young Plan. Accordingly France held up the acceptance of the moratorium until much of its calculated psychological effect was lost. Her final acceptance of it was conditioned upon the retention of the Young Plan in principle through the continuance of German unconditional annuity pay-

ments, these annuities being reloaned to the German railroads through the Bank for International Settlements.

The French counter-attack assumed two forms—one economic and the other financial. An economic programme to offset the Austro-German customs union proposal was introduced in the Commission on European Union at Geneva May 16. It envisaged the gradual coördination of the European economic structure preparatory to the general reduction of tariffs (for details of the plan, see UNITED STATES OF EUROPE). However, the financial offensive, made possible through the close collaboration of French financial interests with the Foreign Office, proved much more effective.

The virtual closing of the long-term loan market due to the depression and the consistently unfavorable trade balances of many European nations had forced them to turn to Paris for short-term credits. This increasing accumulation of short-term credits, subject to withdrawal at will, made the financial structures of the respective countries more and more vulnerable to attack. The announcement of the Austro-German customs union proposal was followed by the immediate withdrawal of French and other short-term credits from both Vienna and Berlin. It was charged that the French credits were withdrawn for political purposes, although the increasing uncertainty introduced into the European situation by the customs union project probably justified their withdrawal on financial grounds. Whatever the motive, the withdrawals contributed powerfully to the development of severe financial crises in both countries (see GERMANY and AUSTRIA under *History*). In June, Austria tried to raise a \$21,000,000 loan in France to bolster the tottering *Credit-Anstalt*, an Austrian private bank controlling 80 per cent of Austrian industry. The French government refused to participate in such a loan unless it was negotiated under the Auspices of the League of Nations. French bankers offered to advance the money, it was reported, but on condition that the customs union proposal was abandoned and that Austria submit once more to international financial control. Austria then appealed to Great Britain, and the Bank of England on June 17 advanced an unconditional interim credit of \$21,000,000. The British intervention was not relished in Paris, and the subsequent withdrawal of French credits from London, which aided in precipitating the financial crisis there, appeared to have a retaliatory aspect (see GREAT BRITAIN under *History*).

On July 9, the German government was forced to approach the French for a \$400,000,000 loan to stem the tide of the financial crisis. Dr. Hans Luther of the Reichsbank was informed that the French Government would participate in such a credit only when Germany abandoned the customs union, terminated work on her "pocket battleships," and prevented further hostile demonstrations by the German private military organizations.

In the meantime, France was binding her allies of the Little Entente more closely to her by the extension of large loans. French bankers furnished the major part of a \$50,000,000 loan to Rumania concluded in Paris March 11. On April 23, a similar loan of \$50,000,000 to Czechoslovakia was provisionally negotiated at the same time that Foreign Minister Beneš of Czecho-

slovakia was vigorously attacking the Austro-German customs union proposal in the Czechoslovak Chamber of Deputies. In April, also, was concluded the \$40,000,000 private loan to a French-Polish syndicate for the construction of the Polish railway line from Kattowice in Upper Silesia to Gdynia (see POLAND under *History*). And on May 8, French banks advanced the larger part of a \$42,000,000 loan to Yugoslavia for the stabilization of the Yugoslav currency and the construction of public works. Hungary's agitation for revision of treaty boundaries was scotched by the extension on August 14 of a \$25,000,000 loan raised mostly in Paris (see HUNGARY under *History*). In August, French prestige was further enhanced by French participation in two Franco-American credits to Great Britain of \$250,000,000 and \$400,000,000, respectively. It was considered significant that in the same month Mussolini's public addresses assumed a markedly peaceful tone, in contrast with his belligerent utterances of the previous year. The collapse of the British Labor Government, which had been opposed to the French disarmament thesis, and the inauguration of negotiations with the Soviet Union for a non-aggression pact and a commercial agreement, also served to strengthen French influence.

The full extent of the French victory was made plain on September 2, when both Germany and Austria formally renounced the customs union proposal. Three days later the World Court ruled that the proposal was illegal, the matter having been referred to the Court for a decision by the League Council in May. (See WORLD COURT.) France proved more approachable after these developments, and on October 22 offered a \$8,500,000 credit for the support of the Austrian National Bank. The Vienna correspondent of the *New York Times* summarized the situation on September 9 as follows:

Under the dark sky of the financial crisis and in the face of the overwhelming power it has given France to damn or save her victims, an uneasy peace has fallen over Southeastern Europe, a "pax Gallica," as the newspapers have been quick to name it.

The German government, too, was forced to swallow a rebuff and turn again to Paris for aid in securing a \$500,000,000 long-term loan, which was considered essential to stabilize Germany's financial position. On July 18, Chancellor Brüning and Foreign Minister Curtius arrived in Paris and opened loan negotiations. They were informed, according to reliable but unconfirmed reports, that France was prepared to advance the major part of the loan in return for a pledge from Germany to abandon for ten years all attacks upon the Treaty of Versailles. Brüning refused these terms, knowing that to accept meant his overthrow at home. At the Seven-Power Conference at London (July 20-23) the same thing happened. France cut off Germany from the hoped-for British and American aid by refusing to share in any financial programme. On September 27-28, Premier Laval and Foreign Minister Briand returned the visit of the German statesmen, receiving a hearty welcome in Berlin. But the results achieved were meagre (see GERMANY under *History*). The Germans still refused to accept the French political demands, and no loan was forthcoming; instead preliminary steps toward economic collaboration were taken in the hope that they would lead to the solution of the various political problems.

FRANCE AND THE UNITED STATES. With Germany beaten but still unwilling to make terms, and with Great Britain fully absorbed in the task of national reconstruction, French power was capable of being challenged only by the United States. French and American policies differed on the most important issues—the rehabilitation of Germany, disarmament, war debts, and reparations. In the financial war between France and Germany, President Hoover had intervened on the side of Germany with his moratorium proposal. The United States favored disarmament but opposed the French demand for security through a pledge of assistance in case of attack. A growing sentiment in the United States favored the revision of the Versailles Treaty and the cancellation of both war debts and reparations. Furthermore, the collapse of the pound sterling had left France and the United States as the two great financial powers still on the gold standard and the withdrawal of credits and gold supplies from one to another threatened to further upset the international financial structure.

It was to discuss these issues that Premier Laval visited the United States (October 22-27) on the invitation of Secretary of State Stimson. Recalling Franco-American disagreements at numerous preceding conferences, and particularly at the Washington Naval Conference of 1922, the French public watched Laval depart for America with considerable nervousness. He returned amid the acclamations of virtually all party groups, for the Premier had won important concessions from President Hoover without impairing Franco-American goodwill. A joint statement by Premier Laval and President Hoover and subsequent announcements by Laval indicated that the Washington government had agreed: (1) not to exert pressure on France to disarm until after "the organization on a firm foundation of permanent peace"; (2) that any new action with regard to German reparation payments should be inaugurated by the European powers concerned and within the framework of the Young Plan; (3) that Washington would not again take the initiative in the inter-Allied debt question, but would reexamine the question if the European powers agreed to reduce German reparations. Thus France obtained *carte blanche* to assume the initiative and responsibility for bringing order out of the European chaos, together with the promise of limited American collaboration in the ultimate reduction or annulment of war debts (see UNITED STATES under *History*).

Previous to his departure for America, Premier Laval had sounded out the attitude of the British government through conversations in Paris with Lord Reading, Foreign Secretary in the temporary National Government. Upon his return he immediately resumed negotiations with Germany in an effort to achieve a general political and financial settlement.

FRANCO-ITALIAN NAVAL RIVALRY. With the expiration on Dec. 1, 1930, of the Franco-Italian naval building truce (see 1930 YEAR BOOK), negotiations for a permanent settlement of the naval controversy were renewed. In February, 1931, the negotiations reached an *impasse*, whereupon Foreign Secretary Arthur Henderson sent R. L. Craigie of the British Foreign Office to Paris in an effort to harmonize the positions of France, Italy, and Great Britain. Mr. Hen-

derson's intervention was prompted by the fact that the 1931-32 French naval budget totaled about \$123,000,000, of which \$39,000,000 was for new construction including a 23,000-ton battleship to offset the German "pocket" battleship, the *Erzatz-Preussen*. It seemed certain that if France proceeded to build the battleship, there would be a new armament race between the three countries, thus causing the annulment of the London Naval Treaty of 1930.

On February 23, the British Foreign Secretary commenced a hurried trip to Paris and Rome, where he carried negotiations with Foreign Ministers Briand and Grandi to an apparently successful end. An official *communiqué* of March 1 announced the conclusion of an agreement, which was published by the three Foreign Offices on March 11. As interpreted by the British and Italian governments, the "bases of agreement" thus reached provided for stabilization of the French and Italian fleets for the period 1931-36. No new cruisers or lighter vessels were to be built, both countries were to be at liberty to construct two 23,000-ton battleships, armed with 12-inch guns, to offset the two new German cruisers constructed or authorized, and France was to be allowed a total submarine tonnage of 81,989, as against 52,700 tons for each of the other four signatories of the Treaty of London. The French, however, interpreted the bases of agreement as giving them in addition the right to commence the replacement of their over-age naval vessels before the termination of the agreement in 1936. The announcement of the Austro-German customs union proposal on March 21 served to stiffen the French attitude and a fundamental rift was revealed when the naval experts of the three powers met in London to transform the provisional agreement into definitive form. There was a discrepancy of some 66,000 tons in cruisers between the French and Italian interpretations. The committee continued its endeavors until April 22, when an exchange of notes between France on the one hand and Great Britain and Italy on the other, in which the other powers rejected the French proposals, brought this phase of the negotiations to an unsuccessful end.

Efforts to reach a new agreement were immediately begun, facilitated by the fact that neither France nor Italy put into effect their new building programmes. The French programme for 1931-32 encountered unexpected opposition in the Chamber when the debate on the measure opened June 18. The credits asked for were finally voted by the Chamber, 417 to 161, with the proviso that determination of the tonnage and characteristics of the capital ship asked for would be reserved until a later date. On July 2, however, the Senate reversed the decision of the House, approving by 165 to 131 the navy's plea for the construction of a battleship as soon as possible. The naval building programme, as approved, was estimated to cost \$160,000,000.

An important step bearing upon the subsequent negotiations was the proposal of Foreign Minister Grandi of Italy before the League Assembly September 8 for "a suspension of the execution of the new armament programmes until after the disarmament conference" scheduled for February, 1932. France, Poland, and Japan joined in opposing Signor Grandi's original proposal, but an amended agreement was reached under which the Assembly asked all governments to signify by November 1 whether they are willing

to enter an agreement to "refrain from any measure involving an increase in armaments." Both France and Italy accepted the amended proposal. See ITALY and GREAT BRITAIN under *History*; also DISARMAMENT; LEAGUE OF NATIONS.

DISARMAMENT MEMORANDUM. The French disarmament thesis was reaffirmed more strongly than ever before in a memorandum of July 21 to the League of Nations, prepared in response to the request of the Council for data on existing armaments of the various Powers. The document emphasized that further reduction in armaments must depend upon definite guarantees of security, or in other words, upon a binding agreement on the part of all states to support by force of arms a country which is the victim of unprovoked aggression. The French view was restated that unless such aid could be counted upon, each state must determine its own measures of self-defense, based upon its geographical situation and the "special risks" to which it is exposed. Furthermore the note gave warning that France would be obliged to increase her armaments in case Germany or Italy attempted to modify the Treaty of Versailles "in the name of theoretical equality." See DISARMAMENT.

OTHER EVENTS. Other developments of the year included an increase in French tariff rates on October 1 designed to protect the French market from the competition of products from Great Britain and other countries with depreciated currencies. Plans were carried forward for a railway line across the Sahara connecting Algeria with the Niger River and French West Africa. In April, President Doumergue visited Tunis to celebrate the fiftieth anniversary of the establishment of the French protectorate there. The increasing native opposition met by French colonial authorities in French Indo-China continued to arouse concern and in September Minister of Colonies Paul Reynaud left Paris for a tour of the Far Eastern possession. A textile strike in the vicinity of Roubaix and Tourcoing from May 18 to July 5 was marked by severe rioting on June 12 and 13 as a result of Communist agitation. On June 14, the excursion steamer *St. Philibert* capsized in a hurricane off the mouth of the Loire, drowning about 440 passengers. The death of ex-President Armand Fallières (q.v.) at the age of 90, occurred June 22. For the International Colonial Exposition at Paris, see EXPOSITIONS; also DISARMAMENT, AUSTRIA under *History*.

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FRANKEL, LEE KAUFER. An American insurance official, died in Paris, France, July 25, 1931. He was born in Philadelphia, Pa., Aug. 13, 1867, and was graduated from the University of Pennsylvania with the B.S. degree in 1887 and received the Ph.D. degree in 1891. He was an instructor in chemistry at the University of Pennsylvania from 1888 to 1893 and practiced as a consulting chemist in Philadelphia from 1893 to 1899. He then devoted himself to welfare work, being manager of the United Hebrew Charities in New York City from 1899 to 1908 and special investigator for the Russell Sage Foundation in 1908. In 1909 he became associ-

ated with the Metropolitan Life Insurance Company as manager of the industrial department, and at the time of his death was second vice president of that organization in charge of the welfare department. He had served as a member of the Ellis Island Commission (1903), as commissioner of the New York State Board of Charities, and as welfare director of the U. S. Post Office Department (1921-22).

He was also a past president of the New York State Conference on Charities and Correction (1917) and of the American Public Health Association (1919), chairman of the National Health Council (1923-25), and vice president of the National Conference of Social Work (1923-24). In addition to numerous papers on welfare work and health promotion, he wrote *Workingmen's Insurance in Europe* (1911); *The Human Factor in Industry* (1920); *The Health of the Worker* (1924); and *Encyclopedia of Health* (1925).

**FRANKLIN.** See NORTHWEST TERRITORIES.

**FREE BAPTISTS.** See BAPTISTS, FREE.

**FRENCH, DANIEL CHESTER.** An American sculptor, died near Stockbridge, Mass., Oct. 7, 1931. He was born in Exeter, N. H., Apr. 20, 1850. After studying for a year at the Massachusetts Institute of Technology, he decided to become a sculptor, attending Dr. William Rimmer's lectures on anatomy in Boston and in 1869 working for a short time in the studio of John Quincy Adams Ward. At the age of 23 he made for the town of Concord, Mass., the "Minute Man," which was unveiled on the centenary of the Battle of Lexington and Concord Apr. 19, 1875, and which bore the promise of his future distinction. He then spent a year in Florence with the American sculptor, Thomas Ball, and in 1876 opened a studio in Washington.

From 1878 to 1887 he made Boston and Concord his headquarters, after which he settled in New York City. During this period he made frequent visits to Paris, but although he absorbed whatever appealed to him most, he did not seem to come directly under the influence of any one French master. His genius was peculiarly American and combined singular beauty of technique with poetry, grace, and plastic charm. From the first the sculptural compactness of his groups and the play of light and shade were particularly admirable. His "John Harvard" (1882) in Cambridge, Mass., was in the severe, simple style of the "Minute Man." His busts of Emerson and Alcott also followed his early style of firm, close modeling and were characterized by the lofty intellectual quality which he so often showed in his portraitures. The marble statue of Gen. Lewis Cass in the rotunda of the Capitol in Washington was more loosely handled than the two former works but depicted strength. In the Gallaudet Monument in Washington, showing Dr. Thomas H. Gallaudet and his first deaf-mute pupil, he introduced the element of pathos which became so familiar in his later work. This was especially true of the relief "Death and the Sculptor," which he designed for the tomb of the sculptor Martin Milmore in the Forest Hills Cemetery, Boston, and which received a medal of honor at the Paris Salon in 1922.

Of the large amount of decorative sculpture which was done by French, or under his direction, at the Columbian Exposition in Chicago in 1893, the most noteworthy were the many

groups with animals, done in collaboration with Edward Potter, his former pupil, who later modeled the horses for his equestrian statues. The great gilded "Statue of the Republic," which he placed in the Court of Honor, was one of the most striking colossal statues of recent times. With the assistance of Potter he modeled the bronze equestrian statue of General Grant in Fairmount Park, Philadelphia (1899); that of General Washington (1900), presented by an association of American women to the French nation and now in the Place d'Jéna, Paris; and that of Gen. Joseph Hooker in the State House Grounds, Boston (1903). He also designed the monument to John Boyle O'Reilly in the Back Bay Fens of Boston (1895); the statues of Thomas Starr King in San Francisco (1890) and Rufus Choate in the Boston Court House (1898); the Alice Freeman Palmer Memorial at Wellesley College (1909); a "Mourning Victory" for the Melvin Memorial in Sleepy Hollow Cemetery, Concord, Mass. (1910); the statue of Gen. James Oglethorpe in Savannah, Ga. (1910); the Marshall Field Memorial in Graceland Cemetery, Chicago (1911); the seated figure of Emerson, Concord Library (1912); a statue of Abraham Lincoln in the Capitol grounds, Lincoln, Neb. (1912); the colossal marble "Lincoln" in the Lincoln Memorial, Washington (1919); and a statue of Lafayette at Lafayette College, Easton, Pa. (1922). His versatility was still further displayed in the two statues, "History" and Herodotus," for the Congressional Library in Washington; "Alma Mater" (1903), in front of the Columbia University Library; the fine bronze doors of the Boston Public Library, in low relief (1904); the "Continents"—Europe, Asia, Africa, and America—in front of the New York Custom House (1906); the ideal marble statue "Memory" (1911) in the Metropolitan Museum of Art, New York City, his finest female nude; the Du Pont fountain in Washington (1922); and the 1st Division War Memorial in Washington (1924).

French received numerous distinctions, being elected a member of the National Academy of Design, the American Academy of Arts and Letters, and the Accademia di San Luca in Rome. He was also honorary president of the National Sculpture Society and a trustee of the Metropolitan Museum of Art, New York City. In 1910 he was made a Chevalier of the French Legion of Honor and in 1920 was chosen one of the foreign associates of the Académie des Beaux-Arts of the Institut de France. He received a medal of honor at the Paris Exposition in 1900 and the Panama-Pacific Exposition in 1915, and a gold medal of honor from the National Institute of Arts and Letters in 1918. From 1910 to 1915 he was a member of the National Commission of Fine Arts, serving also as its chairman for three years. At the time of his death he was dean of American sculptors.

**FRENCH ACADEMY.** See ACADEMY, FRENCH.

**FRENCH CONGO.** See FRENCH EQUATORIAL AFRICA.

**FRENCH EQUATORIAL AFRICA.** A French possession in Africa on the Atlantic coast between the territories of the Belgian Congo and British Cameroon. Area, 912,049 square miles; population, according to the census of 1926, 3,127,707, of whom 2502 were Eu-



ropeans. The possession comprises the four colonies of Gabun, Middle Congo, Ubangi-Shari, and Chad. Brazzaville, with 4000 inhabitants, is the capital. In 1929 there were 52 native schools, with 3490 pupils, and 74 private missionary schools, with 7029 pupils.

Equatorial Africa is very rich in natural resources, for the most part undeveloped. Tropical forests extend 300,000 square miles to the Gabun coast and contain valuable timber. Palm oil and wild caoutchouc are the principal commercial products. Coffee, cacao, and cotton are raised to some extent. Copper, zinc, and lead are to be found and considerable quantities of ivory are exported. In 1928 imports were valued at 227,650,279 francs and exports at 151,318,963 francs. The general budget for the four colonies balanced at 73,160,000 francs in 1931 and at 54,500,000 francs in 1930 (1 franc equals \$0.0392 at par). A governor-general has general supervision, but each colony is locally governed by a lieutenant-governor, aided by an administrative council. Governor-General in 1931, Rafael Antonetti, appointed in July, 1924.

**FRENCH GUIANA, gè-ä-nä.** A French colony and penal settlement on the northeast coast of South America. Area, about 34,740 square miles; population at the census of 1926, 47,341. Cayenne, a seaport, with 13,936 inhabitants in 1926, is the capital. The population figures do not include the number in the penal settlement of Maroni, in which there were 4000 prisoners in 1929, the floating population of miners, French officials, or native tribes. The extensive forests are rich in timber. Only about 7900 acres are devoted to agriculture, the chief crops being sugar, rice, maize, coffee, and cacao. The chief occupation is placer mining for gold. Other minerals produced are silver, iron, and phosphates. The total imports in 1929 were valued at 50,251,978 francs and exports at 32,121,717 francs (1 franc equals \$0.0392 at par). The principal articles of export were gold, rosewood essence, various timbers, phosphates, cacao, balata, and hides. The budget for 1930 balanced at 16,370,965 francs. The colony is under a governor who is aided by a privy council and by a council-general elected by French citizens in Guiana, and is represented in the French Parliament by one deputy. M. Bouge, former administrator of Mahé, succeeded M. Siadoux as Governor of Guiana in June, 1931. He was expected to reform conditions in the penal settlement, escaped convicts having caused considerable embarrassment to the authorities of neighboring colonies. A legal dispute arose with Trinidad (q.v.) during the year over the surrender of fugitives and was referred by the British colony to the Privy Council at London. Plans to extend French control into the interior were laid by Governor Bouge during 1931. Colonial troops led by officers with African and Indo-China experience were to establish outposts in the bush and Annamite laborers were imported to build roads and cantonments.

**FRENCH GUINEA, glin'i.** A French colony on the west coast of Africa between Portuguese Guinea and the British colony of Sierra Leone. Area, 89,436 square miles; population, estimated in 1929 at 2,220,267, including 1496 Europeans (1389 French). Capital, Conakry. Imports (1929) were valued at 115,382,466 francs; exports at 60,040,268 francs. The 1930 budget fixed expenditures at 49,452,000 francs (1 franc

equals \$0.0392 at par). A railway runs from Conakry on the coast to the Niger at Kourassa and thence to Kankan, a total of 412 miles. The colony is under the Governor-General of French West Africa. Lieut.-Governor in 1931, J. L. G. Poiret. See FRENCH WEST AFRICA.

**FRENCH INDIA.** The name given to the group of five French dependencies in India, of which the chief is Pondichéry. Area, about 196 square miles; estimated population in 1930, 288,546, divided among the five dependencies as follows: Pondichéry, 185,479; Karikal, 59,800; Chandernagor, 20,397; Mahé, 12,113; Yanam, 4757. French residents numbered about 1035. Capital, Pondichéry. Paddy (rice), ground-nuts, and manioc are the chief crops. Imports, in 1929 totaled about 18,687,000 francs; exports, 270,990,000 francs (1 franc equals \$0.0392 at par). Receipts of the government in 1930 were 2,811,825 rupees; expenditures, 2,451,450 rupees; public debt, 120,000 francs. The rupee is equivalent to about \$0.36. The governor is assisted by an elective general council and French India is represented in the French Parliament by one Senator and one Deputy. Governor in 1931, Adrien Juvanon, appointed in 1930.

**FRENCH INDO-CHINA.** A French possession in southeastern Asia, comprising the colony of Cochin-China; the protectorates of Annam, Cambodia, Tongking (Tonkin), and Laos; and Kwangchow (Kwang Chau Wan), which was leased from China in 1898. Capital, Hanoi, in Tongking.

**AREA AND POPULATION.** Bounded on the west by Siam and Burma and on the north by China, French Indo-China has a total area of 284,900 square miles and a population (1926 census) of 20,698,042, divided as follows:

FRENCH INDO-CHINA: AREA AND POPULATION

Division	Capital	Area (sq. miles)	Population (1926 census)
Cochin China	Saigon . . . . .	24,700	4,119,832
Cambodia	Phnôm-Penh . .	67,800	2,535,178
Annam	Huê . . . . .	58,000	5,580,974
Tongking	Hanoi . . . . .	44,700	7,401,912
Laos	Vientiane . . .	89,400	855,146
Kwangchow	Fort Bayard . .	800	205,000
Total . . . . .		284,900	20,698,042

Of the total population in 1926, only 24,000 were Europeans. The estimated population of the chief cities in 1926 were: Saigon, 143,167; Cholon (Cochin China), 198,713; Hanoi, 103,235; Phnôm-Penh, 81,712; Huê, 60,611; Binh-Dinh (Annam), 147,199; Vientiane, 28,000.

**PRODUCTION.** Agriculture, mining, and fishing are the principal industries. The territory tributary to Saigon is one of the great rice-growing regions of the world; the rice crop of the entire country in 1930 was about 1,500,000 metric tons, of which 1,058,000 tons were exported. The exportable rice surplus in 1931 was estimated at 1,700,000 metric tons. The price of rice per 100 kilos (220 pounds), however, had fallen from \$4.67 on Jan. 1, 1930, to \$2.94 on Jan. 1, 1931. As the rice crop normally accounts for about 65 per cent of the total value of exports, the price decline resulted in severe economic depression. Rubber, sugar, cinnamon, and tea are other farm products, while the minerals exploited are coal, phosphates, zinc, antimony, tin, wolfram, graphite, and lead. Rubber exports in 1930 totaled

7738 metric tons (8700 in 1929). The total value of mineral production in 1928 was 18,460,000 piasters (\$9,245,000). In 1930, the output of coal and lignite was 1,955,000 metric tons; of zinc, 15,900 metric tons; tin, 1017 metric tons; phosphate rock, 30,300 metric tons. For production, etc., of the individual colonies, see articles on each.

**COMMERCE.** All the states of French Indo-China were united in a Customs union in 1887. In 1929, total exports amounted to 2,611,700,000 francs (\$102,379,000) and total imports to 2,602,800,000 francs (\$102,030,000). France supplied 46.2 per cent of all imports and purchased 22.1 per cent of the exports. In 1930, exports to France were valued at 526,059,000 francs (692,002,000 francs in 1929) and imports from France totaled 896,313,000 francs (1,013,278,000 francs in 1929). During the first half of 1931, exports to all countries dropped 50 per cent and imports declined 30 per cent in value, as compared with the same period of 1930. Rice, crude rubber, coal, fish and shrimps, and corn are the leading exports and cotton fabrics, metal manufactures, machinery and apparatus, silk fabrics, and kerosene are the leading imports.

**FINANCE.** There is a general budget for Indo-China and a separate budget for each of the component states. The ordinary general budget for 1930 balanced at 96,380,000 piasters (the piaster was stabilized at \$0.392 on May 31, 1930), the extraordinary budget totaling an additional 6,236,000 piasters. Opium, alcohol, and salt are state monopolies. The 1930 budget included a contribution of 11,891,000 piasters to France, representing a share in the cost of military and naval expenses. The public debt at the end of 1929 amounted to 353,494,000 French francs (\$13,857,000) and 6,646,000 piasters (\$2,605,000). The Bank of Indo-China is the leading financial institution.

**COMMUNICATIONS.** There were 1488 miles of railway line in 1929, all government-owned but leased in part to private operators. The total highway mileage in 1931 was reported at 19,931 miles, of which 8890 miles were paved, and 6209 miles were graded and passable for more than six months of the year. About \$3,630,000 was spent on highway construction in 1929. In 1929, a total of 1492 vessels in the overseas trade aggregating 4,527,867 tons entered the ports of French Indo-China and 1491 of 4,530,401 tons departed. The first air mail on regular service from France to Indo-China arrived at Saigon on Jan. 27, 1931, the trip from Marseilles occupying the scheduled time of 10 days. The telegraph and telephone system is owned by the Government.

**GOVERNMENT.** The central government is headed by a governor-general, assisted by a secretary-general, a government council, and a grand council for economic affairs. A French resident-superior administers the affairs of each of the states, except Cochinchina, which is administered by a governor. Governor-General in 1931, Pierre Pasquier, appointed Aug. 22, 1928.

**HISTORY.** The political unrest in French Indo-China arising from the Nationalist movement was aggravated in 1931 by a severe economic depression and intensive Communist propaganda. An armed uprising occurred in Northern Annam on May 1, according to a statement by the French Minister of Colonies. Bands carrying Soviet insignia attacked native outposts but were repulsed with the loss of 175 men. Later in the month it

was reported that terrorist bands in Tongking had killed 49 persons, and mutilated and tortured scores of native officials and others in sympathy with the French régime. On June 2, Minister of Colonies Reynaud disclosed details of an alleged Communist plot for a general uprising in Indo-China to the Colonies Commission of the French Chamber of Deputies. Immediately afterward, Governor-General Pasquier returned hurriedly to Hanoi from Paris, with instructions for energetic military, political, and economic measures. The Minister of Colonies made a tour of French Indo-China in the autumn of 1931. See FRANCE under *History*.

**FRENCH IVORY COAST.** See IVORY COAST.

**FRENCH LANGUAGE.** See PHILOLOGY, MODERN.

**FRENCH LITERATURE.** The great event in France—outside of politics—was the impressive "Exposition coloniale" which was bound to leave its mark in literature. See EXPOSITIONS. André Maurois told the life of the Marshal Lyautey, the organizer of the Exposition and the glorious soldier of "Greater France"; Albert Sarraut, former governor of Indo-China, gave out a remarkable volume *Servitude et Grandeur coloniales*; and the librairie Hachette in a series "Toutes nos colonies" succeeded in getting books from some of the foremost writers of exotic literature (e.g., Djibouti, *Au seuil de l'Orient*). The *Lettres du Soudan* by the late Général Mangin came out in good time; and Saint Floris was awarded the "Grand prix de littérature coloniale." The enumeration of fine books along these lines would lead us far; let us only pick out a few titles: M. and A. Leblond, *L'île enchantée*, *La Réunion*, Jean Dorsenne, *Le bateau ivre*, and *La femme des îles*, H. Bordeaux, *Un printemps au Maroc*. A curious volume of poetry was *Tam-Tam de mes nuits, poésie nocturne de la brousse*, by Bala.

Several books came out in France in answer to Duhamel's *Scènes de la vie future* which had been published in 1930 and aroused much feeling in that country. In the first place Duhamel himself gave some explanations of what he meant, in the first pages of his *Géographie cordiale de l'Europe*, explanations which in some cases sound like apologies. (In the other parts of the book the author deals with Holland, Greece, and Finland.) Then we had *L'Amérique inattendue* by André Maurois, Mme. Cazamian, *L'autre Amérique* and H. de Ziegler, *Monde occidental, Poésie de l'Amérique*.

Among other topics of discussion during the year, one of the most interesting was whether the after-war period in literature was over, or whether we were still in the hands of writers who could not keep the warlike attitude from their ways of thinking. As if spontaneously, from various sides, the debate opened in November in *La Vie*, *Nouvelle Revue Française*, *L'étudiant catholique*, *Le Correspondant*. One of the best contributions was made by Denys Saurat in *Nouvelle Revue Française* in reviewing the book of Crémieux, *Inquiétude et Reconstruction*; D. Saurat admires much the sincerity of the post war writers, but claims that after "raison classique," "sentiment romantique," and "sensational moderne," we see a return to a new humanism (not in the American sense of the word, however). Of less importance—but rather fiercer in tone—was the quarrel raised by M. Thérive of *Le Temps* about the originality of

French Romanticism—M. Thérive opposes the objective views of Tronchon's volumes on *Romantisme et Préromantisme* to what he violently attacks as prejudiced views on romanticism as presented in Professor Raynaud's book *Le romantisme et ses origines anglo-germaniques* (see *Le Temps*, Mar. 6, 1931, and also YEAR BOOK for 1930).

Another fierce quarrel was brought about by M. Grasset, the well-known publisher who wrote a severe article on "Feu le Prix Goncourt" (*Nouvelles littéraires*, October 31), saying that the "Prix Goncourt" had entirely failed in its mission, that all that was sought was to favor undeserving and discontented authors, and that some good journalists could do more to bring before the interested public really good literature. Ajalbert, one of the Goncourt Academy, retorted and the fight continued through the year. Finally a very personal controversy was aired by the publication of the *Souvenirs 1895-1918*, by Mme. Georgette Leblanc, for many years the muse and good angel of Maeterlinck, and who was repaid by deep ingratitude on the part of her great poet.

POETRY. Long out of print *Les amours jaunes* by Tristan Corbière—which show no little analogy with certain supermodern poetry—were republished (by Messein). At the same time Gérard d'Houville (wife of H. de Rénier, and daughter of Hérédia) offered a collection of her charming poems with vignettes by Latour, *Les poésies de Gérard d'Houville*; she sings, like Comtesse de Noailles, the joy of living and the horror of death; there are stanzas on the aspirations for an after life, others that exalt the virtue of suffering, and there are poems of travels.

Molière made fun of poets who put in sonnets Roman history; but here, in 1931, Emmanuel de Monteorin in *Trize siècles de monarchie française* devotes 30 sonnets to a rapid perusal of French history, while A. Bouyssy in *En marge de Quicherat* picks out 165 episodes of the life of Joan of Arc and makes 165 sonnets out of them. Jules Supervielle takes advantage of the vogue conquered by him of late in the realm of poetry to publish two collections of short pieces reminiscent of Baudelaire's *Poèmes en prose*: *L'Enfant de la haute mer*, and *Le bœuf et l'âne*—criticism has not been so enthusiastic. Louis Braquier, in *Eau douce pour navires*, offered poems collected during travels in far distant seas; he is a disciple of the unanimists and has some of their mannerisms. Let us further mention *Aux caprices de l'heure*, verses written by a sergeant of the colonial army, Henri Viale, during his wanderings with the army, sometimes realistic, sometimes abstract. From Tristan Derème came *Les compliments en vers de Putachon*.

More again was heard from the Dadaists, or as they call themselves now the "Surréalistes": Tristan Zara, who started the movement during the War, published in various periodicals fragments of what is claimed to be a grand poem, *Homme approximatif*, and a special collection, *Arbre des voyageurs*; he persists in considering incoherency as the very essence of poetry. But few, so far, have given a more consistent illustration of the theory than André Breton and Paul Eluard; together they published *L'Immaculée conception*, in which one will find more obscenity than theology indeed; they are trying

to find the form of thought most remote from normal, which is of course insanity; in other words, they offer what they call the style of a demented man; a benevolent critic has called the piece, entitled "Essai de simulation de la paralysie générale," "the most beautiful" of the volume, adding that "n'est pas fou qui veut."

A worthy disciple of those early representatives of Dadaism is Charles Plisnier, in *Prière aux mains coupées* (ed. "Ecrivains réunis"). It must be well understood that much of this dadaist poetry is written in prose called "poetic." An indisputably talented admirer of the dadaist method, in as far as it means giving up systematic thought and indulging in free reverie, is Francis de Miomandre; in his *Samsara* one will find a really beautiful *rêverie orientale* on the theme of the ever recurrent cycle of human events which are in themselves of no importance whatsoever: "Ce monde de rosée n'est qu'un monde de rosée, mais tout de même . . ." If surrealism is capable of inspiring poetry of any value, here is a sample. Some have thought that there were resemblances between the surrealist poetry in France and the negro mysticism, thus the *Cahiers du Sud* had published in October and November, 1930, translations of what they call "Sermons nègres."

Just opposite this incoherent language were the advocates of the superintellectual literature and poetry advocated by the famous Valéry. One of his most successful imitators was Gilbert Trolliet, who in his *Vie extrême* offered verses that have so much thought packed in them that a very serious study is required to grasp the meanings. Thus:

Mourir où ta chair accroupie  
Creuse le vent, bombe la mer,  
Où tes yeux peuplent un désert  
De jouissance endolorie.

Quite a number of "Prix" were awarded to poets: The most important, although not in money, was the Prix Moreas (3000 francs) which went to Marcel Omy, owner of a bookstore in Nice and contributor to the *Mercure de France*; he was rewarded for *Visage inconnu*, and *La vie est à ce prix*. The Maison de poésie presented the "Prix Petitdidier" (12,000 francs) to Victor E. Michelet, for *La Porte d'Or, Esprit merveilleux* and *Introduction à la vie ardente*; the "Prix Blémont" (5000 francs) to Louis Pize, for *Roses de septembre*. A prize of 5000 francs was also awarded to the Belgian poet Jules Sottiaux, for a collection *Sambre et Meuse*. The "Prix Verhaeren"—for a Belgian—went to Carlo Brune for *Fruits de cendres*, and *Collines que j'aimais*. The reader may be interested in an *Anthologie des jeunes écrivains belges*, published 1931 in Louvain. In La Rochelle a group of young poets started a little review of their own *Le Départ*.

THEATRE. A great many plays, several successes, but none a tremendous success. Perhaps the greatest was, at the very beginning of the year, *Le jour*, by Bernstein, a French *Hamlet*; a son suspecting that the second husband of his mother is not innocent of the death of his father—but all this presented in modern style with allusions to all sorts of psychological subtleties. Early in the year also, the staging of *David Golden* (the great novel success of 1930, by Irène Nemirovski) proved a complete failure. The long run of André Pascal's *Le grand patron* was a surprise

to many; for the author (really Baron Henri de Rothschild, the patron of the Théâtre Pigalle, see former YEAR BOOKS) was really an amateur when it comes to writing a play: A physician marries after sixty, and tries hard to satisfy an expensive wife; he lets himself be entangled in a none too honest fashion of making money out of one of his scientific discoveries; things look very ominous when the award of the Nobel Prize saves the situation at the eleventh hour. With less success Drieu de la Rochelle, in *L'eau fraîche*, treats a similar subject, a scientist who first refuses to turn into material profit his discoveries, but for the love of a woman his scholarly pride yields; the woman, who had married a rich man in the meanwhile, returns to him; both live, but hardly happily, having given up their early aspirations.

Leopold Marchand's comedy *Balthazar* tells the story of an apparently very congenial fellow who is not received with open arms when he is introduced to society; but, on learning that he is wealthy, things change for him; then some physician pronounces him not quite normal, and every one again turns his back on him; when it turns out that it was really the physician who was not normal in his own mind and a new attitude is taken again, Balthazar is disgusted and he says so. *La belle amour*, by the same dramatist, shows a woman using her feminine charms to subdue men—not a very original subject. In J.-V. Pellerin's *Terrain vague* a modern business man is driven almost insane by the intense life he has to lead to face his problems, and by the noise of typewriters, telegraph-ticking, messenger boys, etc.; he falls into a dream in which he sees before him the good days when he was not the victim of modern life; an old man, Reason, induces him to change his life.

One of the best runs of the season was Laurent Doillet's *Bourrachon* (the author was unknown before and died by accident after witnessing his success). Bourrachon stands with extreme patience many misfortunes that assail him, and this good nature is his best ally, everything ends none too badly; of course, many of his troubles come from love affairs. A rather unpleasant play by Amiel, one of the successful playwrights of recent years, is *Décalage*: a supposedly very up-to-date lady wants to analyze exactly the various pleasant things that she can get from love, so she allows 50 per cent for physical pleasure with a young man of 25, and 50 per cent of mental enjoyment with a more mature gentleman of 50—finally, however, the man of 50 is given up. This leads us to J. Lenormand, the man who tried for years to acclimatize theories associated with Freudism on the French stage; in *Les trois chambres Pierre*, a playwright has an agreement with his wife that, for his profession(!), he may need marital freedom; in the first act, his room is in the middle, that of his wife to the right and that of . . . Rose on the left. He takes to the left. The wife takes her life: in the second part of the play, Rose is on the right, and a new young girl on the left, and Pierre again takes to the left.

*La grande expérience*, by Karguel and Tirard, depicting the vicissitudes of a "soul" of a good friend who was dying and which a great biologist grafts onto his own son who was of vicious disposition, reminds one of the story by Balzac,

*Melmoth*. Less fantastic is the play by Descaves and d'Ivernois, *La tuile d'argent*, the "tuile" (colloquial for *mishap*) is a fortune unexpectedly inherited and which turns out to bring calamities at every turn. *Poupette* is a light play taken by José Germain from a story by M. Prevost; an old bachelor is beguiled by the charms of a very young girl; she, however, loves another and the old bachelor finally withdraws from the contest. Claude Puget's *La ligne du cœur* had a considerable run, being a witty play on a commonplace theme, several triangle stories amusingly interwoven.

Roger Martin du Gard (author of *Jean Barois*, of *Père Leleu* and *La gonfle*) tried his hand at the unpleasant theme which was treated in Bourdet's *Captive*, except that the abnormal person, *Le taciturne*, is a man instead of a woman. Another name with a great halo is Giraudoux who once more takes the medium of the stage to impart what he has to say: *Judith*, in three acts, is treated in the author's gently cynical style; Bethulie is besieged, the rabbis suggest to Judith to go and kill for the great glory of God the enemy chief Holofernes; fond of adventures, she goes and kills the man, but not for the sake of patriotism, but out of love, because she does not want him to live after having loved her; when she returns, the rabbis succeed in persuading the people that it was all an act of salvation by God; Judith agrees to remain silent.

Not so very different in spirit is Sacha Guitry; in his *Franz Hals*—his seventy-second play—he shows a painter who professes such an admiration for Franz Hals that he throws his own wife into the arms of his idol against her own wish. A. Fabre-Luce, known so far as a keen historian, was lured by another sort of fame; his *Richard* is a man without means who wants to marry a woman who only considers riches; he goes to America gets a huge fortune, but loses it again; but as he is still considered a rich man, he achieves his end. More interesting as a moral situation is Lemonnier's *Le Sacrement*; the daughter of an apostate, now a professor of history, is willing to marry the son of a fanatic Catholic; the father of the girl finally yields, not to God, however, but to an intriguing archbishop.

Romain Coolus was severely taken to task for his attempt at a moralizing play called *Mad*; a man, at the retiring age and having toiled many years to bring up his family, finds rejuvenation in a new love; his daughter learns of it, looks up the woman in the case, makes her give up the father; then she marries the young man who had introduced her to the woman in the case. More cheerful and less embarrassed with ethics was *La banque Nemo*, by Verneuil, which tells with zest a story not unsimilar to *Topaze*; a young bank clerk who becomes the director of the institution. The year finished on a great success, *Fanny*, by Pagnol, the author of *Topaze*: *Fanny* is a continuation of the amusing *Marius* (1929), the boy in the harbor of Marseilles who leaves his fiancée on account of his terrible longing for the sea. Fanny then marries Panisse who adopts the child, and when Marius returns he is told that Panisse is going to remain the husband: all this is treated in the same humorous and humane vein as *Marius*.

A number of plays, with characters borrowed from history or literature, were presented: J. J.

Brousson and R. Escholier, in *La conversion de Figaro*, give a continuation to Beaumarchais's trilogy; the valet Figaro is converted to autocracy and becomes the right hand of Talleyrand; critics were at odds to appreciate the play. Maurice Rostand in *Monseigneur de Létorièr* tries a rehabilitation of Louis XV; François Porché, whose last play had been a *Jeanne d'Aro*, makes an attempt to present an impartial *Tzar Lénine*; Léon Treich and Paul de Mont give a satirical picture of the French parliament and the frequent changes of ministry, in *Palais Bourbon*. The *Affaire Dreyfus* which was written by two German authors, H. Reifisch and Herzog, and played with success in Germany was adapted for the French stage by Jacques Richépin; but with scant success. Bernard Zimmer under the title *Beau Danube rouge* stages, in ten tableaux, the red episode of Bela Kun; St. George de Bouhélier revives a figure of the French Revolution in *Le sang de Danton*, while Maurice Rostand and Pierre Mortier make a play on the curious figure of *Général Boulanger*, the man who had to choose between service to his country and love, who chose love, but ended by committing suicide on the tomb of his mistress.

The new Théâtre Pigalle, said to be the best equipped theatre in Paris, if not in the world (see previous YEAR BOOK), had more success this second year with *Donogoo-Tanka*, originally a film scenario by Jules Romains, now worked into a play; then, with *Stève Passeur's La Chatne*, three very gloomy acts from which one would infer that the earth is inhabited by monsters only.

The "Compagnie des quinze," which was an outcome of the efforts of Jacques Copeau to renew the stage, took over for several months the Vieux Colombier theatre, and offered three plays by André Obey, one a *Noé* rather original but much criticized by some, a *Viol de Lucrece* which was supposed to be an adaptation of Shakespeare, and in December *Bataille de la Marne*, a sort of allegorical evocation which like the previous performances was both praised and copiously ridiculed. The *Bataille de la Marne* was awarded the substantial "Prix Brieux," destined to a play with lofty inspiration.

The dean of the playwrights of the comic vein, Tristan Bernard, at last realized his dream and had his own theatre, in which he gave among others *Le sauvage*,—by which was meant not the savage of Rousseau, but a man who was born shy and developed a pessimistic mind.

Among the "reprises" of the year, two deserve mention on account of the success obtained: Paul Raynal's *Maitre de son cœur* (this time given at the "Théâtre Français") and Francis de Croisset's *Pierre ou Jack*.

Here may be mentioned two books on the Russian stage, *Mon théâtre à Moscou*, by Henriette Pascal, the French actress who for a while was allowed to establish in the land of the Soviets a French theatre for children in which she gave often fairy stories, but she was later stopped; the other by Mme. Nina Gourfinkle, *Le Théâtre russe contemporain*. Before the end of the year, Lugne Poë, the well-known theatrical manager gave in book form his *Mémoires* which had appeared serially, under the title *Acrobaties ou le sot du tremplin*.

FICTION. Here are, first, the novels which were awarded valuable prizes: The "Grand Prix lit-

éraire" of the French Academy went to a man who was mostly a novelist, Raymond Escholier, author of *Catégorie*, and this year of *Herbe d'amour* (scene in Ariège). The "Grand Prix du roman," also of the French Academy, to Henri Pourrat, who with *La Tour du Levant* ended his delightful series of four stories of Gaspard, the free and sympathetic vagabond of Auvergne. Late December is the great season for these awards, and the following were announced; "Prix Goncourt," Jean Fayard (the son of the publisher) for his novel *Mal d'amour*, a psychological study of after-war youth who has treated love too lightly, while perhaps it had been taken too seriously before. (Fayard had attracted attention eight years previously with *Oxford et Margaret*, written after his stay as a student at Oxford.) The "Prix Femina" went to Antoine de Saint-Exupéry, the French "Lindbergh," who after having served as postal pilot in Africa (Casablanca-Dankar line), then in South America, then again in Africa, wrote first *Nord-Midi*, and now *Vol de nuit*, hailed by the press as the real aviation novel. The "Prix Renaudot" went to Ph. Hériat, for *L'innocent*, a story of a somewhat morbid nature reminding of Chateaubriand's *René*; it was the first book by this author who is well known, however, on the stage and on the screen.

The "Prix du premier roman" to Mme. Nabert-Neis for *La cavalier de la mer*. The "Prix de littérature régionale" to Maurice Pottecher, the founder of the famous open-air theatre of Bus-sang, 35 years ago. The "Prix de littérature sportive," to Henry Decoin, for *J. E. M. et Quinze rounds*. The "Prix Interallié" to Pierre Bost, for *Le scandale*. The "Prix de la Renaissance" to Joseph Peyré, for *L'escadron blanc*. One of the most discussed was the "Prix du roman populiste," which went to Eugène Dabit for *Hôtel du nord*—with much regret that it could not be given to Henriette Waltz too, author of *Cœur de ma rue*. Against expectations this "littérature populiste" seemed to hold its own. It had been launched two years previously by a manifest of Léon Lemonnier (pub. by *Le centaure*, 157 Boul. St. Germain), and a volume on this "roman populiste" by the same author came out in 1931: they want "la vérité sans romanesque," being particularly anxious to be distinguished from Zolaism of old: "Nous en avons assez de la littérature snob"; and "Nous croyons que le peuple offre une matière romanesque très riche et à peu près neuve."

They succeeded in winning over to their camp André Thérive, who has since become the literary critic of *Le Temps*, and who himself wrote two "populist" novels, *Sans âme* and *Le charbon ardent*. Other novels of that school that made hits were: Lemonnier's *Les destins sont solitaires*; Louis Chaffurin, *Pique-puce*; Louis Guillaux, *Maison du peuple*; and especially Cécile Lothe's *La petite fille aux mains sales* (1930).

To pick out from the flood of novels of the year those that are more deserving is no easy task. Here are some that received most praise: Jacques Chardonne, *Olaire*, a woman who considers that her own happiness lies entirely in her husband's happiness, a theme which although odd in our days is strongly brought out. J. Kessel, *Le coup de grâce*; after three years this author comes again before the public with a novel; the theme is that of a chief in Beirut, who is worshipped by one sergeant until the

latter discovers that the magnificent officer is like wax in the hands of a woman—who happens to be his own mistress; then he despises his former idol, but finally kills the woman. J. Schlumberger, the financier of the *Nouvelle Revue Française*, in his *Saint Saturnin* (the name of a domain) pictures a man who is seriously unbalanced in his old age, and who threatens, by his senile acts, the prosperity of his family. Georges Lecomte, of the French Academy, in *Forces d'amour*, shows the hard struggle between evil forces in society and sound elements—the latter finally triumphing. The same may be said of P. Bourget's *La rechute*; once more this author admirably states the reasonings of modern ethics, but only to show how misleading they really are. R. Bazin echoes the same views in *Magnificat*, the story of an ecclesiastical vocation prompted by the war: the Church alone can solve the social problems, "the social question is a religious question."

We remain among Academicians with Abel Hermant, who, in *Lincoln de pourpre*, ridicules snobs who believe they have buried the old human love in a "crimson shroud"; and also Henry Bordeaux, who in *Murder Party* borrows the plot of his novel from the well-known American parlor game, but the game turns out to be a case of a real murder. Thierry Sandre in *Monseigneur Jules* has a "Topaze" case in a novel: a very humble man who rises to a very high social position. Henri Duvernois in two novels of a rather different nature develops a theme familiar with him, viz. that woman is a combination of kindness and of cruelty; rather amusing is his story of *La poule* (the "poule" being a father blessed with five daughters who finally find their mates); and rather clever is the story of two sisters who look so much alike that odd and sometimes embarrassing confusions are brought about: *Les Sœurs Hortensias*. The "éternel féminin" is further discussed by E. Pérochon, who created a sister to his famous Nène—*Marie-Rose Méchain*, an honest, pure girl, who lives in a mean and heartless bourgeois milieu, undergoes the most painful experiences, and finally finds some relief in devoting her life to the education of an orphan; by André Cortis in *Soledad*—a mother and her daughter desire the same man, and neither shall have him; by Serge de Chessin (a new name in literature) whose *Sora* draws a picture of three Swedish girls, all of the modern type; in two novels by women very unkind to their own sex: *Le maléfice*, by Margerite Jouve, and *L'Ennemie intime*, by Marcel Tinayre—the latter one of the best novels of the year.

Germaine Acremant continues to hold up to ridicule the provincial women in *Une petite qui voit grand*. One of the most painful, but powerful of these novels dealing with psychology of women is Auguste Bailly's *Le figuier maudit*; the title is sufficient indication of the sort of women he describes. Jean Vignaud's *Le huitième péché* attracted quite a little attention; it is a case of "narcissism," i.e. the sin of physical self adoration in an actress. J. H. Roemy, aîné, in *Helgør du Fleuve bleu* depicts love in prehistoric man (as he had done in *Vamirch*); while Miriam Harry in *Amina, ma colombe* has another of her oriental love stories; Cl. Farrère, in *Le chef* tells the old story of a woman of high birth who is fascinated by an energetic communistic leader, the Portuguese Vasco Ortiago; and Nicolas Ségur in *La chair* discusses a puz-

zling case of modernistic love; the Belgian Franz Hellens publishes *Le rendez-vous dans une église*. Several modern "Renés" are offered: Pierre Bost, *Le scandale*, the most successful of those novels of discontented souls (mentioned above); Marcel Aymé, *Le vaurien*—"vaurien" because he does not fit in the milieu; Drieu de la Rochelle, *Le feu-follet*, the melancholy soul of the 1920; and Ph. Hériat, *L'innocent* (mentioned above).

One of the most popular novels of the end of the year, and suggested by many for one of the great literary prizes, was *L'escalier*, by Jean Pallu (a newcomer): the story of a globe trotter, having won and lost a fortune abroad, then coming back to Lyon, his native town, which he longed to see again; but, after having puzzled every one by his ways and talks, he disappears, having tasted too much again of the sedate life of most of us. P. Istrati gives another of his novels of the "sans patrie" in the Near East, *Taatsa-Minnka*. Constantin Weyer also continues to offer what his public had liked: *Napoléon Laronde* is a story of the woods of Canada. Blaise Cendrars keeps his faithful public with stories of tramps in the two hemispheres, this year it is *Rhum ou l'aventure de Jean Galmont*. Maurice Dekobra in *L'Ange aux pieds fourchus* tells the story of the son of an American millionaire, who gives up his millions and finds his destiny in saving from moral wreckage a beautiful Mexican woman. Maurice Larrouy has a new sea novel *Les sept sacrements*. R. Dieudonné has a sport novel *Frangins*; J. Jolinon, *Marie Bourgogne*, a peasant novel; H. Béraud, *Les lurons de Sabolas*, a provincial novel.

The reader who has seen previous YEAR BOOKS will see for himself that, thus, most of the novelists of prominence keep sounding each one his special note; he would see the same in many other cases, all of which, of course, space does not allow us to bring up. Let us end with a few novels of a more original character, M. Genevoix, *Rhœa*, the novel of a cat; Pierre Hamp, *Laine*, in which we are told all about textile industry in that special manner that has brought fame to the author; Colette Yver's *Vincent ou la solitude*, the story of a man ill of tuberculosis, and in this book Mme. Yver tells us of the sanatorium she herself has established at Passy-Praz-Coutant.

Two novels were what they call in France "romans judiciaires," one very painful and exciting, *La maison du quai*, by Gaston Chérau, of the Académie Goncourt, the other *Est-il sage, est-il fou?* by Leon Bopp with a keen analysis of what must be called a lie: A woman is accused of having assassinated a banker, her lover, to get his fortune; she is acquitted; but she admits to a friend that she drove the poor man to suicide by her intentionally exasperating behavior.

Our last group is of novels dealing with themes belonging, some more some less, to the realm of the mysterious or of the infinitely subtle: André Maurois in his *Pescor d'âmes* describes a scientific experiment as indicated by the title; Robert Poulet, in *Handji*, shows two men in love with an imaginary woman, and in *Le Trottoir* a man in love with what does not really exist in a woman; André Malvil in *La grande ourse* gives the story of a conversion and of a man haunted by the idea of death; he had lived an absurd life which caused the death of the woman



he loved and he now worshiped her after death like Auguste Comte Cl. de Vaux; M. Magre in *Sang de Toulouse* paints the courteous and Platonic, although passionate, love of the twelfth century; Julien Green in *L'autre sommeil* asks whether what we consider life is real or whether it is not during our sleep that we lead a real life; Pierre Descaves and Etienne Gril in *Hans le fossoyeur* wrote a striking novel placed in Bavaria in which the horrid—morally horrid specially—reaches terrible depth; Mme. Dominique André in *Le baiser froid* reminds one by her perverse stories of some of the tales which made Rachilde famous years ago; Pierre Herbart in *Le Rôdeur* presents a man of the type of Duhamel's *Salavin*, out of place in this world, really quite insane but not enough to be locked in, using drugs, finally a complete human wreck and dying a strange death; Jean Cassou in *Comme une grande image* also depicts beings who cannot live in our conventional world; the hero of the story goes to Africa as a missionary, but he does not quite know himself whether he worships God or love.

**SHORT STORIES.** Some of the best collections of short stories are: Cl. Farrère, *Sharâ la Sultane* (the first story is a reconstitution of the sultana of the Arabian Nights); H. Duvernois, *Jeanne*; Guy Chantepleure, *Le cœur désire*; G. Chéreau, *Les cercles du printemps*; M. Prévoist, *L'Américain* (title of the first novel of a South American); René Benjamin, *La dernière nuit*, (some harrowing stories of the French Revolution); Franz Hellens, the young Belgian novelist, *Les filles du désir*.

**VARIOUS ITEMS.** The beginning of the year 1931 was marked by a remarkable little crop of war books, all of them showing plainly, each in its own way, that the time had come when ideas of narrow partisanship had gone for ever. One of the most successful and impressive was Florian Parmentier's *La mort casquée ou La paix à l'ombre de la guerre*, which revives the remembrance of the great sufferings; another also with a novel intrigue woven into it was Gaston Baudouin's *Les centurions* which stresses the psychological analysis; André Thérive mixes a good deal of irony in what are for him very realistic souvenirs in *Noir et Or*; finally a new edition, not censored, was given of one of the most striking of the war books in 1917, Albert Erlanger's *La légion étrangère*. Later in the year appeared Tocaben's *Virilité*, and G. Chevalier's *La peur*, both stressing the "Barbussian" attitude, of the soldier who sees the atrociousness of war and denies any trace of heroism in the war.

Albert Jamet gives *La Guerre vue par un paysan*; and very pathetic is Fernand Lequenne's *Ici reposent des enfants*—the stories of children having spent their early years in the heavy atmosphere of the invaded provinces. Two volumes are intended as pacifist propaganda, one an abridged edition of N. Cru's *Du témoignage*, and V. Margueritte, *La patrie humaine*. On the stage was seen *Fraternité* by Girard and Fleuret. Perhaps here would be the place to mention P. Mac-Orlan's *La Bandera*, an account of the Spanish Foreign Legion.

Exotism or travel books continued numerous. Duhamel took advantage of his *Géographie cordiale* to qualify his harsh statements on America; H. Béraud gave his observations on *Émeutes en Espagne*; Abel Bonnard wrote on *Rome*; J.

de Lacretelle on Greece in *Demi-Dieu*; Ossendowski on the world of the Tropics in *Esclaves du soleil*; G. Oudard on Louisiana in *Vieille Amérique*; M. Dekobra on *Hollywood aux cent-mille sourires*, and Fabre-Luce on *A quoi rêve le monde*. The latter author indulges in considerable philosophical discussions of the destinies of the world. More attention, however, was paid to the striking *Regards sur le monde* by Paul Valéry (the Bertrand Russell of France). Let us not forget *Aujourd'hui* by the globe-trotter Blaise Cendrars.

Of a different inspiration are Fr. Mauriac's *Souffrances et bonheur du chrétien*, and the tale of conversion by René Schwob in *Moi Juif*. Francis Carco writes on social questions in *Prisons de femmes*, and J. Cocteau in *Opium*. Ch. Oulmont discusses *M. Jourdain, école du snobisme*; and G. Bernanos *La grande peur des bien pensants*. Under the heading of *Mémoires* we had: Pierre Mille, *Mes trônes et mes dominations* (interesting peoples he met in his traveling); Paul Morand *Dix-neuf Cent* (reviving the generation of 30 years ago); H. Duvernois, *Apprentis-sages* (how he became a writer); and the memoirs of the great fashionable tailor, Paul Poiret, *En habillant l'époque*.

Some of the best biographies follow: Maurois, *Lyautey*, and *Tourgueneff*; Stéphane Zweig, *Fouché*; G. Monly, *Vie prodigieuse de Victorien Sardou*; B. Faÿ, *Franklin* (his Washington had not appeared in French yet). Very notable was Bainville's *Napoléon*. Here may be added Armand Praviel's *Le secret de la Brinvilliers*. In the collection "Les nuits": Kessel, *Les nuits de Sibérie*; M. Harry, *Les nuits de Jérusalem*; Ch. Maurras, *Les nuits de Provence*. In coll. "La femme à la page," Henriette Charasson, *La mère*.

**HISTORY OF LITERATURE AND CRITICISM.** While the much heralded *Grammaire de l'Académie* by A. Hermant was not published at the end of the year, the two first installments of the new (8th) edition of the *Dictionnaire de l'Académie Française* were (the first edition was of 1694); there will be eight installments due each May and November.

The interest in medieval literature, so great for many years, seemed decidedly to give way before more modern topics; except an *Anthologie des Troubadours*, by André Berry, with excellent translations, there were no publications that might interest outside of scholarly circles. From the XVth century on, we list the following: Faguet, *Histoire de la poésie française de la Renaissance au Romantisme* (vol. v, posthumous); Pierre Jourdan, *Marie d'Angoulême, reine de Navarre* (2 volumes); and Jean Platard, *Agrippa d'Aubigné, une figure de premier plan*; Saint-Simon, *Mémoires* (vols. 42 and 43 of the great coll. "Grands écrivains de France," they are the tables of contents and indexes); Lanson, *Le Marquis de Vauvenargues*; Diderot, several volumes of most important *Lettres inédites* published by Barbelon; Paul Chapounière, *Voltaire chez les Calvinistes*; Pierre Trahard, *Maîtres de la sensibilité au XVIII<sup>e</sup> siècle*; Henri Pourrat, *Le bosquet pastoral* (esp. Florian and Bernardin de Saint-Pierre); Paul Van Tieghem, second vol. of his *Préromantisme*; Henri Tronchon, *Romantisme et Préromantisme*; Mlle. Engel, *Littérature alpestre en France et en Angleterre au XVIII<sup>e</sup> et XIX<sup>e</sup> siècles*; a collective publication on *Vie parisienne à l'époque romantique* (lectures at the Musée Carnavalet by such authori-

ties as Funck-Brentano, Bidou, Mme. Pailleron, etc.); Henry Bérenger, *Chateaubriand* (coll. "Figures du passé"); Mme. Pailleron, *Mme. de Staël* (coll. "Les romantiques"); Comtesse Jehan de Pange (descendant of Mme. de Staël), *Monsieur de Staël*; Marguerite-Henri Rosier, *Vie de Charles Nodier*; A. Thibaudet, *Stendhal*; Valléry-Radot, *Lamennais ou le prêtre malgré lui*; Fréjaville, *Méditations de Lamartine* (coll. "Grands événements"); V. A. Summers, *Orientalisme de Vigny*; Milatchich (a Serbian), *Le Théâtre de Balzac* (2 vols.); Dr. René Laforgue, *L'écho de Baudelaire*, étude psychologique (in which will be seen what happens when physicians try to become literary critics); Villiers de l'Isle Adam, *Œuvres complètes* published by *Mercure de France*.

There were also three books on Zola: by Marcel Bastillat, by Bertrand de Jouvenel, and by his own daughter, Mme. Denise Leblond (*E. Z. Raconté par sa fille*); then a volume on *L'assomoir*, by Duffaux ("Grands événements litt."); A. Bailly, *Mueterlinck* (coll. "Visages contemporains"), said to be an answer to Mme. Georgette Lablanc's *Souvenirs, 1895-1918*; Dumesnil, *En route by Huysmans* (coll. "Grands événements litt."); Gilbert de Voisins, *François de Curel*; Jean de Cours, *Vielé-Griffin, vie et œuvres*; R. de Billy, *Marcel Proust*; Mme. Israël, *Jules Romains*; Jean Larnac, *Ctesse de Noailles*; Valéry Larbaud, *Paul Valéry*; Eug. Marsan, *Instances* (literary impressions showing that the prejudice against Romanticism is not dead everywhere yet). Let us also mention *Les conventions du théâtre bourgeois 1887-1914*, by Clifford Bissel of the University of California; and *Cent ans de littérature en Belgique*, by G. Doutrepont.

LITERARY EVENTS. Various "Prix littéraires" have been recorded above; there remains only to note the "Prix Lasserre" of 10,000 francs awarded to Jean Royère, founder in 1905 of *La Phalange* which gives an excellent idea of the evolution of poetical taste in France since that year; he is also the author of a recent book on *Mallarmé*. Without much enthusiasm the centenaries of *Marion de Lorme*, and of V. Sardou and of "Joseph prudhomme" were commemorated.

Among the dead were: Claude Anet, author of *Ariane, jeune fille russe*; Ch. Géniaux, author of *Passion d'Armelle Louanais*, the playwright Nozière; Kr. Nyrop, the great philologist; the critic Gaston Deschamps; Professor Le Breton, of the Sorbonne. There were elected to the French Academy: Général Weygand (the seat of Joffre) and Pierre Benoit (seat of Porto-Riche). An "Académie féminine des Lettres" was inaugurated in April, and expected to offer a "Prix Wailly" (the name of the lady who gave the foundation).

FRENCH PAINTING. See ART EXHIBITIONS.

FRENCH SOMALI (sō-mī'lē) COAST, or FRENCH SOMALILAND. A French colony in East Africa on the Gulf of Aden between Italian Eritrea and British Somaliland. Estimated area, 5790 square miles; estimated population in 1928, 85,778, including about 550 Europeans. The port of Djibouti (population, 9414 in 1928) is the capital. The coast fisheries, salt mines, and inland trade are the chief sources of livelihood. Trade in 1927, most of it in transit to or from Ethiopia (q.v.) consisted of: Imports, 467,751,000 francs; exports, 513,383,000 francs (1 franc

equals \$0.0392 at par). In the same year 556 steamers of 2,452,764 tons entered the ports. There is a railway from Djibouti to Addis Ababa, the Ethiopian capital, a distance of 485 miles. The local budget for 1928 balanced at 13,002,000 francs. The colony is under a governor assisted by an administrative council. Governor in 1931, M. Chapon-Baissac (appointed in 1924).

FRENCH SUDAN. A French colony forming part of French West Africa. Area, estimated at 300,331 square miles; population, estimated at 2,632,618 in 1927. The capital is Bamako, with 17,184 inhabitants. Imports in 1929 amounted to 74,599,909 francs; exports, 75,499,350 francs (1 franc equalled \$0.0392 at par). The 1930 budget balanced at 74,263,000 francs. There is a railway connection with the coast over a line of 760 miles in length. The government is administered by a lieutenant-governor under the governor-general of FRENCH WEST AFRICA (q.v.).

FRENCH WEST AFRICA. An African colonial possession of France, comprising the Atlantic coast colonies of Mauritania, Senegal, French Guinea, and the Ivory Coast, Dahomey on the Gulf of Guinea, and the interior colonies of French Sudan, Upper Volta, and the Territory of the Niger.

AREA AND POPULATION. It includes the river basin of the Senegal, nearly all the upper and middle Niger Basin, the basin of a large number of rivers emptying into the Gulf of Guinea, and the southern part of the Sahara region. Area, 1,247,191 square miles; population in 1926, 13,541,611, as compared with a total area of all the French protectorates and mandated territories of 3,958,626 square miles and a total population of 55,631,184. The European population totaled 15,399 (11,099 French). The area and population of the respective colonies in 1926 were: Senegal, 74,112 square miles and 1,318,287 inhabitants; French Guinea, 89,436 and 2,095,988; Ivory Coast, 121,590 and 1,724,545; Dahomey, 41,302 and 979,609; French Sudan, 360,331 and 2,634,982; Upper Volta, 142,820 and 3,240,147; Mauritania, 347,400 and 289,184; Niger Territory, 463,200 and 1,218,717. Dakar, the capital, forming with its surroundings suburbs a separate administrative district, had a population of 40,152. The Ouolofs in Senegal, the Mandingos in the Sudan, the Mossi in Upper Volta, and the Kroumen on the Ivory Coast are the leading tribes.

EDUCATION. In 1928-29, there were 567 public elementary, higher primary, and technical schools, with 39,252 pupils; 63 private schools, with 6478 pupils; and three higher technical schools and 2 Lycées, with a total of 701 students. Expenditure on education was 20,394,675 francs.

PRODUCTION, ETC. Cacao and cotton, with a production of 16,347 and 4120 tons, respectively, in 1929, and ground-nuts are the principal agricultural products, others being palm kernels, palm oil, guins, and crude rubber. Hardwoods and hides are also produced, together with such native crops as millet, maize, rice. Stock raising is extensively carried on. Imports in 1929 were valued at 1,532,476,857 francs and exports at 1,328,286,117 francs (1 franc equals \$0.0392 at par). France supplied 741,783,373 francs of the imports and took 677,611,993 francs of the exports. The budget for 1930 balanced at a total of 1,000,809,284 francs, of which 319,019,000 francs constituted the general budget for French

West Africa, 515,306,284 francs the aggregate of local budgets, and 166,484,000 francs the supplementary budgets. Railway lines in operation in 1930 aggregated 1957 miles, with 557 miles under construction. There were 14,386 miles of telegraph line. A total of 22,898 vessels of 20,777,081 tons entered and cleared the ports in 1929.

**GOVERNMENT.** A governor-general, assisted by a council, administers the entire territory from Dakar. Each colony is under a lieutenant-governor subordinate to the governor-general. A military force of 16,600 men, including 3000 Europeans, is maintained in peace time. Governor-general in 1931, M. J. Brévié, appointed 1930. See **SENEGAL**, **IVORY COAST**, **FRENCH GUINEA**, **DAHOMY**, **FRENCH SUDAN**, **UPPER VOLTA**, and **NIGER**.

**FREUDIAN STUDIES.** See **PSYCHOLOGY**.

**FRICK COLLECTIONS.** See **ART MUSEUMS**.

**FRIEDSAM COLLECTION.** See **ART MUSEUMS**.

**FRIENDLY ISLANDS.** See **TONGA**.

**FRIENDS, RELIGIOUS SOCIETY OF.** A mystical religious sect which originated in England in the middle of the seventeenth century. The founder of the society was George Fox who visited America in 1672. The first Yearly Meeting in the United States was held in Newport, R. I., in 1661 and has been continued under the name of New England Yearly Meeting. Others established within the next 40 years were the Baltimore, Philadelphia, New York, and North Carolina Yearly Meetings; they are composed of quarterly and monthly meetings having one or more congregations. In the nineteenth century other meetings were formed as migration moved westward.

**FIVE YEARS' MEETING.** In 1902 the largest body of the Religious Society of Friends, known as the Orthodox Group, organized the Five Years' Meeting. This organization meets as a delegate body every five years and in 1931 consisted of 12 yearly meetings, with a membership of approximately 80,000. Its headquarters are in Richmond, Ind. The work of the various departments, such as missions, peace, prohibition and public morals, religious education, is under the direction of executive committees and secretaries of boards. The Five Years' Meeting also maintains seven colleges for higher education: Earlham in Richmond, Ind.; Penn in Oskaaloosa, Iowa; Guilford in Guilford, N. C.; Wilmington in Wilmington, Ohio; Whittier in Whittier, Calif.; Nebraska Central in Central City, Nebr.; and Friends University in Wichita, Kans. Haverford College in Haverford, Pa., is maintained by the Philadelphia Yearly Meeting and Pacific College in Newberg, Ore., by the Oregon Yearly Meeting. The latter bodies, however, and the Ohio Yearly Meeting are not a part of the Five Years' Meeting. In 1931 the membership of the Oregon Yearly Meeting was 3172; of the Ohio Yearly Meeting, 5594; and of the Philadelphia Yearly Meeting (Orthodox), 4705. *The American Friend*, a weekly religious journal, is published at headquarters, as is also literature for the Bible schools of the Five Years' Meeting.

**LIBERAL BRANCH.** This branch was formed in 1827 as the result of a separation which centred around the doctrinal issues of the day and with which the name of Elias Hicks is associated. The Liberal Branch includes seven Yearly Meet-

ings federated in the Friends' General Conference which meets in even numbered years and conducts work in religious education, social service, and advancement of Friends' principles. The society emphasizes the freedom of the individual to follow the voice of God in his own soul rather than any individual or church authority. The membership in 1931 was 16,586, and there were 134 meetings. Publications include the weekly periodical, *Friends' Intelligencer*, and a monthly magazine for children, *Scattered Seeds*. The society conducts several secondary schools, and Swarthmore College in Swarthmore, Pa., was founded by it.

**FROMKES, MAURICE.** An American painter, died in Paris, France, Sept. 17, 1931. He was born in Poland Feb. 19, 1872, and was brought to the United States at the age of eight. He studied painting at Cooper Union and at the National Academy of Design. During his travels in Italy in 1904 he painted a portrait of Raphael, Cardinal Merry del Val, then Papal Secretary of State, which was hung in the Vatican. Among his other portraits were those of Sir Edward Elgar, the British composer, and Maurice Renaud, the French dramatic tenor. During 1920-24 he traveled in Spain where he won high praise for his pictures of Spanish subjects and was invited to exhibit at the National Museum of Modern Art in Madrid.

His later works include: "Madonna of the Road" in the permanent exhibition of the National Museum of Modern Art, Madrid; "Jacinto and Her Family" in the Albright Gallery, Buffalo; "A Spanish Mother" in the Rhode Island School of Design, Providence; "Little Carmen of the Hills" in the Duncan Phillips Memorial Gallery, Washington, D. C.; and "Adoration of Pepito" at the Randolph-Macon Women's College, Lynchburg, Va. He also was represented at the Delgado Museum and the H. Sophie Newcomb College for Women, New Orleans, La. Among the awards which he received were the Isidor portrait prize of the Salmagundi Club of New York (1908) and diploma of honor at the International Exposition of Fine Arts, Bordeaux, France (1927). He was elected an associate member of the National Academy of Design in 1927.

**FRUIT.** See **HORTICULTURE**.

**FRUIT PESTS.** See **ENTOMOLOGY**, **ECONOMIC**.

**FUEL.** See **COAL** **PETROLEUM**; **GAS**, **NATURAL**; **BOILERS**; **INTERNAL COMBUSTION ENGINES**.

**FUNCHAL.** See **MADEIRA** and **PORTUGAL** under *History*.

**FUR INDUSTRY.** See **CANADA**.

**FURNACES.** See **BOILERS**.

**CABUN.** See **FRENCH EQUATORIAL AFRICA**.

**GALAPAGOS ISLANDS.** See **ECUADOR**.

**GALICIA, EASTERN.** For Ukrainian autonomist movement, see **POLAND**, under *History*.

**GALL BLADDER DISEASE.** See **SURGERY**, **PROGRESS OF**.

**GAMBIA.** A British Crown colony and protectorate on the West African coast, bounded on all land sides by the French colony of Senegal (q.v.). Area of the colony, 4 square miles; population, about 10,000 in 1921. Capital, Bathurst (population 1927 in 1921). In 1929 imports totaled £617,852; exports, £844,760; revenue, £235,265; expenditure, £289,506. A total of 565 vessels of 1,280,888 tons entered and cleared in 1929. The governor is assisted by an executive

council and a nominated legislative council containing an unofficial element. Governor in 1931, Herbert R. Palmer, appointed in 1930.

**GANDHI, MOHANDAS KARAMCHAND.** See INDIA under *History*.

#### **GARBAGE AND REFUSE DISPOSAL.**

Incineration as a means of final disposal of municipal garbage and refuse continued to gain, although reduction of garbage alone for the recovery of fertilizer base was still practiced in a number of large cities while feeding to hogs was a common method of disposal. The bulk of garbage and refuse produced by American cities large and small was still disposed of by dumping on land and covering with ashes or clean earth ("sanitary fill") or by more or less indiscriminate dumping with little attempt to keep the dumps in a sanitary condition. Dumping at sea, resumed by New York City as an emergency measure in 1919 after having been abandoned for many years, was enjoined by an order of the United States Supreme Court late in 1931 hastening the city's programme for building a sufficient number of incinerators to consume all the garbage and refuse of the city. The suit was brought by the State of New Jersey to protect its many seaside resorts from alleged nuisance caused by the casting up of garbage and refuse on the beaches and the spoiling of adjacent waters used for bathing purposes. The court upheld New Jersey's contention that a nuisance was being created. The master who took evidence in the case advised that all dumping at sea be stopped by June 1, 1933. This, he reported, would require the construction of 14 incinerators in addition to the 22 already in use in various parts of New York City. Preliminary steps to build four of the additional incinerators, each with a capacity of 750 tons, were taken by the city authorities late in the year. The estimated cost of the 14 incinerators is about \$17,000,000, not including the purchase of sites. Completion of the city's programme by June 1, 1933, would give sufficient incinerator capacity, it is estimated, to last until 1945.

An innovation in preparing plans for garbage and refuse incinerators was introduced during the year in the District of Columbia and resulted in material reduction in bids for the construction of two proposed incinerators. General practice in the past had been for municipalities to invite bids on general plans and specifications and require each bidder to submit detailed plans. In accordance with this practice, the District of Columbia employed a prominent consulting engineer to draw up general plans and specifications for two incinerators. After receipt of bids under these general plans, the Comptroller General of the United States ruled that it would be illegal to award a contract where bidders submitted their own plans, leaving the award officer to decide whether or not the plans conformed with the specifications drawn by the consulting engineer. Thereupon the District offices directed the consulting engineer to prepare detailed plans and complete specifications so that each bidder would base his price on identical design and contract conditions. This threw the bidding open to general contractors as well as to concerns engaged in building incinerators and largely increased the number of bids. Under the changed conditions, the lowest bid for the 425-ton incinerator, complete with buildings but not includ-

ing the site, was \$321,000 compared with the earlier bid of \$399,000 while for the 170-ton incinerator the lowest bid was \$169,000 compared with \$181,000. Both of these lowest bids were from general contractors. These incinerators will not burn garbage but will take paper and rubbish.

In Canada the city of Montreal was carrying out a programme for the construction of three incinerators, each with a capacity of 300 tons. One of these was completed in 1930 at a cost of \$320,000 and the second in 1931 at a cost of \$400,000. The second plant is erected on the site of an incinerator built in 1894 and destroyed by fire in 1920. Construction of the third incinerator was still in the early project stage.

A recently published German book on refuse disposal was Popp, *Die Festen Stadtischen Abfallstoffe* (Munich).

**GARDENS.** See HORTICULTURE.

**GARMENT TRADES.** See STRIKES AND LOCKOUTS.

**GARRETSON, AUSTIN BRUCE.** An American labor leader, died in Cedar Rapids, Iowa, Feb. 27, 1931. He was born in Winteret, Iowa, Sept. 14, 1856. After serving as a conductor on various railroads until 1889, he became vice president of the Order of Railway Conductors, and in 1906 was elected president. He also became president of the mutual-benefit department of the order, editor-in-chief of the *Railway Conductor*, and a member of the executive committee of the National Civic Federation. During 1912-15 he was a member of the Federal Commission on Industrial Relations. He was one of the leaders of the threatened railroad strike of 1913, which was successfully arbitrated, and in 1916 helped to avert a nation-wide strike when Congress was forced to pass the eight-hour bill, acceptable to President Wilson and to the representatives of the four railroad brotherhoods.

**GARVAN SCHOLARSHIP.** See UNIVERSITIES AND COLLEGES.

**GAS, ILLUMINATING AND FUEL.** Notwithstanding the decline in revenues during the year 1931, statistics of the Gas Business in the U. S. indicated growth and expansion, particularly in the number of domestic consumers, the number of communities served, and the general enlargement and improvement of service. According to the preliminary estimates of the American Gas Association's Statistical Department, revenues from manufactured gas in 1931 aggregated about \$441,900,000. This was a decrease of 2.8 per cent from 1930 figures, and total sales of manufactured gas to consumers registered a decline of about 2.5 per cent, but an outstanding exception to the general trend was a marked increase shown in the use of gas for house-heating purposes which amounted to 22,200,000,000 cu. ft. In 1930, sales of manufactured gas for house-heating purposes were 18,600,000,000 cu. ft., an increase of nearly 20 per cent. The natural gas sales for domestic and commercial purposes suffered a relatively small decline amounting to less than 2 per cent, although such sales for industrial purposes registered a decline of about 15 per cent. In addition to the decline in ordinary industrial sales, the amount of natural gas used for non-utility purposes, including the manufacture of carbon black and that consumed in oil and gas field operations, declined approximately 28 per cent, with the result that the entire consumption of natural gas for all purposes during

1931 was estimated at about 20 per cent under the corresponding figure for 1930. Many large communities in the United States formerly served with manufactured gas, by 1931 were being supplied with natural gas alone or a mixture of the two gases.

More than \$300,000,000, however, was invested in 1931 in the construction of long-distance natural gas pipelines, and this expenditure mostly for pipe averted a much greater loss in the iron and steel industries. The largest of the pipeline projects completed or in progress during 1930 was the Texas-Chicago pipeline of the Cities Service, Middle West Utilities, Standard Oil of New Jersey and Texas Corporation group extending 960 miles from the Texas Panhandle to the city limits of Chicago, completed September 1 at an estimated cost of \$75,000,000. About the same time at a cost of nearly \$40,000,000 the Texas-Indiana pipeline of the Columbia Gas and Electric and the Missouri-Kansas Pipe Line Company extending 857 miles from the Texas Panhandle to Muncie, Ind., was completed.

There was also built during the year at a cost of \$30,000,000, the 219-mile Northern Natural Gas pipeline owned by the United Light and Power, North American Light and Power, and Lone Star Gas Companies, running from Kansas to Mason City, Iowa, with spurs to Sioux City, Iowa, and Omaha, Nebraska, including connecting lines and a connecting trunk to the Texas Panhandle. Plans were prepared calling for extension of this system to Minneapolis and St. Paul from Mason City, Iowa, into South Dakota from Sioux City and elsewhere. The Kentucky-Pennsylvania pipeline of the Columbia Gas and Electric and the Standard Oil of New Jersey, extending nearly 500 miles via West Virginia, Virginia, and Maryland was completed November 15 at a cost of about \$15,000,000. See GAS, NATURAL.

The American Gas Association, in 1920, adopted a five-year programme of Association activities, prepared by a committee of executives headed by George B. Cortelyou, president of the Consolidated Gas Company of New York. This plan was adhered to consistently and the association in 1931 entered upon a revised plan of activities for the second five-year period.

During the year, the National Bureau of Standards issued Circular C 394, "Design of Gas Burner for Domestic Use," which gave general information regarding the action of, and most favorable design for burners of the type commonly employed in domestic and some industrial applications.

**GAS, NATURAL.** The total production of natural gas in the United States during 1930 amounted to 1,943,421,000,000 cubic feet, an increase over 1929 of 25,827,000,000 cubic feet, or 1.3 per cent. This total does not include the quantity of gas blown into the air in flush oil fields. Although the natural gas industry in 1930 fell far short of repeating the expansion of 1929, it established a new high production record. The 1930 production represented a creditable showing in view of the curtailment in the production of crude petroleum. Exports of natural gas to Canada and Mexico in 1930 amounted to 1,798,000,000 cubic feet, a material increase over the previous year. This resulted chiefly from increased deliveries to Mexico following the completion of the pipeline from the Jennings field in Texas to Monterrey. During

the year, 21,000,000 cubic feet of natural gas were piped into Montana from Canada.

The quantity of gas treated for the recovery of natural gasoline in 1930 amounted to 2,088,788,000,000 cubic feet, or 107 per cent of the quantity produced and delivered to consumers. The average prices of natural gas at the wells continued to decline and in 1930 amounted to 7.6 cents per thousand cubic feet as compared with an average of 8.2 cents in 1929. This decline in natural gas prices at the wells was reflected in the prices paid by the largest users, the industrial consumers, who paid an average of 11.3 cents in 1930 as compared with 12.2 cents in 1929.

Texas, the leading natural gas producing State in 1929, strengthened its hold on first place in 1930 when its output was 517,880,000,000 cubic feet, an increase over the previous year of 11 per cent. This gain was due principally to increased output from the Panhandle, the starting point for the majority of the large pipeline systems which originate in the State. Production in Oklahoma, the second-ranking State, showed a small decrease in 1930 as the decline in output of the Seminole district exceeded the gain in the Oklahoma City field. California also reported a slight decline in natural gas production in 1930; this resulted chiefly from the natural decline of the oil fields and the small number of new discoveries. Production in Louisiana increased in 1930 as an aftermath to the expansion of pipeline systems originating in the Monroe and Richland fields. Some of the States reported material declines in output of natural gas in 1930; the most notable were West Virginia and Pennsylvania, which ranked fifth and sixth, respectively. Production in Michigan in 1930 was less than half the 1929 total, evidence of the rapid decline of the Muskegon field and the failure of drilling to uncover other sources of supply.

Because of the curtailment in drilling, the number of gas discoveries in 1930 undoubtedly fell below the 1929 total. However, the number of gas wells completed was practically the same for the two years—2866 in 1930 as compared with 2870 in 1929. The total initial production of the 1930 completions probably constituted a new record as an increasing proportion of the wells was drilled with the object of establishing a gas reserve to insure the operation of the various large pipeline systems. The possibilities of Kentucky as an important source of supply were seriously considered and the number of gas wells brought in during 1930 was practically double the 1929 completions. A substantial gas reserve was set up in the Hugoton field of southwest Kansas through the completion of approximately 80 wells in 1930. This field was to be used principally as a supplementary source of supply for several of the pipeline systems running north from the Texas Panhandle. The Jackson field of Mississippi came in for considerable development work in 1930 and a number of very large wells were completed. This reserve was to be used to supply the pipeline system running into Alabama and Georgia. The completion of comparatively large wells near Tioga, Pa., and Dundee, N. Y., in 1930, greatly increased interest in the possibility of pipeline supplying New York City and some of the industrial centres of New England with natural gas.

The total consumption of natural gas, computed by deducting exports to Canada and Mexico from the total of production and imports, amounted in 1930 to 1,941,644,000,000 cubic feet, an increase over 1929 of 1.3 per cent. Of the total consumption, 1,565,237,000,000 cubic feet, or 80 per cent, was consumed for industrial purposes, and 376,407,000,000 cubic feet, or 20 per cent, was utilized by domestic and commercial consumers. The number of domestic consumers of natural gas showed a material increase in 1930, although the gain was much less than that experienced in 1929. The number of domestic consumers in 1930 amounted to 5,448,000, an increase over 1929 of 350,000, or 7 per cent. Beginning with 1930, the classification of domestic consumers was divided into two classes, namely, the strictly domestic or home users, and commercial consumers, such as stores and shops. The number of strictly domestic users amounted to 5,095,500, the number of commercial consumers totaled 352,680, a ratio of about 14 to 1. The average consumption per domestic consumer continued to fall off and for 1930 amounted to 69,100 cubic feet as compared with 70,600 cubic feet in 1929. On the basis of the prevailing prices, each domestic customer paid an average of \$4.39 for natural gas in 1930, as compared with an average of \$4.38 in 1929. The increased cost in the face of a drop in the total used resulted from an increase in the average price. The gas burned by domestic and commercial consumers in 1930 had a total value of \$239,173,000, or an average of 63.5 cents per thousand cubic feet. This average price, the highest so far recorded, represented an increase of 1.5 cents over 1929. The strictly domestic users paid an average of 67.4 cents per thousand cubic feet in 1930, as compared with an average of 46.8 cents for the commercial consumers. The highest price recorded for the strictly domestic users in 1930 was \$1.417 per thousand cubic feet paid by consumers in Georgia; the lowest was \$0.446 per thousand, paid by Wyoming consumers.

The approximate number of producing gas wells, as of December 31, 1930, totaled 55,020, an increase over the previous year of 1475. The total number of gas wells completed in 1930 amounted to 2866, which indicates that there were about 1400 gas wells abandoned during the year.

The largest single interstate movement of gas, in a total of 380,600,000,000 cubic feet, was again that from West Virginia to Ohio, although the movement from Oklahoma to Kansas was almost as large. Other important interstate deliveries were those from Kansas to Missouri, from Kentucky to West Virginia, from Louisiana to Arkansas and Texas, from Texas to Colorado and Oklahoma, and from West Virginia to Pennsylvania. Louisiana and West Virginia have large quantities of excess gas over and above their consumption, hence the large interstate movement from these States.

See GAS, ILLUMINATING AND FUEL.

**GAS ENGINE.** See INTERNAL COMBUSTION ENGINE.

**GASOLINE.** See PETROLEUM; CHEMISTRY, INDUSTRIAL.

**GAUTHIER-VILLARS, HENRY** (pseudonym, WILLY). French novelist, critic, and dramatist, died in Paris, Jan. 12, 1931. He was born in Villers-sur-Orge Aug. 10, 1859, and attended the lycée Condorcet. He was the first hus-

band of Mme. Gabrielle Colette with whom, under the name Colette-Willy, he collaborated between 1900 and 1903 in writing *Claudine à l'école*, *Claudine à Paris* (dramatized 1902), *Claudine en ménage*, and *Claudine s'en va*. He was also well-known as a music critic, contributing chiefly to the *Écho de Paris*. Among his works are: *Revue de sonnets* (1878); *Essais sur Marck Twain et sur les Parnassiens* (1882); *Noirées perdues* (1894); *Maitresse d'esthète* (1897); *Le Mariage de Louis XV* (1900); *Jeu de prince* (1906); *La Tournée du petit duc* (1908); *Le petit Roi de la forêt* (play, 1914); and *Do dièze* (1918).

**GAUVAIN, gô'vân', AUGUSTE.** A French journalist, died in Pau Apr. 18, 1931. He was born in Vesoul Oct. 6, 1851, and was educated in law at the University of Paris and at the École des Sciences Politiques. From 1887 to 1891 he was editorial secretary of the *Journal du droit international privé*; from 1893 to 1903, general secretary to the European Commission on the Danube; and from 1904 to 1908, French secretary to the Central Office of International Transport. In 1908 he became foreign editor of the powerful and conservative *Journal des Débats*. A member of the Academy of Moral and Political Sciences, Gauvain was a prolific writer on questions of current politics. His works include: *Les Origines de la guerre européenne* (1915); *L'Europe avant la guerre* (1917); *L'Afrique grecque* (1917); *La Question yougo-slave* (1918); *L'Encerclement de l'Allemagne* (1919); and *L'Europe au jour le jour*, beginning with the Bosnian crisis of 1908-09 and including the treaties of 1919 (14 vols., six of which were crowned by the Institute, 1917-23). Gauvain also wrote Books i and iii of the ninth volume of the *Histoire contemporaine de France* and frequently contributed to the French periodical press.

**GAZAH.** See ARCHÆOLOGY.

**GDYNIA.** See POLAND under History.

**GEBEL DISTRICT.** See CYRENAICA.

**GENERATORS.** See DYNAMO ELECTRIC MACHINERY.

**GENETICS.** See ZOOLOGY.

**GEOGRAPHICAL SOCIETY, AMERICAN.**

The oldest geographical society in the United States, founded in 1852, "to collect and disseminate geographical information by discussion, lectures, and publications; to establish in the chief city of the United States a place where may be obtained accurate information concerning every part of the globe; and to encourage such exploring expeditions as seem likely to result in valuable discoveries in geography and related sciences." Within recent years the society has taken an active part in the encouragement of exploration, the scientific work of Sir Hubert Wilkins in the Arctic and Antarctic and of Rear Admiral Richard E. Byrd in the Antarctic having been carried out under its auspices.

During 1931 the Shippee-Johnson Peruvian Expedition, sponsored by the society, photographed from the air the deep valley of the Colca River and studied the people and institutions of the valley, mapped the Chimu Valley, and discovered and photographed in the Santa Valley the remains of what appears to be a great defensive wall, believed to be a part of the Chimu fortifications against Inca invaders. During July and August Dr. Alexander Forbes of Harvard University carried out an expedition to Labrador in cooperation with Sir Wilfred Grenfell. This expedition, known as



the Grenfell Northern Labrador Expedition, was sponsored by the society, and O. M. Miller of the society's staff was topographer and in charge of surveys.

The society's periodical is the *Geographical Review*, a quarterly, in which appear original articles and notes dealing with exploration and geographical research and reviews of the more significant geographical books. The maps, books, and pamphlets issued by the society fall into six series: *Research Series*, comprising specialized monographs; *Special Publications*, having a more general appeal; *Library Series*, devoted primarily to the collections of the society; *Outing Series*, including trampers' guides entitled *The Palisades Interstate Park* and *New York Walk Book*; a map of Hispanic America published in conformity with the International Millionth Map of the World and accompanied by geographical monographs (this map will consist of 100 sheets, of which almost 50 have been completed); and *Oriental Explorations and Studies*, comprising six volumes on the explorations of Prof. Alois Musil in northern Arabia.

The society maintains a geographical library and sponsors six regular lectures annually by distinguished explorers or geographers. Contributions to the development of geographical science and exploration are recognized in the society's election to honorary and corresponding memberships and in the bestowal of medals. The David Livingstone Centenary Medal for scientific achievement in the field of geography of the southern hemisphere was awarded during 1931 to Capt. Hjalmar Riiser-Larsen for his work in the Antarctic on the *Norvegia* expedition in 1929-30. The Charles P. Daly Medal for valuable or distinguished geographical services was awarded in 1931 to Maj. Gunnar Isachsen, director of the Maritime Museum, Oslo, for his contribution to our knowledge of the polar regions. The president of the society in 1931 was John H. Finley, LL.D., and the director was Isaiah Bowman, Ph.D. Headquarters are at Broadway and 156th Street, New York City.

**GEOGRAPHIC SOCIETY, NATIONAL.** An organization for "the increase and diffusion of geographic knowledge," founded in 1888. During 1931 the Venezuela-Brazil expedition, under the leadership of Ernest G. Holt, returned from the region between Venezuela and Brazil with a comprehensive amount of scientific material and data. Working in conjunction with the official engineering party of the Venezuela-Brazil Boundary Commission, which had been marking the boundary between the two countries, they traveled up the Orinoco, through the Casiquiare Canal, and to the waters of the Amazon. During the 10-month period of this year's work 3000 specimens of birds were collected, and hundreds of mammals and plants brought back. A large number of photographs recording geographic features long disputed, scenic beauties, and types of natives were made. Of the more than 1000 birds presented by the society to the U. S. National Museum, it was estimated that 50 per cent were new to the collection. A grant of \$25,000 from its research fund was made by the society to the Citroën-Haardt Trans-Asiatic expedition. A study was made of the customs of obscure tribes, and the geography, archaeology, geology, zoölogy, and plant life of the territory traversed. One of the two units of the expedition was accompanied by Dr. Maynard Owen Williams

of the society's staff. The main unit operated from Beirut, through the Pamirs, and the other from Peiping, with Sinkiang as its common objective. On April 4 the Pamir unit left Beirut with a caravan of seven band-driven, tractor-type cars of special construction. It reached Bagdad in 12 days and a week later arrived at Teheran. It came to Kabul June 9, and June 24 reached Srinagar, by way of the famous Khyber Pass. At Srinagar word was received that almost unprecedented floods had undermined the bridges and destroyed the trail in so many places that it would be impossible to get the entire caravan through. Although no wheeled vehicle ever had passed over the road to Gilgit, two of the seven tractors pushed forward and reached there on August 4. News was received of the entire obliteration of the trail in the high Himalayas in so many places that the two tractors were left, and the journey to Sinkiang made afoot over the 15,000-foot Kilik Pass and the slightly lower Wakhjir Pass into northern Afghanistan. The Pamir unit united with the China unit, which had come inland from Peiping, at Kashgar. See EXPLORATION.

As a contribution to the George Washington Bicentennial, the society plotted the travels of the Father of His Country from the first surveying trip beyond the Blue Ridge in 1748 to his last journey to Philadelphia in 1798, and under a joint resolution of Congress cooperated with the U. S. Bicentennial Commission in the publication of a map showing these travels and a paper describing them. Washington's journeyings carried him from the vicinity of Lake Erie in Pennsylvania to the neighborhood of Point Pleasant, W. Va., and Gallipolis, Ohio, and from Savannah, Ga., to Kittery, Me., and Crown Point, N. Y.—a larger area in the United States than had been visited by any other official of that day.

The society also published the first photograph made that shows laterally the curvature of the earth. As aerial photographer of the National Geographic Society's Latin American Air Survey, Capt. Albert W. Stevens, U. S. Air Corps, photographed the Andes, including Mount Aconcagua, with a camera having a 20-inch focus and an infra-red filter, at a distance of 287 miles from an elevation of 21,000 feet. With this filter the snow-capped Andes became perfectly distinct in the photograph, although not visible to the photographer. So extensive was the mileage of the horizon within the camera's range, that the curvature of the earth clearly appears. It appears along as well as across the line of sight, for although Aconcagua is higher than the camera, the sensible horizon is much above it on account of the fact that the curvature of the earth is 54,900 feet in 287 miles, whereas Mount Aconcagua is only 23,098 feet high.

The Hubbard Gold Medal, the highest honor in the gift of the society, was awarded to Dr. Roy Chapman Andrews for the extraordinary work done in his series of expeditions in Central Asia. Fossils of prehistoric animals unearthed have carried knowledge of terrestrial life back to millions of years ago. The work of the society during the year, in the realization of its chartered object of diffusing geographic knowledge, continued along the lines of previous years. The geographic background of current events was covered by bulletins, issued to more than 550 larger daily newspapers and also to 1200 smaller dailies and weeklies. More than 40,000 school teachers

used the weekly bulletins issued as an aid in the preparation of their courses in geography. The map of Illinois was published, and maps of the Antarctic and Ohio were in preparation. The chief activity of the society continued to be the publication of the *National Geographic Magazine*, which is distributed to the 1,200,000 members of the society.

**GEOGRAPHY.** See EXPLORATION; POLAR RESEARCH; ANTHROPOLOGY.

**GEOLOGICAL SOCIETY OF AMERICA.** See GEOLOGY.

**GEOLOGY.** The literature of geology continued its growth throughout the year 1931 unabated. Many meetings and discussions were held while the professional journals and the Federal and State surveys continued to circulate the results of studies in new fields and problems, or those of old problems reexamined. The activity was so great and the character and scope of the results so varied that it is only possible to review briefly a few of the more important features.

All sciences have "border line" problems whose elucidation depends upon the correlated work of two or more separate branches of science. Geology has many such problems. It impinges upon the fields of chemistry, physics, biology, meteorology, geography, and astronomy. Some of these "border line" subjects have reached the status of separate sciences, namely geophysics, oceanography, and volcanology, but are most clearly related to geology and depend upon the joint work of different sciences.

The National Research Council was showing itself eminently fitted to the task of surveying these overlapping fields. Some of its bulletins, mentioned below, illustrate splendidly the results of such cooperation. Another impetus to co-ordinated work was furnished this year by the future 16th session of the International Geological Congress which was to be held in the United States in the spring of 1933. Many committees, under the direction of the U. S. Geological Survey, were preparing guide books and reports on the geology of various districts in the United States. Closely connected with this, a new geological map of the United States was being prepared. In this manner an immense amount of formerly scattered information soon would become available in concise form.

**SOCIETIES.** *The Geological Society of America* held its 43d annual meeting in Toronto, Can., at the University of Toronto on Dec. 29 to 31, 1930. Professor Alfred C. Lane was elected President for 1931. The third award of the Penrose Medal in recognition of eminent research in pure geology was made to François Antoine Alfred Lacroix of France, a corresponding member of the Society. In the enforced absence of the recipient the medal was received by M. C. Rocherau de la Sablière, the French consul at Toronto. The late Dr. R. A. F. Penrose, Jr. (q.v.), retiring president, delivered his presidential address on "Geology as an Agent in Human Welfare." The author's own abstract of the address follows:

From the earliest times in human history the economic and industrial activities of man have been changing the natural features of the earth's surface in many different ways and much has been written on this subject. The opposite effect, however, that is, the influence of the earth on man, has received much less attention; and yet from primitive times it has been active.

It is the intention therefore to note here the action of geologic phenomena on man throughout the ages in which he has existed. These influences may be either beneficial or detrimental to his welfare; they may ad-

vance his physical and mental development and his grasp on life, or they may form obstacles in his progress which at times may threaten his very existence. Though periods of slow development and even times of retrogression have occurred in human history, yet throughout the ages as a whole the change, especially in mentality, has been forward, and indicates that man has been able to adapt himself to such surroundings as he has had to meet.

The effect of geology on primitive man of the Stone Age had a marked influence in providing him with shelter in the way of caves and with flint and other minerals and rocks from which he wrought his weapons and other utensils. The cliff dwellers in the southwestern part of America were in a certain way cave men, but whereas the men of the Stone Age lived in remote antiquity the cliff dwellers thrived at comparatively recent times.

Volcanic action has always had a marked effect on man and his destiny. It has generally been of a tragic character, but often its after-effects have been beneficial to human welfare.

The influence of earthquakes as a geologic agent affecting man is very marked, both by the great destruction of life and property and by the mental effect of shock and terror which deeply impresses itself on the minds of those who survive.

The migrations of man have been notably affected by geologic action which has accumulated alluvial deposits along the courses of rivers and in the form of deltas at their mouths. Great agricultural prosperity has frequently marked the development of large communities in such alluvial areas, yet the same districts have often been the scenes of great disasters when they were inundated by overflowing river waters.

The mineral products of the earth have probably been of more material benefit to mankind than any other single influence. The use of flint in primitive times, followed by the use of copper, bronze and iron, together with that of other metals and alloys, have produced great and rapid advances in human progress. Moreover the natural fuels, soils, springs, water supplies and water powers, as well as many other geologic objects, are of great importance to mankind.

As geology becomes developed to a still greater fullness it will teach the world profound lessons in the evolution of the highest products of life, which will have a surpassing influence on human knowledge.

Dr. Penrose also pointed out that, while geology was the last of the great fields of research in natural history to be developed, being, until the beginning of the last century "hardly recognized as more than the vague conception of a few dreamers," it demands attention now as the "basis of all human knowledge of natural history."

*The Paleontological Society of America, The Mineralogical Society of America, and The Society of Economic Geologists* held their annual meetings at the same time and place. The retiring president of each society delivered his presidential address at a joint session with the Geological Society. Abstracts of these addresses follow.

The topic chosen by Sydney H. Ball, President of the Society of Economic Geologists, was "Historical Notes on Gem Mining." This address was published in *Economic Geology*, November, 1931. It includes three tables, the first of which dates the order in which some 115 precious and decorative stones became known to man, the second catalogues the 59 varieties used by the American Indian, and the third gives a chronology of gem mining.

The announcement of the award of the Penrose Medal of the Society of Economic Geologists, to David White of Washington, D. C., was made during these meetings.

Professor H. E. Merwin, retiring president of the Mineralogical Society lectured on "Some Associations of Ore Minerals." Professor Merwin considered mineral associations with respect to (1) the temperature gradient downwards from the Earth's surface, (2) the depth, which represents an environmental pressure at which the mineral forming process is active, (3) the gas or

vapor pressure of the gas or liquid from which the mineral is depositing.

The relations of these conditions may be considered here under two cases, the first of which will be commented upon before the second is mentioned. In the first case the temperature gradient is so low that at any depth a liquid in the rock has a vapor pressure less than the environmental pressure. This pressure has at maximum the pressure of rock load plus the strength of the rocks, and at minimum, the pressure of the superincumbent liquid plus gas-column plus the resistance to movement of this column.

Water filling the pores of rocks near the surface may be supposed to extend downward into increasingly hotter rocks. As temperatures increase downward more rock material enters into solution with the water until at a depth, liquid and rock merge, and thus lose their identities in a magma.

If there could be realized a continuous supercapillary column of liquid grading in concentration from the surface downward to magmatic depths, the difference between the weight of the column and of a similar column of rock would lead to upward movement of the liquid column. A tendency toward such movement must exist in vertical openings in rocks, but movement is scarcely realized ordinarily on account of frictional resistance, except in larger openings and their direct connections. With respect to suddenly opened vacuous fractures, liquid would be potentially explosive. Liquid magma bursting into such a fracture might solidify so as to preserve vesicles formed during the sudden relief of pressure. More liquids thus intruded would deposit some crystals immediately on the walls of the fracture and then slowly build toward the middle of a crystalline filling, leaving a residuum increasingly hydrous. Upward transfer of this residuum might continue temporarily.

One general mineral association which may be referred to the environment just described is the granite pegmatite. These intrusive bodies have compositions and structures which have led to the conception that they have been derived from a residuum or from successive residua of cooling granitic magma. These residua become increasingly hydrous, and enriched in a variety of compounds which, because of high mutual solubility or slight original concentration, have remained in solution until cooled by intrusion as detailed above. Re-opening of the fissures after periods of cooling has allowed successive invasions of liquids, each in general presumably cooler than the preceding, and thus in a state of saturation ready to deposit new compounds, or to dissolve or react with and replace existing minerals. Both Schaller and Hess have presented much evidence for a replacement sequence of potash, soda, lithia.

As president of the Paleontological Society Professor W. H. Twenlofel spoke on "Environment in Sedimentation and Stratigraphy." He stated that organisms differ so greatly in their sensitivity to environment and depend upon one another in such an intricate and interlocking fashion that it is doubtful if any large part of the problem involved is understood for any single environment. The study of sedimentary environment should be emphasized since

The results are extremely important for stratigraphy as organisms appear and disappear in the rocks of the geologic column without, as yet, adequate explanation as to what were the causative factors for such appearance and disappearance.

**OTHER PAPERS.** Professor R. T. Chamberlin of the University of Chicago took exception to the notion prevalent among scientists that the earth's rocky crust can be subdivided from the surface downward into a zone of fracture, several miles deep, in which rock deformation under stress takes place by breaking; and a zone of flow below that, where, due to enormous pressures and high temperature, rocks flow like hot tar. He cited examples of old tombstones which are found to have been notably bent in the course of time. This bending takes place without a break, that is, true flowage occurs. On the other hand earthquakes, due to sudden breakage or fracture of rocks, appear to originate at depths as great as 30 miles. So the zones of fracture and flow overlap to such a degree as to render the distinction

useless. He suggested instead, the terms "zone of cavities" and "zone of continuity." The presence of open cracks where the pressure is not enough to close them tightly, tends to facilitate deformation especially by flow. In the zone of continuity rock fracture does not occur but shearing does. The new terms are based on structure and seem less likely to lead to faulty ideas.

Ralph W. Chaney, of the University of California, told of finding remains of the foliage, cones, and wood of a species of *Sequoia* very similar to the great trees of California in rocks of Tertiary age on Saint Lawrence Island in lat. 63° 30' N., approximately 50 miles from Asia and 100 miles from North America. Other tree types occur here also which are found both in Asia and North America in rocks of the same age and give evidence of the continuity of the redwood forests of North America into Asia at that time.

Chester A. Reeds of the American Museum of Natural History, New York, spoke of the earthquake data which had been assembled for the years 1899 to 1923 and plotted on a world map. During this period there occurred 1783 earthquakes of sufficient intensity to be recorded on seismographs more than one halfway around the world from the seat of the disturbance. The map shows that the points of origin of these earthquakes are mostly confined to two great circles,—one circum-Mediterranean and one circum-Pacific. These are apparently the major zones along which the present great strains within the earth are being relieved.

E. M. Kindle spoke about the "Sea-Bottom samples from the Cabot Strait Earthquake Zone." He considered the characters of the sediments which indicate that the materials were transported from Greenland and other northern regions by floating ice, though a part may represent current transported material derived from glacial drift deposits originally spread out upon the seaward edge of the continental shelf. He concurred with the generally expressed view that the earthquake causing movement took place along two great faults parallel to the axis of the submarine extension of Cabot Strait, but stated also that these movements cannot explain the series of ten breaks in one cable at intervals of five to ten miles, nor the north-south progression of the breaks with thirteen hours elapsed between the first and last. He accounted for these facts by the slumping and sliding of the saturated, soft sediments on the sea floor when sapped by tidal currents along the newly formed fault scarps.

The American Institute of Mining and Metallurgical Engineers held its New York meeting on Feb. 16 to 19, 1931. Several important papers were read and discussed in the Mining Geology division. In a paper entitled "Zonal Relations of the Lodes of the Sumpter Quadrangle," D. F. Hewett of Washington, D. C., gave the results of his recent study of this relatively old mining district in eastern Oregon.

Another important paper read was "Occurrence of Petroleum in North America," by Sydney Powers of the Amerada Petroleum Corporation of Tulsa, Oklahoma. This considers the distribution by fields, the development of those fields, the origin and accumulation of oil, and finally describes the different regions.

Lewis A. Smith, Washington, D. C., presented a comprehensive survey of chromite mining and

resources the world over in "World Production and Resources of Chromite." W. H. Newhouse spoke on "Some Relations of Ore Deposits to Folded Rocks," and gave evidence that indicated that epigenetic ore deposits favor anticlines or upwarped structures as loci of deposition in much the same manner as does petroleum. The discussion which this stimulated indicated that most of the geologists present, while admitting some degree of structural control, were opposed to his conclusion.

In the division of Non Metallic Minerals, H. Hughes, Washington, D. C., reviewed the great advance that had been made in the development of light weight concrete in a paper entitled "The Scope of the Light Weight Aggregate Industry."

OTHER PUBLICATIONS. *The Kaolin Minerals*, by Clarence S. Ross and Paul F. Kerr (U. S. Geological Survey Professional Paper, 165-E, 1931). The clay minerals have long defied the ordinary methods of study with the result that our knowledge concerning them has been vague. The study, of which this paper is one of the results, was undertaken a few years ago by the application of X-ray analyses, chemical analysis, optical studies, and measurements of the temperatures of dehydration on carefully selected and purified materials.

"Retrogressive Metamorphism and Phyllonization," is discussed by E. B. Knopf (*Am. Jour. Sci.* January, 1931). This brief review which consists first in a critical examination and exposition of the recent European writing upon the subject and then the application of those methods to American areas of metamorphic rocks is one of the most important contributions to metamorphic geology to appear in English. It traces the development of the conception of zones, equilibrium facies, and grades in metamorphism and points out how the recognition of disequilibrium facies and retrogressive metamorphism opened up a totally new and particularly illuminating field of scientific investigation.

A metamorphic rock of the phyllite type may be either on the threshold of its metamorphic history, in which case it is one of the first steps in progressive metamorphism, or it may have been degraded from a higher stage, that is, it may be formed by the mylonitization of a previously existing biotite gneiss or schist under such conditions that new typomorphic minerals, such as chlorite, form from the older ones. Such a rock is a diaphorite that has undergone retrogressive metamorphism or diaphthoresis. A similar rock may be formed by the crushing of a granite, in which case it has not retrogressed since it was not previously metamorphic. It is then a phyllite mylonite or phyllonite.

"Criteria of Age Relations of Minerals," by E. S. Bastin, L. C. Graton, W. Lindgren, N. H. Newhouse, G. M. Schwartz, and M. N. Short (*Economic Geology*, October, 1931). This paper is the result of the deliberations of the subcommittee of the National Research Council on Mineral Paragenesis. It is a critical discussion of the criteria which can be used in deciphering the paragenesis of ores.

"Textures Due to Unmixing of Solid Solutions," G. M. Schwartz (*Economic Geology*, November, 1931). By one of the co-authors of the above, this paper is another contribution from the National Research Council. The writer distinguishes between graphic textures resulting from eutectic deposition together with the eutectoid or solid

solution equivalent, and crystallographic intergrowths formed by the unmixing of solid solutions along a curve of decreasing solubility.

*Physics of the Earth's Crust*, by the Committee on Volcanology of the National Research Council (Washington, 1931). The first four of a series of nine bulletins designed to give a clear statement of progress in these special fields and indicate those problems now under attack. *I. Volcanology* (Bull. 77), includes an introduction by Arthur L. Day and the formulation of a comprehensive answer to the question, "What is a Volcano?" by three different authors. *II. Figure of the Earth* (Bull. 78), a series of special papers on selected topics which are undergoing study at present. Some of the chapters are: Tidal Theory, Tidal Friction, Earth Tides, Isostasy, Variations in Latitude, On Some of the Greater Problems of Physical Geology. *III. Meteorology* (Bull. 79), takes meteorology through its development from the crude weather lore of savages to the compiled records of the modern science. *IV. The Age of the Earth* (Bull. 80), evaluates the evidence concerning the age of the earth furnished by geology, paleontology, radioactivity, and astronomy. The method based on the radioactivity of certain minerals appears to be the best and this also "dates" certain rocks that contain those minerals. The earth's age is given as approximately 2000 million years. The 500 million years elapsed since the beginning of the Cambrian period agrees well with the evidence of geology.

*The Iron Ores of the Kiruna Type, Geological Distribution, Geological Characters, and Origin*, by Per Geijer (Stockholm, 1931). This important paper embraces all those iron ores that are closely comparable in their geologic features to those at Kiruna. These are magnetite (rarely hematite) ores closely connected with intermediate or moderately siliceous igneous rocks that have usually solidified as surface flows or shallow intrusions.

"Further Studies in the Amphibole Group," by A. N. Winchell (*Am. Mineralogist*, June, 1931). This paper discusses the relation between variations in the optic properties and composition of members of the amphibole group on the basis of the newly established fact that water cannot be neglected in the amphibole molecule and that, therefore, the same molecules are not found in amphibole as in pyroxene. Those of the amphibole group are more complicated.

Two other papers, namely "Magnesian Amphibole from the Dry Melt: A Correction," and "The Role of Water in Tremolite," by Bowen & Posnjak (*Am. Journal Science*, September, 1931) confirm these findings and conclude that there is no reason for doubting the essentially hydrous character of amphibole. It cannot form from a dry melt and when dehydrated it forms pyroxene and silicon dioxide.

"Structural Study of the Adirondack Anorthosite, a Structural Study of the Problem of Magmatic Differentiation," by Robert Balk (*Sonderdruck Aus. Min. & Pet. Mitt.* Bd. 41, 1931). An important paper by the first geologist to map the central and eastern Adirondack, N. Y. region as a unit. It attacks the puzzling questions concerning the age relations of the rocks, their differentiation and emplacement, from the structural point of view. The flow movements and the direction and dynamics of the magma currents are analyzed and the differentiation is shown to be largely a function of mechanical principles.

"The Adirondack Magmatic Stem," A. F. Budington, (*Journal of Geology*, April-May, 1931). The author considers the problem of the origin of the anorthosites and of the syenitic and granitic rocks with which they are associated and the genetic connections between them.

"Structural Geology, Conception Bay Region, and Wabana Iron Ore Deposits of Newfoundland," by A. O. Hayes (*Econ. Geol.*, January, 1931). This is a restudy of the details of the structure of an important mining region which suggests that the recoverable deposits of iron ore within the limits of submarine mining underlie an area of about seventy square miles. If the average amount of ore in the present mines extends over this area a reserve of 2,500,000,000 tons is indicated.

*Microscopic Determination of the Ore Minerals*, by M. N. Short (U. S. Geological Survey Bulletin, 825, 1931). The most thorough and up-to-date treatise on the technique of preparation of specimens, photography, and the recognition of minerals by etch reactions, physical properties, observation in polarized light, and microchemical method. The determinative tables are based upon the resistance of minerals to scratching by a needle. Only two classes are recognized, namely *hard* and *soft*. Minerals falling under either of these are then subdivided by etch tests and reaction to polarized light.

"Insoluble Residues as a Guide in Stratigraphic Studies," by H. S. McQueen (*Biennial Report of the State Geologist of Mo.*, 1931). This paper indicates an important means of stratigraphic correlation over wide areas which has already been applied with great success.

*Geology of the Capital District*, by R. Ruedeman (N. Y. State Museum Bull. 285, 1930). This is a valuable contribution to the geology of an important region. The "Hudson River Formation" is shown to embrace five lower Cambrian and nine Ordovician formations. The Rensselaer grit is the only geologic unit in that region whose age is still unsolved. Ruedeman thinks that it is a partial correlate of the upper Devonian of the Catskills. Schuchert (*Am. Jour. Sci.*, July, 1931, p. 87—a review of this bull.) demurs at this and considers it a likely member of the Ordovician sequence.

"The Analysis of Cyrtolite for Lead and Uranium," by O. B. Muench (*Am. Jour. Sci.*, April, 1931). This paper describes the results obtained from this mineral in the pegmatites of Bedford, New York. Adolph Knopf, in an introduction to the article, points out that the lead-uranium ratio indicates an age of 380 million years which is almost identical with that obtained from Hillebrand's analysis of the uraninite from Branchville, Conn. Both of these pegmatites appear to have been intruded during the late Ordovician.

*The Permian of Mongolia, Natural History of Central Asia*, vol. iv, by Amadeus W. Grabau (published by the Am. Museum of Nat. Hist., 1931). This new contribution to Eurasian geology contains an introductory chapter by C. P. Berkey and F. K. Morris, who describe the general geology of the region. The rest of the volume, by Grabau, describes the marine invertebrate fauna of the Jisu Honguer Permian and discusses its relation to other carboniferous and Permian formations of Eurasia.

*The Glacial Geology of Connecticut*, by R. F. Flint (*Conn. Geol. & Nat. Hist. Survey*, Bull. 47, Hartford, 1930). The result of an intensive three-year study of the glacial geology of the

State. It contains a large, folded map of Connecticut (scale 1:125,000) which shows the distribution of all the deposits and the spillways that controlled the various lake and terrace levels.

"Thickness of the Ice in Greenland," by William Bowie (*Am. Jour. Sci.*, May, 1931). Presents a translation of part of the chapter entitled "*Eisdickenmessungen*," by E. Serge from the report of the "Deutsche Inlands-Expedition nach Grönland Sommer 1929," which shows that as the ice increases in thickness from 330 meters near the shore to 1220 meters towards the interior the elevation of bed rock above sea level decreases from 640 meters to 370 meters. If this really shows that the ice does not constitute an overload on the earth's crust under Greenland but that the crust has been pressed down to maintain equilibrium the investigation is of great importance to isostatic theory. Dr. Bowie suggests the importance of making gravity observations in the region.

"Isostasy from the Geological Point of View," by R. T. Chamberlin (*Jour. of Geol.*, vol. 39, no. 1, 1931). This is an important consideration of isostasy in its relation to other known geological processes. Concludes that mountain making is primarily independent of isostasy and in direct opposition to it. Isostasy is a "restrainer" which tends to preserve and restore the balance disturbed by other forces. Its part is secondary and subordinate.

"A Theory of Appalachian Geomorphic Evolution," by Douglas Johnson (*Jour. of Geol.*, vol. 39, no. 6, 1931). Explains the extended development of the southeast drainage across the Appalachian structural belt as the result of the superposition of this drainage system from an ancient coastal plain cover which extended from 125 to 200 miles northwest of the present inner margin of the Atlantic coastal plain and rested on the Fall Zone Peneplain—a much older surface than the Schooley or Kittatiny erosion surface.

*New Books: A General Index of The Journal of Geology* (Chicago University Press, 1930). *General Stratigraphy*, by J. W. Gregory and B. H. Barrett (London, 1931). A brief presentation of principles and a review of the stratigraphy of all continents. *Physiography of the Western United States*, by N. M. Fenneman, (N. Y., 1931). Present summaries of the regional geology of the Western United States from the Geomorphologic point of view. The first half of a book intended to cover the whole country. *Geology of Petroleum*, by W. H. Emmons (2d ed., N. Y., 1931). A new text which is really a reference book on petroleum geology with innumerable references. *The Japanese Earthquake of 1923*, by C. Davison (London, 1931). Deals with the earthquake as it affected man and as a geological phenomena.

*Earth Features and Their Meaning*, by W. H. Hobbs (N. Y., 1931). A revision of a well known and useful text. *The Study of Rocks*, by S. J. Shand (London, 1931). Deals largely with igneous rocks. Summarizes schemes of classification and emphasizes author's scheme based upon principle of "saturation." The chapters on metamorphic rocks embody some of the latest material on this subject. *Plant Life Through the Ages*, by A. C. Seward (N. Y., 1931). Outlines the succession of ancient floras and links them to the geological development of



the Earth. A general survey of a field that has been little touched upon. *A Manual of Determinative Mineralogy*, with tables, by J. Volney Lewis, revised by A. C. Hawkins. This is a fourth edition revised and brought up-to-date.

*A Practical Handbook of Water Supply*, by F. Dixey (London, 1931). An elementary treatise full of interesting notes and practical suggestions intended to help the inexperienced homesteader, missionary, etc., to develop a small water supply. *Strukturbericht, 1913-1928*, by Von. P. Ewald and C. Hermann (Leipzig: Akademische Verlagsgeschaft m. b. H., 1931). A compilation of the vast amount of data concerning the new crystallography which began to replace the older, purely descriptive science in 1913, when the X-ray was first used in crystal analysis. *Determination of the Opaque Minerals*, by C. M. Farnham (N. Y., 1931). A complete revision of "Davy and Farnham" with the results of examination in polarized light added to the determinative scheme. *Field Geology*, by F. H. Lahee (N. Y., 1931). An up-to-date revision. The third edition of an important book with three new chapters that deal with airplane mapping, subsurface geological surveying, and geophysical surveying. *The Coal Fields of the United States*. General introduction by M. R. Campbell; Ohio, by J. A. Browncker (U. S. Geol. Survey Prof. Paper 100, Dec., 1930). A result of the systematic study of coal lands and coal resources begun by the U. S. Geol. Survey in 1905.

*A Descriptive Petrography of the Igneous Rocks*, vol. i. Introduction, Textures, Classification, and Glossary by A. Johannsen (Chicago University Press, 1931). A first volume which leads one through the intricacies of classification, structure, and texture of igneous rocks. Assembles an important collection of photographs of structures and textures. *Volcanoes*, by G. W. Tyrrell (The Home University Library). An authoritative semi-popular presentation of the structure, origin, distribution, and types of volcanoes. *Outlines of Paleontology*, by H. H. Swinnerton (London, 2d ed., 1931). *The Physical Chemistry of the Magmatic Differentiation of Igneous Rocks*, III, 2d half, by J. H. L. Vogt (Oslo, 1931). *Proceedings of the Fourth Pacific Science Congress*, Java, 1929, Batavia-Bandoeng, 1930. In four volumes: 1. General Reports on Oceanography; 2. a & b, Physical Papers; 3. Biological Papers; 4. Agricultural Papers. Vol. 2, parts a & b, contains many papers on volcanology, diastrophism, petrology and other geological and closely related topics.

**GEORGETOWN UNIVERSITY.** A Roman Catholic institution of higher education for men in Washington, D. C., founded in 1789. In the autumn of 1931, 2435 students were enrolled. The faculty numbered 544. The Riggs Memorial Library contained 175,350 volumes; the Hirst Library, 11,421 volumes; and the individual libraries maintained by the professional schools, many additional volumes. Copley Hall, affording dormitory accommodations for 187 students, was completed in January, 1931. In September, 1931, the graduate department of the school of foreign service was moved from down-town Washington to the campus at Georgetown. President, the Rev. Coleman Nivels, S.J., Ph.D., and D.D.

**GEORGE WASHINGTON BICENTENNIAL CELEBRATION.** See CELEBRATIONS.

**GEORGE WASHINGTON BRIDGE.** See BRIDGES.

**GEORGE WASHINGTON UNIVERSITY.** THE. A nonsectarian institution of higher learning for men and women in Washington, D. C., founded in 1821. The enrollment for the first semester of 1931-32 was 6128. The faculty numbered 450. The endowment amounted to \$1,485,197, from which the income for 1931 was \$73,071. The total income from all sources was \$1,491,195. The university library, comprising the general library, the various departmental and seminar libraries, the medical library, and the law library, contained more than 92,000 volumes. A complete reorganization of the school of medicine was entered upon in the fall of 1931, looking toward the development of graduate work and research in the field of public health. The university also erected a temporary addition to its school of medicine and hospital, pending the realization of its plans for a great medical centre in Washington. President, Cloyd Heck Marvin, Ph.D., LL.D.

**GEORGIA.** POPULATION. According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 2,908,506; in 1920, 2,895,832. The chief elements of the population as grouped by origin were: Native white, 1,823,057 (1930), 1,672,928 (1920); foreign-born white, 13,917 (1930), 16,186 (1920); Negro, 1,071,125 (1930), 1,206,365 (1920). Though the number of the Negro inhabitants had diminished between 1920 and 1930, and though the number of the native whites had risen, the Negroes still constituted in 1930 a majority of the population of 47 of the 161 counties.

Atlanta, the capital and the most populous city, had 270,366 inhabitants (1930); 200,616 (1920). Savannah, 85,024 (1930), 83,252 (1920); Augusta, 60,342 (1930), 52,548 (1920); Macon, 53,829 (1930), 52,995 (1920).

**AGRICULTURE.** The following table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton ....	1931	3,440,000	1,395,000*	.....
	1930	3,863,000	1,593,000*	.....
Corn .....	1931	3,672,000	36,720,000	\$16,891,000
	1930	3,432,000	36,036,000	80,991,000
Tobacco ...	1931	84,000	59,640,000*	4,056,000
	1930	114,000	104,538,000*	10,787,000
Peanuts ...	1931	723,000	477,180,000*	7,158,000
	1930	575,000	373,750,000*	12,334,000
Sweet potatoes .	1931	91,000	4,550,000	2,958,000
	1930	79,000	6,320,000	4,740,000
Hay, tame .	1931	675,000	360,000*	3,600,000
	1930	521,000	312,000*	4,961,000
Peaches ...	1931	.....	9,134,000	5,024,000
	1930	.....	5,500,000	6,325,000
Oats .....	1931	332,000	7,968,000	3,665,000
	1930	246,000	5,043,000	3,732,000
Potatoes ..	1931	18,000	1,224,000	1,163,000
	1930	15,000	1,065,000	1,438,000

\* Bales.    † Pounds.    • Tons.

**MINERAL PRODUCTION.** The quarries of the State, producing stone of high average grade, provided in 1929 somewhat less than one-half of the total value of minerals produced. There were quarried, in 1929, 977,910 short tons of stone, as against 1,028,060 tons in 1928. The total value of the State's mineral production was \$15,294,103 for 1929; for 1928, \$14,740,431.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 represented the number of the State's manufacturing establishments



as 4178, or nearly 25 per cent in excess of that for 1927. The wage earners in manufactories numbered 158,280 in 1929, which was but 2.7 per cent more than in 1927. Wages paid in 1929 aggregated \$109,551,586, an increase of 1.3 per cent. Materials used in manufacture, plus fuel and purchased electricity, cost \$430,026,560, or 19.4 per cent above the 1927 total. The manufactured product of 1929 was valued at \$718,602,596, and exceeded that of 1927 by 17.8 per cent. Above the cost of materials, fuel and electricity the value added by manufacture was estimated at \$228,576,036.

**FINANCE.** State expenditures in the year ended Dec. 31, 1930, as reported by the U. S. Department of commerce, were: for maintaining and operating governmental departments, \$20,497,103 (of which \$6,918,714 was for local education); for interest on debt, \$392,252; for permanent improvements, \$12,861,533; total, \$33,753,305 (of which \$15,792,310 was for highways, \$3,843,765 being for maintenance and \$12,308,545 for construction). Revenues were \$35,637,622. Of these, property and especial taxes furnished 22.2 per cent; departmental earnings and compensation to the State for officers' services, 5.0; sale of licenses, 56.6 (in which was included a gasoline sale tax that produced \$11,206,392). Funded debt outstanding on Dec. 31, 1930, totaled \$7,387,202. Net of sinking-fund assets, the debt was \$7,283,702. On an assessed valuation of \$1,303,459,972 the State collected in the year ad valorem taxes of \$6,517,299.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 6671.50. No line had been added to the total in the year preceding, and 90.76 miles of line had been abandoned. No building of new line or trackage in 1931 was reported.

**EDUCATION.** For the academic year 1929-30, the number of persons of school age in the State was reckoned as 867,995. There were enrolled in the public schools 723,005 pupils. Of these, 622,174 were in common schools or elementary grades; 91,116 in high schools; and 9715 in evening schools. The year's current expenditures for public-school education totaled \$17,040,605. The yearly salaries of the teachers averaged \$604.84. A committee to revise the State's school laws was created by the General Assembly of 1931, and provision was made for substantial State payments on account of aid to the public schools.

**CHARITIES AND CORRECTIONS.** Under the plan for the reorganization of the State government enacted in 1931, to go into effect on Jan. 1, 1932, the eleemosynary institutions of the State, except for two, were placed under a Board of Control, consisting of 12 members, the Governor being a member *ex officio*, another member being chosen for the State at large and the remainder representing one Congressional district each. The existing Board of Public Welfare went out of existence concurrently with the entry of the new Board. The Department of Public Welfare, however, retained its legal function to supervise county jails, almshouses, and private institutions for the care of children and other dependents, as well as duties with regard to juvenile courts and the care of the poor. The institutions placed under the care of the Board of Control were: State Hospital (insane), Milledgeville; State Tuberculosis Sanatorium, Alto; Training School for Mental Defectives, Gracewood; State Train-

ing School for Boys, Milledgeville; State Training School for Girls, Atlanta; School for the Blind, Macon; School for the Deaf, Cave Springs; Old Soldiers' Home, Atlanta.

**LEGISLATION.** The General Assembly was twice convened, first in a special session lasting 80 days and ending on March 24; and again in the regular 60-day session which began on June 25. Hardman, the outgoing governor, called the special session with a view to correcting before the end of his term the deficiency of State revenue for the maintenance of institutions. He advocated a measure to allow the State to discount for cash the rental revenues of the Western and Atlantic R. R. Co. that were to accrue to the State, for the period of ten years ahead. A measure to this end was passed but was vetoed by Governor Hardman as not in accordance with his view of a suitable arrangement.

The special session brought aid to the State finances by the enactment of a series of tax measures. One of these, a new income-tax act, provided upon personal incomes rates running from 1 up to 5 per cent and upon corporate incomes 4 per cent. The tax on chain stores was repealed. The retail sales of cigarettes were taxed at the rate of 20 per cent of the retail price, or double the old rate, and tax stamps were required to be affixed. Motor carriers were regulated as to size, weight, capacity and speed, and a mileage tax was imposed on them, with the option, to the payer, of a flat annual payment. Powdered milk was taxed at 5 cents a pound and its use in public eating places was required to be placarded. A State Budget Commission was created. The fiscal acts of the session were expected to yield upward of \$2,000,000 a year.

The subsequent, regular session was held in the term of the incoming Governor Russell. It enacted a measure satisfactory to him, for the discounting of the Western and Atlantic R. R. rentals for a total of eight years. A reorganization act was passed, in accordance with the views of the commission that Governor Hardman had appointed to study the subject. It reduced the number of elective officials, thus giving the State a short ballot, and merged or coordinated numerous State organizations. Its expected effect was to reduce State expenditure by some \$500,000 a year.

The State was redistricted into 10 districts, in place of the previous 12, for the election of Federal Representatives.

**POLITICAL AND OTHER EVENTS.** A seat in the House of Representatives, for the Savannah district, made vacant by the death of Charles G. Edwards, was virtually filled when Homer C. Parker obtained the Democratic nomination in a primary election held on August 25. The act of 1931 for the regulation of motor carriers was attacked on the ground that the text of the measure had been improperly changed in course of passage. Later some of the motor carriers endeavored to get a writ to prevent the collection of the tax on them, on the ground that the bill was confiscatory and discriminating. The Fulton County Superior Court held the act valid in a decision of July 13. The efforts of the State to require motor carriers of other States to obey the law led to antagonism in other States, including a threat from Indiana to make reprisals against trucks, registered in the State of Georgia, found on the roads of the State of Indiana.

Fulton and Campbell counties were merged by proclamation of Governor Hardman on May 6, in conformity with a popular vote in the two counties, taken in April, in favor of the consolidation. The combined county was to be known as Fulton County and was to come into being on January 1, 1932.

In Atlanta a Grand Jury investigation of city contracts, for which the *Atlanta Constitution* had started a campaign at the close of 1929, was at last held early in 1931, and 53 indictments for bribery, corruption, defrauding the city or tampering with juries were found. Contracts for a new Post Office Building at Spring, Hunter, and Forsyth streets, to cost about \$3,000,000, were awarded during the summer. A 534-acre airport on the northern side of the city, to cost an estimated \$613,000, was projected. The question whether the city should change in spring to summer or daylight-saving time was submitted by the city council, by act of July 8, to subsequent popular vote.

**OFFICERS.** Governor, Richard B. Russell, Jr.; Secretary of State, John B. Wilson; Attorney-General, George M. Napier; Treasurer, W. J. Speer; Auditor, Tom Wisdom; Comptroller-General, W. B. Harrison; Superintendent of Education, M. L. Duggan; Commissioner of Agriculture, Eugene Talmage; Commissioner of Commerce and Labor, H. M. Stanley.

**JUDICIARY.** Supreme Court: Chief Justice, Richard B. Russell; Assistant Justices, Marcus W. Beck, Samuel C. Atkinson, H. Warner Hill, S. Price Gilbert, James K. Hines.

**GEORGIA, UNIVERSITY OF.** A State institution of higher education for men and women in Athens, Ga., chartered in 1785 and opened in 1801. The enrollment in the 1931 summer session was 2360 and for the autumn term, 1869. The faculty numbered 145. The productive funds of the university amounted to \$425,000, and the income for the year from the State and other sources was \$400,000. The library contained 64,000 volumes. President, Charles M. Snelling, Sc.D.

**GEORGIA (GEORGIAN SOCIALIST SOVIET REPUBLIC).** Proclaimed a soviet republic on Feb. 25, 1921, Georgia united with Armenia and Azerbaijan on Jan. 16, 1923, to form the Transcaucasian Socialist Federated Soviet Republic (q.v.). It occupies western and central Transcaucasia and with an area of 26,381 square miles had a population of 2,660,963 at the census of 1926. Capital, Tiflis (population, 293,000). See **UNION OF SOVIET SOCIALIST REPUBLICS**.

**GEORGIA SCHOOL OF TECHNOLOGY.** An institution for the scientific and technical education of men in Atlanta, Ga., founded in 1888. The enrollment for the autumn of 1931 was 1923, while that in the summer session was 540. The faculty numbered 160. The endowment amounted to \$420,000, and the income from appropriations and fees, to \$650,000. There were 30,000 volumes in the library. In 1931 Cloudman Dormitory was erected at a cost of \$100,000. President, Marion Luther Brittain, LL.D.

**GERMAN ART EXHIBITIONS.** See **ART EXHIBITIONS**.

**GERMANIC LANGUAGES.** See **PHILOLOGY, MODERN**.

**GERMAN LITERATURE.** The trend of German literature during the year 1931 reflected the chaotic state of the people's soul. The generation that grew up with and since the World War

saw its path strewn with the débris of political ideals and social standards discarded in the sudden debacle of the Empire and stumbled over the idols of the fathers which lay shattered by the roadside. With very few exceptions the books written by the youth of contemporary Germany sound a morbid pessimism or show futile efforts at finding a pilot to lead them out of the spiritual gloom that had settled over the country. Literary activity seems to be greater than ever before, but the quality of the works produced does not reach that of the pre-war period. No doubt the political unrest and the economic depression are the primal causes of this decline. With the stabilization of the country's finances and the suppression of the sword-rattling spirit of certain parties the genius of Germany will give birth to worthy successors of such writers as Gerhart Hauptmann, Arthur Schnitzler, Hugo von Hofmannsthal, and others whose works belong to the world's literature.

**FICTION.** The fiction produced by the younger writers is mostly devoted to the presentation of segments of contemporary life as seen through their individual attitude towards the world. Their number is alarmingly large, but some of them show skill in striking a timely note in the monster chorus of voices clamoring for expression. Among them are Johannes Wolf with *Frauen zwischen gestern und heute*, a study of transition types; Hans von Sinsheimer with *Peter Unglaub*, an actor's life of symbolic significance; Franz Illing with *Utopolis*, a communist view of future society; and the novels dealing with the problem of man and machine, such as Heinrich Lersch's *Hammerschläge*; Dierck Seeburg's *Der Metallstreit*; and Walter Eidlitz's *Zodiak*. Echoes of the War vibrate in Cuno Hofer's allegorical epic *Jan. 9.*; Emil Belzner's *Marschieren nicht trauern*; Hanns Johst's epiphany on the vanishing aristocracy: *So gehn sie hin*; Leonard Schrickel's imaginary diary of an exiled prince: *Entthronung*; Hans Fallada's *Bauern, Bonzen und Bomben*; Friedrich Frcksa's *Kaufmannskinder*. Hans Natonek's *Gold regiert die Welt* shows the influence of Wassermann and Heinrich Mann; Walter von Hollander's *Die Angst zu lieben*, a picture of the old middle class, the West front and the Berlin proletariat; Rudolf Borchardt's short stories, *Das Hoffnungslose Geschlecht*; and Erich Kastner's *Fabian*, the story of a moralist, rich in ideas, with touches of satire, but a sympathetic attitude towards the German youth of to-day.

Outstanding among the stories of the older writers are Clara Viebig's historical *Prinzen, Prälaten und Sansculotten*; Enrika Handel-Mazetti's *Frau Marie*, a novel of the time of August of Saxony; Otto Stoessl's *Das Haus Erath*, relating the decline of the German middle class in the manner of the Forsythe Saga; Jacob Schaffner's *Die Predigt der Marienburg*; Gustav Frenssen's *Der Brennende Baum*; Hermann Stegemann's *Das Kind Eva*; Max Brod's *Das Jahr der Entscheidung*; Rudolf Hans Bartsch's *Der grosse und der kleine Klaus*; and Rudolf Greinz's *Dämon Weib*.

Semi-biographical novels of interest are Kasim Edschmid's *Lord Byron*, and Carl Müller-Rastatt's life of the eighteenth century poet *Gunther*. But the last book published by Arthur Schnitzler before his death, *Traum und Schicksal*; Helene Böhlau's *Föhn* with the underlying idea that tumultuous times forge the people's

heart; Jacob Wassermann's *Etsel Andergast*, which suggests a sequel to *Der Fall Mauritzius*; and above all Heinrich Mann's two-volume novel *Das Kaiserreich*, picturing pre-war Germany with his deep understanding and uncompromising veracity, rank highest in the year's output of fiction.

Outstanding among the latest novels are Gustav Renker's story of two musicians, father and son: *Symphonie und Jazz*; two stories of the youth of our time: Ernst Erich Roth's *Die Mietskaserne* and Hans Gerhard Weiss's *Was wird aus Benjamin*; also Arnold Ulitz's stories based on his experiences as teacher: *Die Unmündigen*; and Josef Ponten's *Rhein und Wolga*, a chapter in the history of the German peoples migrations. Arthur Schnitzler's posthumous *Flucht in die Finsternis* is a psychiatric story told with such detail that critics are asking: Is this art?

DRAMA. The plays of the year show a tendency towards far-fetched, bizarre subjects. The craze to present classical or even Biblical subjects in modern spirit and garb, not unknown to America, had reached Germany, one of the most glaring examples being Julius Martin Becker's *Die Nacht der Könige*, a travesty rather than version of the Nativity, in which the three wise men are an Ex-General, an American millionaire, and a poet, who renounce their privileges in favor of a child born in a stable as the result of an automobile accident! Of different character is E. Dietzen-schmidt's Judas tragedy *Mutter Gottes* with its impressive subtle atmosphere. Hermann Heinz Ortner produced the second part of his *Sebastian Legende* and Paul Ernst a *Kassandra*. Robert Ziersch's *Berufung des Bettlers Gregory* proved a powerful play about a peasant czar inspired by humanitarian ideals. Sigmar Graff's *Die einsame Tat* dealt with the death of the popular playwright Kotzebue who in 1830 was for political reasons shot by the student Sand.

Hans Süßmann's *Haus Rothschild* is significant for its impartial portrayal of the miscellaneous characters involved; but Eugen Geissler's *Dreimal Waterloo*, though clever, is a superficial picture of political conditions in Paris in 1870. Emil Ludwig's *Versailles* is also by no means unbiased. Erwin Guido Kolbenheyer's *Jagt hinein Mensch!* is a ghastly arraignment of competition in modern business life. An interesting play was presented by Edith Mikleleitis Winkelmann: *Rembrandt*.

Ernst Toller and Hermann Kesten have collaborated on a five-act play: *Wunder in Amerika*, dealing with Mary Baker Eddy. Ernst Lissauer's *Aufbruch des Goldes* is a curious play of modern finance, more especially the gold standard; Rudolf Stern's *Die Gottlosen*, a four-act play of the conflict between the believing old and the unbelieving young generation.

POETRY. With the exception of Albert Sergel, whose name is familiar to readers of German verse, and Paul Zech, who made his début in the first years of the War, the poets of 1931 are all newcomers. Sergel's new verse is entitled *Saat und Ernte*. Erich Kästner's *Ein Mann gibt Auskunft* betrays its modernistic tendency by the title. Other new poetry came from Otto Heuschele, *Die Ausfahrt*; Ernst Jocker, *Wandlungen*; Felix Witmer, *Sänge von Lieben und Sterben*; Hans Friedrich Blanck, *Erwartung*; and Hermann Wilhelm Weissenborn, *Das Tor der Toten*.

LITERATURE. ESSAYS and treatises on literary subjects were as numerous as ever, ranging from

Aloys Schafer's contribution to Nibelungen research, *Und dennoch die Nibelungenfrage gelöst*, to Friedrich von der Leyen's record of German poetry from 1925 to 1930, entitled *Die Forderung des Tages*. Shakespeare-literature was increased by E. Landau's character-study: *Shakspeare-Mysterium*, Ernst Fleischer's *Dichter und Jurist*, Christian Gaehde's *Shakspeare und seine Zeit*, Dr. Karl Sonnenschein's *Der Mensch und sein Werk*, Peter Alvor's *Die Shakspearefrage und das Ben Jonson Problem*, and Susanne Türk's *Shakspeare und Montaigne*. Goethe literature dwindled to two volumes: the *Year Book* of the Kippenberg Goethe-Gesellschaft and Ernst Franz's *Goethe als religiöser Denker*.

The drama enlisted the attention of critics, among them Dr. Wilhelm Knevel's *Das moderne Drama, Darstellung, Deutung, Wertung*; Ferdinand Gregori, *Das gesprochene Wort*; Maria Piper, *Die Schauspielkunst der Japaner*; Richard Elsner, *Das deutsche Drama in Geschichte und Gegenwart*; Julius Bab, *Das Theater im Lichte der Soziologie*; S. Nestripke, *Geschichte der Volksbühne*, etc.

Walter Leiden published a selection in three parts from Nietzsche's writings. Rudolf K. Goldschmidt's *Der kluge Zeitgenosse* contains a warning to critics and consolation to their victims. L. O. Kestenberg discusses the timely problem of *Kunst und Technik*. Robert Ander has written a *Bücherkunde zur neuen deutschen Literaturgeschichte* which is more than a reference book. One of the most valuable volumes of essays is Heinrich Mann's *Ucist und Tat*, in which he pays tribute to Stendhal, Hugo, Flaubert, George Sand, Anatole France, and other French writers as representatives of the sociological novel.

BIOGRAPHY. One of the most interesting among the biographies of the year is *Marie d'Agoult*, condensed from the memoirs of that remarkable woman, who as Comtesse d'Agoult was the mother of Franz Liszt's children and under the pseudonym Daniel Stern wrote the best history of the February Revolution of France. The introduction is by Siegfried Wagner. Count Du Moulin-Eckart published the second volume of the life of Cosima Wagner under the title *Die Herrin von Bayreuth*; Heinrich Scholz, *Richard Wagner und Mathilde Meier*; and Hans Reissiger, *Unruhige Geister*, a record of Wagner's youth. Victor Walther's *Mathilde* is a contribution to Heine biography.

One of the outstanding biographical works is *Mein Leben im Kampf um die soziale Entwicklung Deutschlands* by the famous jurist and economist Lujo Brentano. A book of still wider interest is Stefan Zweig's *Die Heilung durch den Geist* in which with penetrative insight he portrays Mesmer, Mary Baker Eddy and Sigmund Freud.

HISTORY. A new volume in Egon Friedell's *Kulturgeschichte der Neuzeit* deals with Romanism and Liberalism, Imperialism, and Impressionism. A new volume in the *Propyläen-Weltgeschichte* is entitled *Das Erwachen der Menschheit*. Gert Buchheit has written a history of the popes: *Das Papsttum*. Ricarda Huch has written a history of the German revolution of the nineteenth century, *Alte und neue Götter*. Wilhelm Dibelius published his *England* shortly before his death. E. Muss and C. C. Borchling have written a history of that sturdy North German tribe; the *Frisians*. Hermann Müller Franke's *Die November Revolution* can serve as sequel to the memoirs of Prince Max von Baden. Famous trials are discussed by Bruno Weil in *Glück und*

*Elend des General Boulanger and Der Prozess des Hauptmanns Dreyfus.*

MISCELLANEOUS. Among the philosophical works of the year the more important are: Dr. Otto Fränkl's *Die Anthroposophie Rudolf Steiners*; Dr. Ernst Bergmann's *Erkenntnisgeist und Muttergeist*, a sociology of the sexes; Wilhelm Dilthey's *Weltanschauungsmythen*; and Max Dessoir's *Vom Jenseits der Seele*, a critical estimate of occultism. Of great interest are Coudenhove-Kalergi's *Los vom Materialismus*, Oswald Spengler's *Der Mensch und die Technik*, Hugo von Hofmannsthal's *Die Berührung der Sphären*, Rainer Maria Rilke's *Stimmen der Freude*, Friedrich List's *Der tragische Deutsche*, and Ricarda Huch's *Deutsche Tradition*.

Other works of divers content are H. Schuch and R. Sohlmann's *Nobel: Dynamit, Petroleum und Pacifismus*; Frank Kleinbrod's *Die Übermechanik des Lebens*; and Julius Schultz's *Die Maschinentheorie des Lebens*; Gottfried Baum's *Facit der Perspektive*; Paul Kraunhals's *Das organische Weltbild*; Paul Wertheimer's *Welt und Weltenspiegel*, reflections on life, world, and woman; Fedor Vargin's *Das unbewusste Europa*, a psychoanalysis of European politics; Alfred Kleinberger's *Die europäische Kultur der Neuzeit*; Friedrich Sieburg's *Gott in Frankreich*, tracing the evolution of the national character of the country and its position in the world to-day; Anton Valentin's *Stresemann, das Werden einer Staatsidee*; and Arthur Feiler's timely *Das Experiment des Bolschewismus*.

Among the numerous travel books Leopold von Schlözer's *Auf Capri* is written in the form of conversations with a keen observer. Otto Willi Ulrich's *Im Lande der Affen und Papageien* contains sprightly descriptions of Brazil, and America is represented by Rudolf Hensel's *Die neue Welt* and *Kleine Liebe zu Amerika* by Manfred Hausmann, a not uncritical lover of the country. Fritz Schillmann's *Florenz und die Kultur Toskana's* and Oskar Schuerer's *Prag*, tracing the history, culture and art of the interesting old city, are books for students rather than tourists.

TRANSLATIONS. Among the numerous authors who have been presented to German readers in translations are Unamuno, Hamsun, Jules Romains, Alain Fournier, Ramon de la Serna, Valerie Marcu, Ibáñez, Gorki, Sven Adelon, Clemenceau, Sir Edward Parry, Sir James Jeans, etc. American authors represented in German garb are John Dewey, Henry Ford, Du Bois Heyward, Ellen Glasgow, Edith Wharton, etc.

**GERMANY.** A federal republic of central Europe, constituted after the abdication of Emperor William II on Nov. 9, 1918, and organized under the Constitution adopted July 31, 1919, by the National Assembly at Weimar; formerly the German Empire. It is bounded on the north by the Baltic Sea, Denmark, and the North Sea; on the west by the Netherlands, Belgium, Luxembourg, and France; on the east by Lithuania and Poland, whose Danzig corridor isolates East Prussia from the rest of Germany; and on the south by Switzerland, Austria, and Czechoslovakia. The German Empire consisted of 25 Federal States and the Imperial Reichsland; the Federal Republic consists of 17 republics. Capital, Berlin.

**AREA AND POPULATION.** At the census of Oct. 8, 1919, the area of the Republic, including the Saar Valley, was 182,213 square miles and the population, 59,852,682, of whom 28,496,419 were

## AREA AND POPULATION

Constituent States	Area English sq. miles	Population June 18, 1925	Pop. per sq. mile 1925
Prussia *	118,036	38,175,989	338
Bavaria *	29,343	7,379,594	251
Württemberg	7,532	2,580,235	342
Baden	5,819	2,812,462	397
Saxony	5,789	4,992,320	863
Mecklenburg-Schwerin	5,068	674,045	133
Thuringia	4,537	1,609,800	355
Hesse	2,970	1,847,279	454
Oldenburg	2,480	545,172	220
Brunswick	1,418	501,875	354
Mecklenburg-Strelitz	1,181	110,269	98
Anhalt	890	351,045	398
Lippe	469	163,648	349
Schaumburg-Lippe	131	45,046	367
Hamburg	160	1,152,523	7,208
Lübeck	115	127,971	1,113
Bremen	99	338,848	3,423
German Republic *	180,985	62,410,619	345
Prussian Saar District †	574	670,000	1,167
Saarpfalz ‡	164	98,000	598
Saar District (altogether)	738	768,000	1,041
German Republic (with Saar District) †	181,723	63,178,619	348

\* Excluding the Saar and including Waldeck, absorbed by Prussia Apr. 1, 1929.

† The figures for the population of the Saar District, in which the census of 1925 could not be taken, are estimates.

‡ Excluding the Saar.

males and 31,356,263 females, as compared with 57,798,427 in 1910. The accompanying table from the *Statesman's Year Book* for 1931 gives area and population according to the census of June 18, 1925. The estimated population in 1929 was 64,036,000, excluding the Saar Basin, with 770,030 inhabitants in 1927.

Cities of over 500,000 population at the census of 1925 were: Berlin, 4,024,154; Hamburg, 1,079,126; Cologne, 700,222; Munich, 685,036; Leipzig, 679,159; Essen, 629,564; Dresden, 619,157; Breslau, 599,770; Frankfurt-on-Main, 540,115; Dortmund, 525,837. A marked decline in migration from country districts to the large cities and a drastic falling off in the birth rate attracted the attention of German sociologists in 1930 and 1931. In 1930, 50,000 more persons left the principal cities of Prussia than came to them from the rural districts. As the excess of births over deaths in these cities for the year was but 43,228, they lost some 7000 inhabitants. Berlin's population on Mar. 1, 1931, was estimated by the Prussian Statistical Bureau at 4,329,000, as against 4,348,000 on the same date of 1930.

Authorities estimated that a continuation of the 1930 ratio of births to deaths would reduce the German population to about 45,000,000 by the third quarter of this century. Births in 1930 totaled 1,128,076, or 20,630 less than in 1929, despite the fact that the number of married women under 45 years of age was 120,000 greater in 1930 than in the previous year. The number of persons of marriageable age was larger in 1930 than in 1929, but marriages declined by 27,133 to a total of 562,298. Deaths during the period 1926-30 amounted to an average of 749,553 annually.

**EDUCATION.** Elementary education is compulsory between the ages of 6 and 14. According to the school census of 1926-27, there were 52,825 public elementary schools, with 6,661,794 pupils; 572 private schools, with 36,991 pupils; 1550 *Mittelschulen*, with 259,300 pupils; and 2278 secondary schools, with 582,950 students (excluding 22,632 students in "preparatory")

schools). There were also 10 technical high schools, with 22,014 students in 1929, and numerous vocational and normal schools, besides 23 universities.

**AGRICULTURE.** Agriculturally, Germany is one of the most productive countries of Europe. Official returns for June, 1928, placed the arable land at 51,450,000 acres, with an additional 20,227,330 acres devoted to grass, meadows, and pasture, and 203,505 acres to vineyards. Of the cultivated area, about 61 per cent is sown to grain and legumes and 21 per cent to potatoes, sugar beets, and cattle turnips. Small farms predominate in the west and south; large estates in the northeast. The average size of individual farms is about 29 acres, compared with about 145 acres in the United States. The area and production of the chief crops in 1929 and 1930 are shown in the accompanying table from the 1931 *Commerce Yearbook*.

#### GERMAN CROPS: AREA AND PRODUCTION

Crop	Area (thousands of acres)		Production *	
	1929	1930	1929	1930
Wheat .....	3,955	4,401	123,061	139,220
Rye .....	11,680	11,640	321,050	302,311
Barley .....	3,835	3,754	146,093	131,362
Oats .....	8,793	8,500	508,636	389,666
Spelt .....	301	294	5,534	5,071
Lupins .....	75	84	84*	80*
Potatoes .....	7,008	6,928	1,472,559	1,730,600
Sugar beets ...	1,125	1,193	11,091*	14,919*
Beet sugar *	.....	.....	1,985*	2,508*
Fodder beets ..	1,805	1,824	24,208*	30,402*
Hay, alfalfa, and clover .....	18,652	18,705	31,237*	36,988*
Hops .....	38	32	30,074*	24,366*
Tobacco .....	24	24	51,840*	50,924*
Grapevines ...	201	203	53,336*	74,282*

\* Unit, metric ton.

• Seasons ended following year.

• Unit, pound.

• Unit, gallon of wine.

• Thousands of units—bushels except as indicated.

**MINING.** Prussia supplies the great bulk of the minerals raised in Germany, the chief mining areas being in the districts of Westphalia, Rhenish Prussia, and Silesia (coal and iron), Central Germany (brown coal), the Harz (iron and copper ore), and the Westerwald (iron ore). In 1925 there were 2942 mines in Germany, employing 808,593 persons. Primary horse power directly applied in mining operations was 1,416,750 in 1925 and 1,104,673 in 1907; the horse power of electric motors was 1,672,915 in 1925 and 244,903 in 1907. Blast furnaces in operation in 1929 numbered 182.

Mineral production declined substantially in 1930, compared with 1929, as shown in the accompanying table of mineral and industrial production from the 1931 *Commerce Year Book*. In 1931, still greater declines were registered. Preliminary returns placed pig iron production at 6,063,042 metric tons and crude steel production at 8,291,250 metric tons.

**MANUFACTURING.** The Ruhr is the chief centre of the steel industry and of iron production; other metallurgical areas are in the Lower Rhine, Westphalia, Upper Silesia, Hanover, Bavaria, and Saxony. Germany's share of the world chemical production shrank to 16.5 per cent in 1927 from 24 per cent in 1913. Other leading manufacturing lines are the electrical, textile, beet sugar, potash, glass, porcelain, paper, earthenware, clock, wood ware, and brewing industries. The industrial census of June 16, 1925, showed

#### GERMANY'S MINERAL AND INDUSTRIAL OUTPUT

Product	1928	1929	1930
Coal . . . . . 1,000 metric tons	150,861	168,441	142,698
Lignite . . . . . do	165,588	174,456	145,982
Coke * . . . . . do	34,775	89,421	82,459
Briquets, coal . . . . . do	5,376	6,059	4,691
Briquets, lignite . . . . . do	40,157	42,137	33,999
Iron ore . . . . . do	6,475	6,374	.....
Lead * . . . . . metric tons	57,582	60,464	.....
Copper * . . . . . do	26,213	28,983	27,000
Zinc * . . . . . do	116,979	.....	.....
Potash (K <sub>2</sub> O) 1,000 metric tons	1,432	1,433	1,370
Pig iron . . . . . do	11,804	18,240	9,695
Crude steel . . . . . do	14,517	16,063	11,539
Rolling-mill products . . . . . do	10,568	11,285	.....
Rayon . . . . . 1,000 lbs.	41,000	45,000	50,300
Cotton consumption * . . . . .	.....	.....	.....
Vessels launched . . . . . million lbs.	740	753	679
..... gross tons	376,416	249,079	245,557

\* From black coal

• Metal content of ore.

• Includes linters.

1,852,737 industrial establishments, employing 12,704,135 workpeople. Taking the monthly average of industrial production in 1929 as 100, the index of average monthly production in 1930 was 82.4, and in the first quarter of 1931, 68.6. Production figures for some of the leading industries in 1929 and 1930, are shown in the accompanying table on mineral and industrial production.

The production of both pig iron and raw steel in 1930 was considerably below that of 1929. Foreign sales of iron and steel products were 18.6 per cent less than in 1929, while imports of these products into Germany declined by 310,644 tons to 1,140,388 tons.

Of the 33,000,000 Germans engaged in earning a living in 1931, it was estimated that every seven were supporting, in addition to their own families, one idle worker plus his family. Employment conditions in the first six months of 1931 showed a seasonal improvement greater than in 1930, the number of unemployed declining from about 4,384,000 on Dec. 31, 1930, to 3,902,000 on June 30, 1931, and then rising to about 5,666,000 on Dec. 31, 1931.

**COMMERCE.** Beginning with the middle of 1929, Germany not only maintained a favorable balance of trade, but also gradually increased the surplus of exports. Total 1930 imports, including gold and silver, were valued at 10,854,000,000 marks, or about 22 per cent below the 1929 figure of 14,027,000,000 marks. Exports declined in value to 12,656,000,000 marks, including reparation deliveries in kind, as compared with 14,215,000,000 marks in 1929, a decrease of about 13 per cent. On this basis, the favorable balance of trade in 1930 was 1,802,000,000 marks, as against a debit balance of 188,000,000 marks in the previous year. Both imports and exports declined in 1931, according to preliminary figures, but the favorable balance of trade increased. In terms of marks, imports amounted to 6,727,000,000, exports to 9,598,600,000, and the surplus of exports to about 2,870,600,000 marks, including reparation deliveries in kind.

Both import and export prices declined sharply during 1930, but the relatively greater slump in prices of raw material imports reacted to Germany's advantage. In 1930, 28.4 per cent of the total value of imports for consumption (including gold and silver) was represented by foodstuffs, beverages, and live animals; 50.6 per cent by raw materials and semi-manufactures; 16.5



per cent by manufactured goods; and 4.5 per cent by specie and bullion. The corresponding proportions for exports of German products (including deliveries on account of reparations) were 4.4, 19.5, 71.8, and 4.3 per cent, respectively.

The United States retained its predominant position as the leading source of German imports in 1930, although the value of shipments declined to 1,306,800,000 marks from 1,790,400,000 marks in 1929. The other chief sources of imports, in order of importance, were the United Kingdom, the Netherlands, France, Italy, Czechoslovakia, Belgium (including Luxemburg), Sweden, and Austria. German purchases from all these countries declined in value in 1930. The principal export markets, in order of importance, were the United Kingdom, the Netherlands, France, the United States, Belgium and Luxemburg, Czechoslovakia, Sweden, Italy, and Austria.

**FINANCE.** The federal budget for the fiscal year ended Mar. 31, 1931, was based upon the anticipated balancing of revenues and expenditures at 12,079,100,000 marks. Actual returns showed a deficit of 1,249,600,000 marks (about \$297,400,000). Expenditures were 12,526,500,000 marks, or 447,400,000 marks in excess of the estimate, while revenues were 11,276,900,000 marks, or 802,200,000 less than estimated. Included in expenditures were 1,707,900,000 marks for reparation payments, about 800,000,000 marks for amortization and repayment of debt, and 771,700,000 marks to cover the deficit from the preceding fiscal year.

In the budget for the 1931-32 fiscal year, revenue and expenditure were estimated to balance at 10,653,834,000 marks. The budget was modified by the emergency decrees of June 5, 1931 (see below under *History*), and by other developments of the year. The federal government's ordinary financial operations resulted in a deficit of 446,000,000 marks in 1929-30 and of 601,000,000 marks in 1928-29; in 1927-28 there was a surplus of 124,000,000 marks.

The indebtedness of the Federal Government on Mar. 31, 1931, not including reparation payments fixed at about 37,000,000,000 gold marks (\$9,000,000,000) by the Young Plan, amounted to 11,313,000,000 marks, of which 6,615,000,000 marks comprised new borrowings. Of the new borrowings, 1,997,000,000 marks represented medium and short term loans. The total debt, exclusive of reparation, on Mar. 31, 1930, was 11,321,400,000 marks. The indebtedness of the German states and large cities on Mar. 31, 1931, totaled 6,754,000,000 marks, of which 3,410,000,000 marks was in long term and 3,344,000,000 marks in short term loans.

The gold reichsmark was established as the monetary unit of the Republic on Oct. 11, 1924, and was identical in value (\$0.2382 at par) with the gold mark, which virtually disappeared from circulation soon after the World War. The term "mark" is accordingly used interchangeably in this article to designate both reichsmark and mark.

**RAILWAYS.** The state-owned German railway system in 1930 had a total of 48,164 miles of trackage and 33,443 miles of line. Of the line mileage, 32,472 miles were steam and 971 miles electrically operated. Operating receipts for the calendar year 1930 amounted to 4,570,317,000 marks (5,353,834,000 marks in 1929), while operating expenditures were 4,090,353,000 marks (4,493,496,000 marks in 1929).

The final surplus totaled 104,080,000 marks. Passengers carried in 1930 numbered 1,829,300,000 (1,980,300,000 in 1929) and freight declined by 18.5 per cent to 354,354,000 metric tons (436,010,000 tons in 1929). Preliminary returns for Government railway operations in 1931 showed a deficit equivalent to \$120,000,000.

**SHIPPING.** According to Lloyd's Register of Shipping, the German mercantile marine on June 30, 1930, totaled 4,229,235 registered gross tons, as compared with 5,459,296 tons in 1914, and 4,092,552 tons on June 30, 1929. During the calendar year 1930, 53,541 merchant vessels aggregating 22,025,000 net tons passed through the Kaiser Wilhelm (Kiel) Canal. In 1929, a total of 75,584 vessels of 42,146,093 tons entered German ports, exclusive of deep-sea fishing vessels, and 85,518 vessels of 45,872,189 tons cleared. See articles on SHIPBUILDING and SHIPPING, MERCHANT.

**OTHER COMMUNICATIONS.** Inland waterways in 1929 extended 7653 miles, of which 1426 miles were canals, and transported 110,669,000 tons of goods. The inland fleet consisted of 19,429 vessels of 6,747,624 tons. Highways totaled 217,479 miles, of which 74,564 miles were macadam. Civil air lines in 1930 reported an airplane mileage of 6,719,000 miles (6,475,000 in 1929).

For ARMY and NAVY, see discussions in the articles MILITARY PROGRESS and NAVAL PROGRESS.

**GOVERNMENT.** Under the Constitution of the Republic adopted July 31, 1919, and promulgated Aug. 11, 1919, executive power is vested in the President elected by the people for seven years, and in a ministry appointed by him and responsible to the Reichstag, or lower house of Parliament. Legislative power is vested in the Reichstag, consisting of 577 members (following election of Sept. 14, 1930), who are elected by universal, equal, direct, secret franchise of male and female voters, on the principle of proportional representation; and in a federal council, the Reichsrat, consisting of 66 members. The consent of the Reichsrat is required to all bills before their introduction into the Reichstag, but the latter body may pass a bill over the heads of the former by a two-thirds vote. The composition of the Reichstag following the election of Sept. 14, 1930, was: Social Democrats, 143; National Socialists (Hitler party), 107; Communists, 77; Centre (Roman Catholic party), 68; German National People's party, 41; People's party, 30; Economic party, 23; Christian Peasants, 22; Bavarian People's party, 19; State party, 14; Christian Socialists (Protestant), 14; German Peasants, 6; People's National Union, 6; Conservative People's, 4; Hanoverian party, 3; total, 577.

The Cabinet appointed Mar. 30, 1930, included: Chancellor, Dr. Heinrich Brüning (Centre); Minister for Foreign Affairs, Dr. Julius Curtius (German People's party); Transport, Theodor von Guérard (Centre); Economic Affairs, Dr. Trendelenburg; Justice, Dr. K. Joel; Defense, Lieut.-Gen. Wilhelm Groener; Finance, Hermann Robert Dietrich (German Democratic party); Posts, Dr. G. Schaetzel (Bavarian People's party); Agriculture, Herr M. Schiele (German Nationalist); Labor, Dr. Adam Stegerwald (Centre); Home Affairs, Dr. Joseph Wirth (Centre); Minister without Portfolio, Herr G. Trevisan (People's Conservative party). President in 1931, Field Marshal Paul von Hinden-



burg (Independent), who assumed office May 12, 1925, for the term to expire on May 12, 1932.

### HISTORY

A financial crisis rivaling in magnitude the disastrous period of deflation in 1923 overshadowed all other developments in Germany during 1931. The crisis represented the cumulative effects of the two decades of German and European history since the outbreak of the World War. The more obvious causes were outlined by Prof. Sidney B. Fay of Harvard University as follows:

(1) The exhaustion of German capital, and economic and social dislocation resulting from the World War; (2) the burden imposed by reparation payments; (3) excessive public expenditures and recurring budget deficits; (4) borrowing abroad; and (5) uncertainty as to Germany's political stability and financial solvency.

These factors were primarily economic, but two political events loomed large in the immediate background of the storm—the menace to peace seen in the sensational National Socialist (Hitlerite) and Communist gains in the Reichstag elections of September, 1930, and the abortive Austro-German customs union proposal of Mar. 21, 1931.

The internal situation at the opening of 1931 was one of mixed promise and gloom. The unemployed had increased to 4,750,000, or nearly one-quarter of Germany's normal laboring army of about 20,000,000. The Nazi (National Socialist) agitation for the repudiation of parliamentary government, the peace treaties, and the Young Plan raged throughout the country. Bloody riots between Nazis and Communists or between Nazis and members of the Social Democratic *Reichsbanner* were of daily occurrence. On the other hand, the situation had been somewhat stabilized through the continuance in office of Chancellor Brüning's minority government, with Social Democratic support. For the first time, also, the government faced the hard facts of the financial situation and launched energetic measures to balance the budget. Its prestige was enhanced by Foreign Minister Curtius's successful pleading of the case of the German minority in Polish Upper Silesia before the League of Nations Council in January. (See LEAGUE OF NATIONS.)

No such alarming demonstrations as those of the previous autumn accompanied the reconvening of the Reichstag on February 3, following the Christmas recess. Hitlerite and Communist motions of no-confidence in the government were defeated by 293 votes to 221 on February 7. Obstructionist tactics were then resorted to by the Opposition and on February 9 the Reichstag was forced to amend its rules of procedure so as to eliminate delay. The vote was 303 to 0. The Nazis and the Hugenberg Nationalists, in protest against this "tyranny of the majority," boycotted the Reichstag for the balance of the session, which closed March 26. Confronted by the Communists only, the government was able to put through its budget (see under *Finance* above) and other measures in relative tranquillity.

Incorporated in the budget, which totaled 10,653,000,000 marks (about \$2,540,000,000), was a first appropriation of 2,000,000,000 marks to inaugurate a seven-year programme of social and economic relief for the hard-pressed agricultural districts of eastern Germany. The budget

also carried two appropriations each of about \$5,000,000 to complete the cruiser, *Ersatz Preussen*—the famous "pocket battleship"—and to commence construction of a sister ship. The Social Democrats had voted down similar credits a year earlier. Now they were confronted with the choice of changing their stand or of overthrowing the Cabinet and precipitating a new election, in which they stood to lose ground. Accordingly they agreed not to vote against the cruiser credits, provided the funds were raised through a surtax on incomes above \$5000.

The Cabinet's general financial programme and a period of comparative political quiet restored foreign confidence and provided the much needed opportunity for business recovery. In the first four months of the year, according to the mid-year review of the *Reichs-Kredit-Gesellschaft*, the business depression lost momentum in those commodities which were the first to feel the recession.

**AUSTRO-GERMAN CUSTOMS UNION.** Probably the primary cause of the "unsettlement" in Europe and of the subsequent financial crisis was the sudden announcement on March 21 of tentative plans for an Austro-German customs union. "It becomes increasingly clear that the Austro-German customs proposal constituted a first-class diplomatic blunder," wrote Dr. R. L. Buell in September. "This proposal served to stiffen French nationalism, to precipitate the financial crisis in Europe, to diminish the prospects for disarmament and to reduce the prestige of the Permanent (World) Court."

The essence of the plan was the elimination of export and import duties on commodity traffic between the two countries. Its ostensible purpose was the stimulation of industry and of general prosperity in both countries through the free interchange of goods, an objective which the League of Nations and various European agencies had sought unsuccessfully to promote on a continental or regional scale. To the other countries of Europe, however, the customs union presented a totally different aspect. France and her allies of the Little Entente (q.v.) saw in it the first step toward *Anschluss*, or the political union of Germany and Austria, and the overthrow of the European structure erected by the peace treaties. Italy was alarmed at the prospect of a greater Germany facing her own frontier. Rumania and Yugoslavia, both allies of France, and Hungary appeared not unwilling to join the customs union in order to find free markets for their surplus agricultural products. The British and other governments, while not overly antagonistic to the customs union idea in itself, were angered at being presented with a virtual *fait accompli*.

The dangers inherent in the political union of Austria and Germany had long been foreseen by the Allied nations. They sought to block it by a clause in the peace treaties stipulating that the independence of Austria should be inalienable except with the consent of the League Council. Again, in connection with the League's reconstruction programme of 1922, Austria had been forced to agree that it would assume no economic engagement "calculated directly or indirectly to compromise" its independence. Both Germany and Austria maintained that Austria's independence would be in no way infringed upon by the customs union. France, Italy, and Czechoslovakia declared the proposal an open violation of Austria's treaty obligations.

To secure a judicial settlement of the dispute Foreign Secretary Arthur Henderson of Great Britain, with the consent of Dr. Curtius, brought the customs union proposal before the May meeting of the League Council. The Council referred it to the World Court, which on September 5 declared by a vote of 8 to 7 that the proposal was illegal. Dividing along what appeared to be political lines, the judges ruled that the customs union violated Austria's promise of 1922, incorporated in what is technically known as the Geneva Protocol No. I. See **WORLD COURT**.

Three days previous to the Court's decision, the Austrian and German foreign ministers formally renounced the customs union before the European Union Commission at Geneva. Their action was an admission of defeat at the hands of France in a political struggle, the outcome of which was determined by French gold.

**THE FINANCIAL CRISIS.** Withdrawal of foreign short-term credits from Germany precipitated the financial crisis. These withdrawals commenced immediately following the customs union announcement. They grew in volume as successive shocks undermined the confidence of foreign investors in Germany's continued solvency. It is probable that French credits were called home for political reasons. But they formed only a small part of the withdrawals, the total French short-term credits in Germany amounting to about 300,000,000 marks, as compared with 1,800,000,000 marks from Great Britain, 1,500,000,000 marks from the United States, 750,000,000 marks from Switzerland, and 500,000,000 marks from Holland.

Continued heavy expenditures for unemployment relief and the decline in tax receipts made it evident early in May that the emergency measures introduced the previous December would not suffice to balance the budget. Despite Chancellor Brüning's denials, there were persistent rumors during May that the Government would be obliged to declare a moratorium on the postponable part of the Young Plan annuities. Uneasiness was increased by the great military demonstration of 150,000 members of the German veterans' Steel Helmet League (*Stahlhelm*) at Breslau in East Prussia May 30. Facing the Polish frontier 35 miles away, the veterans swore never to rest until territory lost to Poland as a result of the World War was restored.

On June 3, more than 1400 industrial leaders of Western Germany urged Chancellor Brüning to declare a dictatorship in order to meet energetically the impending crisis. Two days later Chancellor Brüning and Foreign Minister Curtius arrived in London for the "Chequers Conversations." What had been intended for a discussion of the disarmament problem, became primarily a plea for a British loan to meet the increasing drain on the Reich's gold reserves. The Germans failed to get a loan, but succeeded in drawing British and American attention to Germany's financial plight. It proved to be publicity of the wrong kind; the withdrawal of foreign funds increased. On June 6, the Brüning Cabinet issued new emergency financial decrees, made necessary by the decline of tax receipts some \$117,800,000 below estimates.

The decrees were accompanied by an official *communiqué*, which announced "openly before all the world that we have reached the limit of the sacrifices we are able to lay on our people." The economic recovery of Germany and of the world

was declared to depend upon "alleviation from the unbearable reparations obligations."

By June 12, withdrawals from the Reichsbank in gold and foreign exchange were averaging 150,000,000 marks daily and the bank had lost one-quarter of its reserves since June 1. On June 13, the Reichsbank's discount rate was raised from 5 to 7 per cent. The financial crisis took an even more serious turn when the intervention of the Austrian Government and an emergency loan of \$21,000,000 from the Bank of England was required to stave off the collapse of the *Credit-Anstalt* (Agricultural Credit Bank) of Austria. At about the same time the Austrian State Bank was in serious danger (see **AUSTRIA** under *History*). Fear that leading German banks were in equally desperate straits led to a further "flight from the mark" of not only foreign but private German funds. It appeared as though Germany's financial system, and with it the economic order in Central Europe, was on the point of cracking. President Hindenburg took the unprecedented course of calling an urgent appeal for help to President Hoover. The latter, however, had already decided to act.

**THE HOOVER MORATORIUM.** At this crucial time (June 20) came President Hoover's proposal for "the postponement during one year of all payments on inter-governmental debts, reparations, and relief debts, both principal and interest." The proposal seemed for a time to give a much-needed psychological stimulus to Germany and to the world. But it did not become effective until July 6, when the assent of France was obtained. In the meantime, the flight of capital from Germany continued. On June 24, the Reichsbank secured a \$100,000,000 short-term credit from the Federal Reserve Board of the United States, the Bank of England, the Bank of France, and the Bank for International Settlements. By July 2, \$76,320,000 of this fund had been used up, and the Reichsbank was obliged to draw on a \$50,000,000 credit maintained in New York by its subsidiary, the Gold Discount Bank of Berlin.

The adoption of the Hoover moratorium proposal freed Germany of the necessity of paying her reparation bill of \$394,400,000 for the year beginning July 1, 1931. See **REPARATIONS** AND **WAR DEBTS**. Inauguration of the moratorium brought no let-up in the demands upon the German banking system. To halt further withdrawals from the Reichsbank, a group of 1000 German industrial and financial leaders on July 7 organized a syndicate and advanced a security guarantee equivalent to \$119,000,000 to the Gold Discount Bank. Dr. Hans Luther, president of the Reichsbank, made a hurried airplane trip to Paris and London on July 9 in a hurried search for a \$400,000,000 credit. In London, he found the British Government engaged in trying to check the further depletion of the Bank of England's gold reserves, and with no money to spare. In Paris, he was informed that financial assistance could be obtained only on condition the German Government dropped the Austro-German customs union proposal, stopped construction of the new cruiser, accepted the Polish-German frontier as fixed by the Versailles treaty, and prevented further anti-French demonstrations by nationalist and veterans organizations.

With Dr. Luther's failure, runs on German banks increased. The exchange value of the mark fell to its lowest point since 1924. And on July 13 one of the largest German private banks—

*Darmstädter und Nationalbank*—closed its doors. The Government then intervened, closing all the banks for two days and the stock exchanges for an indefinite period. The Reichsbank was the only financial institution left open, and it refused to sell foreign exchange. Drastic emergency decrees were issued to check inflation and to prevent Germans from converting marks into foreign currency.

The \$100,000,000 obtained from the International Bank, the British and French central banks, and the American Federal Reserve Board was renewed July 15, but without perceptible effect. On that date it was estimated that withdrawals of short-term credits from Germany since the middle of May totaled \$500,000,000; since September, 1930, the total was about \$900,000,000. In advance of the reopening of the banks (July 16), the Chancellor assumed dictatorial control of finances. Foreign exchange transactions were placed in control of the Reichsbank and that institution raised its discount rate to 10 per cent. Anticipated runs on the banks failed to develop, due primarily to Government precautions and the assurance that the Reich would guarantee full payment to depositors in the *Darmstädter und Nationalbank*.

Continued withdrawal of foreign credits, however, made it evident that the financial situation could be stabilized only through a long-term loan of at least \$500,000,000. The success of such a loan depended on the participation of France. Negotiations for a rapprochement between France and Germany, which would make possible French financial collaboration, were accordingly inaugurated through the good offices of Secretary of State Stimson (United States) and Foreign Secretary Henderson (Great Britain), who called on Premier Laval in Paris July 16. Two days later Chancellor Brüning and Foreign Minister Curtius arrived in the French capital. Two days of conference served to lay the basis for further negotiation at London.

From Paris, the attention of the German people switched to London, where on July 20 was convened the Seven-Power Conference to consider the financial crisis in Germany and Central Europe. The conference, which was attended by Secretaries Stimson and Mellon as official American representatives, adjourned three days later. The official *communiqué* stated that the participating powers recommended: (1) Extension of the \$100,000,000 credit of the central and International banks for three months at its maturity August 16; (2) that the various governments recommend to their bankers the maintenance of existing short-term credits to Germany; (3) the establishment by the International Bank of a committee to inquire into the immediate credit needs of Germany.

The principal benefit derived by Germany from the Seven-Power Conference was the subsequent pressure by the governments represented upon their bankers to prevent undue withdrawals of further short-term credits from the Reich. The amount of short-term credits retained in Germany as a result of this recommendation was roughly estimated at about \$1,200,000,000. The flight from the mark was thus gradually checked in time to prevent the collapse of the German banking system.

The emergency restrictions on the banks were removed August 5 and the *Darmstädter und Nationalbank* was reopened without undue dis-

turbance. Chancellor Brüning and Foreign Minister Curtius on August 6-8 visited Premier Mussolini in Rome. They discussed the financial crisis and returned home with an agreement for the outright purchase by Italy of German coal ordinarily delivered as reparations in kind, the shipments of which would have been suspended by the reparation moratorium. The Government gained courage, also, with the failure on August 9 of the referendum on the dissolution of the Prussian Diet (see PRUSSIA under History). The overthrow of the Socialist-Centrist-Democratic régime in Prussia would have inevitably resulted in the collapse of the Brüning Government and the establishment of a reactionary administration for the Reich. The Reichsbank signalized the lessening of the emergency on August 11 by reducing the rediscount rate from 15 to 10 per cent.

THE WIGGIN REPORT. The bankers' committee appointed by the International Bank at the request of the Seven-Power Conference to study the credit needs of Germany made its report August 19. It was headed by an American, Albert H. Wiggin of the Chase National Bank. The Wiggin committee announced that a long-term loan was essential to German recovery. A long-term loan was declared out of the question, however, until the political relations of Germany and the other European powers were established on a basis of mutual confidence and German reparation payments were reduced to a point where they would not "imperil the maintenance of her financial stability." The report was considered an important aid to the German propaganda for the further reduction or elimination of reparations, as well as an appeal for international action to reduce tariffs and war debt payments. On the same day (August 19) a consortium of Germany's foreign creditors, meeting at Basel, signed an agreement to prolong for six months about \$1,200,000,000 of short-term credits.

FRANCO-GERMAN RAPPROCHEMENT. The negotiations of July toward the reconciliation of the political requirements of France with the financial requirements of Germany bore limited fruit in September. Paying a historic visit to the German capital (September 27-28), Premier Laval and Foreign Minister Briand reached an agreement with the German leaders for the creation of a mixed Franco-German commission designed to promote effective economic collaboration as a prelude to the solution of their political problems. Large Paris crowds cheered for peace as the French officials departed for Berlin. In the German capital they were warmly greeted by great throngs shouting "No more war!" United German patriotic organizations, however, protested against the reception of the French statesmen as guests of the nation and Hitlerites and Nationalists took no part in the welcoming demonstration. The much-desired French loan was not forthcoming.

THE TREND TOWARD EXTREMISM. While the Brüning Government was meeting with a measure of success in its negotiations with France, internal developments threatened to nullify any permanent reconciliation of the two nations. A steady drift of voters from the moderate bourgeois parties to the Hitlerites and Nationalists and from the Social Democrats to the Communists was evidenced in elections held during the year in the states of Brunswick, Schaumburg-



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THE MARCH PAST OF THE STAHLHELM AT COBLENZ



*Wide World Photos*

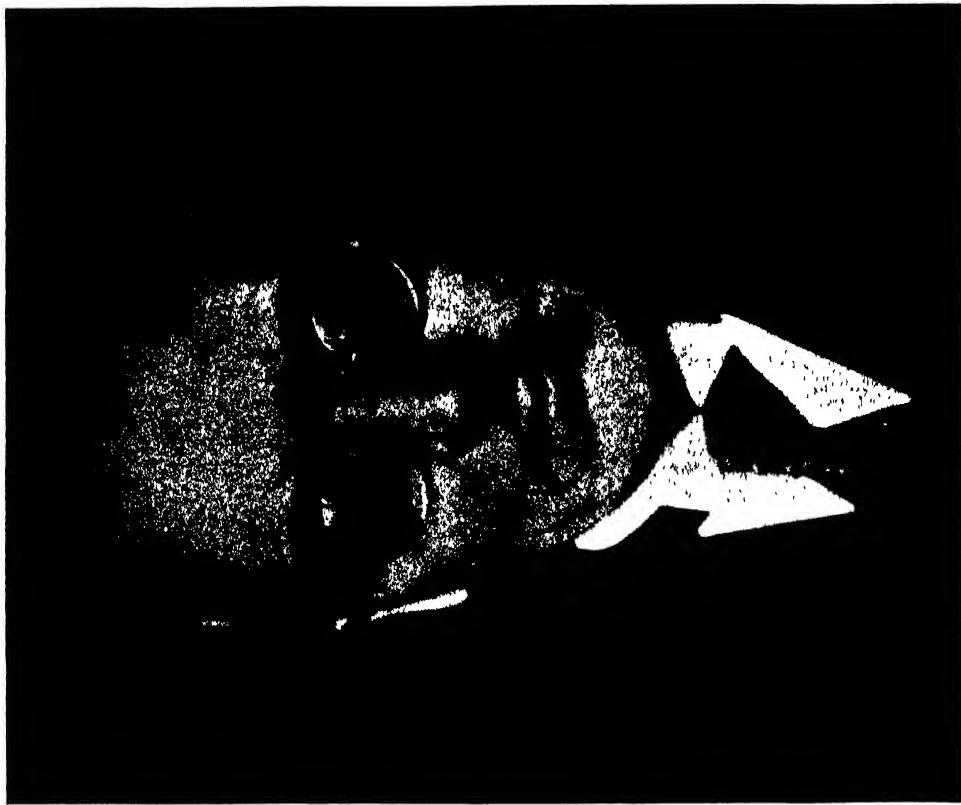
MASS MEETING OF THE NATIONAL SOCIALISTS AT BRUNSWICK, GERMANY

Adolf Hitler Marching Past



*International Photograph*

**PAUL VON HINDENBURG**  
President of Germany



*Underwood & Underwood*

**HEINRICH BRÜNING**  
Chancellor of the German Reich

Lippe, and Hamburg and in various municipal and provincial elections. The Hamburg election was held September 27, while the French statesmen were in Berlin. While the Social Democratic strength in the Diet slumped from 60 to 46, the National Socialists (Hitlerites) captured 43 seats and the Communists 35. The shift in sentiment was attributed chiefly to the economic crisis.

**BRÜNING'S NEW CABINET.** A week before the Reichstag convened, Foreign Minister Curtius resigned (October 7), precipitating a general reorganization of the Cabinet. The failure of the Austro-German Customs Union proposal had undermined Dr. Curtius's prestige and there was strong pressure from industrialists and other conservative elements for drastic measures to stabilize the political and financial situation. In the new Ministry, which Chancellor Brüning presented to the newly assembled Reichstag on October 13, he himself took over the Ministry of Foreign Affairs, while the Ministries of Interior and Defense were both placed under Gen. Wilhelm Groener, a non-party man and a close friend of President Hindenburg. The only new member of the Cabinet was Professor Hermann Warmbold (non-party), politically an unknown quantity, who became Minister of Economy. The other members were: Finance, Dr. Hermann Dietrich (Democratic party); Labor, Dr. Adam Stegerwald (Centrist); Communications, Dr. George Schaetzel (Bavarian People's party); Transportation, Dr. Gottfried Treviraunus (Conservative People's party); Justice, Dr. Curt Joel (non-party); and Food and Agriculture, Dr. Martin Schiele (Nationalist).

On October 16, after four days' debate, the Reichstag gave the new Brüning government a vote of confidence with a majority of 25, its main support coming from the Social Democrats, Centrists, and small moderate groups. For the first time since February, 1931, the Nazis (National Socialists) and Nationalists appeared in Parliament. Upon the Government's victory, however, they once more boycotted the Reichstag, which shortly afterward adjourned to Feb. 23, 1932. Dr. Hans Schlange-Schoeninger (Agrarian) became Minister for Eastern Relief on November 7. The Brüning government, continuing to rule by decree, placed in effect on December 9 laws establishing a virtual economic dictatorship. These decrees called for drastic and far-reaching interference with the machinery of capitalistic society and affected the daily life of the average citizen to a degree unknown elsewhere than in the Soviet Union. They were calculated to complete the deflation process, to strengthen the industrial competitive position of Germany in domestic and foreign markets, to balance the Federal, provincial, and municipal finances, to assure the stability of the currency, maintain internal security, and strengthen the German position in the pending negotiations for settlement of the private debt and reparations problems.

**HITLERITE MENACE GROWS.** The political measures were called forth largely as a result of the growing activity of the Nazis and Hitler's repeated challenge of the Government's authority. Great Nazi demonstrations, accompanied by street rows and denunciations of the Ministry, were held at Bad Harzburg October 11 and at Brunswick October 18. Communal elections in Dessau October 25 and provincial elections in Schwerin November 2 and in Hessen November

15 resulted in heavy Hitlerite and Communist gains. These victories emboldened Hitler to give a series of sensational interviews with foreign correspondents in Berlin, which served to stiffen French policy toward the Reich and in general furthered foreign alarm concerning the immediate future in Germany. On December 6 in Berlin, Hitler announced that there would be no Nazi "march on Berlin," as he would be swept into power legally at the next election. He reiterated that Germany under his control would pay no more reparations, but said that he would respect all private commercial debts owed by Germans abroad.

**REPARATION AND DEBT SETTLEMENTS RE-OPENED.** Following lengthy Franco-German negotiations, the German government on November 20 requested the Bank for International Settlements to convene the advisory committee provided for under the Young Plan to make a full inquiry into Germany's capacity to continue reparation payments upon expiration of the Hoover moratorium in July, 1932. In these negotiations, the German representatives asked that the advisory committee be authorized to go beyond the Young Plan and consider the unconditional reparation annuities; also that private debts be given priority over reparation payments in order to protect German credit abroad. The French, however, rejected these proposals. The German note of November 20 pointed out that the situation had completely changed since the establishment of the Young Plan, due to the world depression. It asked that the advisory committee examine Germany's problem in its entirety, taking into account "especially that the question of Germany's private indebtedness must be newly regulated in good time before the end of February, 1932," when the "standstill" agreement would terminate. The Bank of International Settlements acted promptly, spurred by symptoms of a new financial crisis in Germany. The advisory committee was convened in Basel December 7. The report of the 11 experts forming the committee, made public December 24, indirectly recommended the reduction of reparation payments and immediate steps to aid the German government in stabilizing its currency. The committee warned that new disasters would take place if an adjustment "to the existing troubled situation of the world" was not made soon. (See REPARATIONS AND WAR DEBTS for details of the Basel Committee's report.) Upon the initiative of Premier MacDonald of Great Britain a conference of the powers to reconsider the reparation and war debts questions was called for early in 1932.

Meanwhile officials of American, British, French, Dutch, and Swiss banks had met in Berlin December 11 with a German committee representing both banks and industry to discuss means of liquidating the \$2,500,000,000 of foreign short-term credits held in Germany under the "standstill" agreement. Albert H. Wiggin of the Chase National Bank attended as representative of 100 American banks having investments in Germany. It was brought out that from the autumn of 1930 to Dec. 31, 1931, German interests repaid 5,000,000,000 reichsmarks (\$1,190,000,000) of foreign short-term credits. There remained in Germany 4,420,000,000 reichsmarks (\$1,051,960,000) of similar credits, with which the negotiations were concerned. These conversations were proceeding at the end of the year.



Economic and political developments in several other fields marked the last months of 1931. On October 26, Foreign Minister Grandi of Italy paid a formal visit to Berlin and discussed the general economic and political situation with Chancellor Brüning. It was reported that the policies of the German and Italian governments were in substantial agreement on most issues. The action of the National government in Great Britain in departing from the traditional British policy of free trade dealt a severe blow to German foreign trade. The Reich prepared to take "defensive" measures; on December 1 President von Hindenburg authorized the Government by decree to change import duty rates and to put into effect bilateral tariff agreements with foreign nations without the consent of the Reichstag. Meanwhile the Franco-German joint economic commission had organized into sub-commissions, whose preliminary deliberations, concluded at Paris early in December, aroused considerable hope in Germany of profitable economic collaboration with France. On December 23 a protocol for the stabilization and extension of German-Soviet trade relations was signed in Berlin.

**OTHER DEVELOPMENTS.** The financial crisis provided a stimulus to the abandonment by the States of the costly and anachronistic system of intra-Federal diplomatic representation. Bavaria in 1931 joined Prussia in abolishing its Embassy in Berlin and the eleven States still maintaining Ministers in the diplomatic corps at Berlin were expected to follow suit. On May 14, the City of Berlin elected Dr. Heinrich Sahm, for 10 years president of the Free City of Danzig, as mayor to succeed Dr. Gustav Boess. Dr. Boess had been forced to retire 19 months earlier in connection with charges of inefficiency and graft.

The Reich entered into commercial agreements with Russia early in April and with Rumania on June 26. The first provided for the advance of credits totaling some 300,000,000 marks to the Soviet Union in exchange for industrial orders. The second granted tariff reductions of 50 to 60 per cent on Rumanian corn and barley in return for Rumania's reduction of tariff rates on some 300 manufactured articles imported chiefly from Germany. On September 8, Germany announced the purchase on credit of 7,200,000 bushels of hard winter wheat from the 1930 harvest stores of the Federal Farm Board of the United States.

**BIBLIOGRAPHY.** Consult Eugen Diesel, *Germany and the Germans* (New York, 1931); Erich Koch-Weser, "Radical Forces in Germany," *Foreign Affairs*, April, 1931. For details of the Hoover moratorium see **REPARATIONS**. The Wigin Report, the text of which was published in *The New York Times* of Aug. 20, 1931, gives an excellent summary of Germany's economic condition. See also **FRANCE**, **AUSTRIA**, and **GREAT BRITAIN under History**.

**GESTALT PSYCHOLOGY.** See **PSYCHOLOGY**.

**GIBBS MEDAL.** See **CHEMISTRY, INDUSTRIAL**.

**GIBRALTAR.** A British Crown colony consisting of a small peninsula on the southwest coast of Spain. The Rock of Gibraltar commands the entrance to the Mediterranean Sea. Area, 1½ square miles; population, at the census of 1921, 20,638, of whom 2932 were military and 546 naval men. The civil population on Jan. 1,

1930, was estimated at 15,647, with 1152 aliens. In 1929, 4833 vessels of 8,135,377 tons entered the port, which is a British naval base. Cables connect with the Continent, with eastern Mediterranean ports, and with England. Gibraltar is under a governor who is also commander-in-chief. He is assisted by an executive council, established in 1922. Governor in 1931, General Sir Alexander J. Godley, appointed October, 1928.

**GIDDINGS, gîd'dîngz, FRANKLIN HENRY.** An American sociologist, died in Scarsdale, N. Y., June 11, 1931. He was born in Sherman, Conn., Mar. 23, 1855. On graduation from Union College in 1877, he engaged in journalism, writing on politics and economics for the *Springfield Republican* and the *Springfield Daily Union*. In 1888 he was appointed lecturer on political science at Bryn Mawr College, where he was subsequently advanced to the professorship of political science. In 1894 he became professor of sociology at Columbia University and in 1906 professor of sociology and history of civilization, retiring as professor emeritus in 1928.

The working principle by which he sought to explain the fundamental sociological phenomena, or problem of social causation, was psychical in its nature. In his earlier works he called it "consciousness of kind"; in the *Inductive Sociology*, "like response to like stimuli" or "like-mindedness"; and still later, "collective response to the same stimulus or similar stimuli." In this explanation he differed radically from those of his contemporaries who sought to explain sociological facts in terms of the environment—the utility of association and division of labor. Among his works are *The Modern Distributive Process* (with J. B. Clark, 1888); *The Theory of Sociology* (1894); *The Principles of Sociology* (1896); *The Theory of Socialization* (1897); *The Elements of Sociology* (1898); *Democracy and Empire* (1900); *Inductive Sociology* (1901); and *Descriptive and Historical Sociology* (1906). He later published: *The Western Hemisphere in the World of Tomorrow* (1915); *The Responsible State* (1918); *Studies in the Theory of Human Society* (1922); *The Scientific Study of Human Society* (1924); and *The Mighty Medicine—Superstition and Its Antidote* (1929). He also edited the *Annals of the American Academy of Political and Social Science* during 1890-94, and for many years was a member of the editorial staff of the *Independent*.

**GIFTS AND BEQUESTS.** See **UNIVERSITIES AND COLLEGES**.

**GIPSY MOTH.** See **ENTOMOLOGY, ECONOMIC**.

**GIRL SCOUTS.** A nonsectarian movement for girls from 10 to 18, started in Savannah, Ga., in 1912 by Mrs. Juliette Low and adapted from the Scouting programme begun in England in 1907 by Lord Baden-Powell. It is a leisure-time programme which supplements the work of the church, the home, and the school, and encourages girls to learn and practice the cultural and domestic arts that were part of the old-fashioned home's training. To that it adds the love of outdoors and the cult of the physical courage which was the distinguishing mark of the pioneer.

The working membership unit of the Girl Scouts is the troop, consisting of from 8 to 32 members. This, in turn, is divided into patrols, consisting of from four to eight girls in each

patrol. The adult leader of the troop is known as the captain. There are three ranks in Girl Scouting: Tenderfoot; second class; and first class. The requirements for these and for some 50 proficiency badges are described in the *Girl Scout Handbook*. In each community women interested in the movement are organized as local councils, community committees, or troop committees to help support and develop the local Girl Scout activities.

The active, paid-up memberships in the Girl Scouts as of Oct. 31, 1931, totaled 264,883, inclusive of Brownies (girls between 7 and 10) and leaders. In 1931, training courses for leaders were given in four national schools. In addition there were 24 two-week courses in local camps and about 40 in colleges and universities.

The official organ for girls is *The American Girl Magazine*, and for leaders, *The Girl Scout Leader*, each a monthly publication. The officers elected at the national convention held in Buffalo, N. Y., Oct. 14-17, 1931, were: Honorary president, Mrs. Herbert Hoover; chairman of the board of directors, Mrs. Nicholas F. Brady; president, Mrs. Frederick Edey; secretary, Mrs. Julius H. Barnes; treasurer, Mrs. Edgar Rickard. Miss Josephine Schain is national director. National headquarters are at 670 Lexington Avenue, New York City.

**GLACIERS.** See EXPLORATION under *North America*.

**GLENNAVY, JAMES HENRY MUSSEN CAMPBELL, FIRST BARON.** An Irish jurist, died in Dublin, Mar. 22, 1931. He was born in Terenure, Co. Dublin, Apr. 4, 1851, and was educated at Trinity College, Dublin. Admitted to the bar in 1878, he became Queen's Counsel in 1890, bench-er of King's Inns in 1894, and bench-er of Gray's Inn in 1901. From 1898 to 1900 he was Unionist member of Parliament for St. Stephen's Green division of the City of Dublin, and from 1903 to 1916 for Dublin University. He served as Solicitor-General of Ireland from 1901 to 1905, Attorney-General in 1905 and again in 1916, Lord Chief Justice from 1916 to 1918, and Lord Chancellor of Ireland from 1918 to 1921. Following his resignation from the latter office, he became chairman of the Irish Free State Senate. He had also acted as vice chancellor of Dublin University after 1919. A baronetcy was bestowed on him in 1916, and in 1921 he was created Baron Glenavy of Milltown.

**GOEBEL, gö'bel, JULIUS.** An American Germanic scholar, died in Winnetka, Ill., Mar. 27, 1931. He was born in Frankfort-on-Main, Germany, May 23, 1857, and was educated at the universities of Leipzig and Tübingen. He came to the United States in 1882, and from 1885 to 1888 was an instructor in German at the Johns Hopkins University. He then became professor of Germanic philology and literature at Leland Stanford (1892-1905), lecturer on Germanic philology at Harvard (1905-08), and professor of Germanic languages at the University of Illinois (1908-26). He wrote *Über die Zukunft unseres Volkes in Amerika* (1883), *Über tragische Schuld und Sühne* (1884), *Gedichte* (1895), *Das Deutschtum in den Vereinigten Staaten* (1904), and *Der Kampf um deutsche Kultur in Amerika* (1914).

**GOLD.** The mining of gold was one industry in 1931 which the existing depression and disturbed economic and political conditions did not restrict. With gold at a premium in many countries

and with reduced costs for labor and supplies and also with unemployment general, the gold miners took up the working of deposits with considerable vigor. The world output for 1931 was estimated at 21,000,000 ounces as compared with 20,160,135 ounces valued at \$416,751,523 in 1930, and if this estimate was verified by the final statistics it would be the greatest amount since 1916, when 22,031,000 ounces were produced. The largest producer of gold is the Union of South Africa, where the Transvaal, Cape Colony, and Natal in 1930 accounted for 10,717,163 fine ounces valued at \$221,526,636, while in 1931 the preliminary estimate was 10,874,145 ounces. Next came Canada with 2,107,073 ounces valued at \$43,557,064 in 1930, and the United States with 2,100,395 ounces valued at \$43,419,018. The Union of Soviet Socialist Republics was the only other country in 1930 with a production approximating or exceeding 1,000,000 ounces.

The Director of the Bureau of the Mint, with the cooperation of the Bureau of Mines, issued the following statement of the preliminary estimate of refinery production of gold in the United States during the calendar year 1931:

**PRODUCTION OF GOLD IN THE UNITED STATES IN 1931**

(Equivalent value per fine ounce, \$20.67+)

States	Ounces	Gold Value
Alaska .....	451,126	\$ 9,325,600
Alabama .....	29	600
Arizona .....	136,272	2,817,000
California .....	510,235	10,547,500
Colorado .....	228,064	4,714,500
Georgia .....	77	1,600
Idaho .....	17,642	364,700
Montana .....	46,711	965,600
Nevada .....	137,748	2,847,400
New Mexico .....	28,856	596,500
North Carolina .....	223	4,600
Oregon .....	14,561	301,000
Pennsylvania .....	242	5,000
South Carolina .....	24	500
South Dakota .....	432,772	8,946,200
Tennessee .....	499	10,300
Utah .....	189,438	3,791,900
Washington .....	3,328	68,800
Wyoming .....	44	900
Philippine Islands .....	174,000	3,596,900
<b>Total .....</b>	<b>2,365,881</b>	<b>48,907,100</b>

Comparison with 1930 production indicated an increase in 1931 of \$2,755,300 in gold, and with the year of largest production, 1915, when gold amounted to \$101,035,700 gave a reduction of \$52,128,600. Prospectors and small gold producers in the United States in 1931 were given aid by the Director of the Mint, who temporarily lowered the regulation amount of \$100 to 2 ounces (about \$40) and over of gold that would be accepted at the different United States Mints and assay offices.

Canada again held second place among the gold-producing countries of the world in 1931, with a production estimated at 2,679,728 fine ounces, valued at \$55,394,892. Ontario in 1931 had an output of 2,084,959 ounces, of which 1,054,017 ounces came from Kirkland Lake and 962,688 ounces from the Porcupine district, producing 78 per cent of the total gold mined in Canada. The tonnage of gold ore milled in Ontario during 1931 was 5,006,522 compared with 3,946,623 in 1930, giving a production of bullion valued at \$42,696,453 as compared with \$35,518,862 in 1930. Quebec had an output of 303,300 ounces, as against 141,

747 ounces in 1930, and British Columbia was third with 153,934 ounces as against 164,331 ounces in 1930. Manitoba produced 100,510 ounces in 1931, as compared with 23,189 ounces in 1930.

Canada shipped gold bullion amounting to \$31,737,899 to the United States during 1931 and began such exports during June, when \$15,585,643 was shipped, the largest monthly total of the year. By way of contrast, no gold bullion was shipped during 1930, but Canada exported \$22,312,005 raw gold that year, all excepting \$8466 of which went to the United States. Canada shipped gold bullion in 1931 to Newfoundland, to the amount of \$150,000, bringing Canada's total exports for the year up to \$31,887,899. Canada also shipped \$17,682,563 raw gold. The United States received \$16,745,196 and Great Britain \$937,307. Combined shipments of gold bullion and raw gold totaled \$49,570,459.

In 1931 the gold output of South Africa was estimated at 10,874,145 ounces valued at \$45,772,843, of which the Rand accounted for 10,355,181 ounces valued at \$43,868,907, and the outlying districts for 518,964 ounces valued at \$1,903,936.

While the present article deals more with production than with economics, it is appropriate here to refer to the important changes in the gold holdings of the principal countries which took place during 1931. At the end of 1930 the Director of the U. S. Mint estimated the total gold stock of the world at \$11,522,579,000. During 1931 there were losses of \$290,000,000 in gold by Germany; \$130,000,000 by the United Kingdom; and \$135,000,000 by the United States. On the other hand, there were gains of \$600,000,000 for France, \$310,000,000 for Switzerland; \$195,000,000 for the Netherlands; and \$170,000,000 for Belgium. As a result of these changes the United States had \$4,461,000,000 in monetary gold at the end of the year, while the reserves of other countries included \$588,000,000 for the United Kingdom, \$2,699,000,000 for France, \$234,000,000 for Germany, \$355,000,000 for Belgium, \$206,000,000 for Italy, \$361,000,000 for the Netherlands and \$444,000,000 for Switzerland.

The change in position of the monetary supplies of gold in the United States was due mainly to the following shipments by months as follows (000 omitted):

## UNITED STATES GOLD IMPORTS AND EXPORTS

1931	Imports	Exports
January .....	\$ 34,426	\$ 54
February .....	16,156	14
March .....	25,671	26
April .....	49,543	27
May .....	50,258	628
June .....	63,887	39
July .....	20,497	1,009
August .....	57,539	39
September .....	49,240	28,708
October .....	60,907	398,604
November .....	94,430	4,994
December .....	89,509	32,651
Total .....	\$612,119	\$466,794

See FINANCIAL REVIEW for movement of gold, also METALLURGY.

**GOLD COAST.** A British African colony, extending 334 miles along the Gulf of Guinea between the French Ivory Coast and Togoland; comprising, in addition to the colony proper, Ashanti and the Northern Territories. The area of three divisions is estimated at about 80,000

square miles; population at the census of 1921, 2,078,043, including 2165 Europeans. Accra, with 38,000 inhabitants, is the capital and chief town.

Staple products and chief exports are cacao, palm oil, kola nuts, palm kernels, lumber, India rubber, manganese, gold, and diamonds. Including bullion and specie, imports for 1929 totaled £10,082,381 and exports £12,677,716. Cacao shipments were valued at £9,704,493; gold at £869,863; manganese, £748,286; diamonds, £584,613. The manganese deposits are among the richest known. For the year ended Mar. 31, 1930, revenue amounted to £4,091,422 and expenditure to £5,226,120. The public debt Mar. 31, 1930, stood at £11,791,000. The harbor of Takoradi, opened in 1928, offers the only complete shelter for ships of over 30-foot draft between Sierra Leone and Nigeria.

**ASHANTI, á-shán'té.** Annexed by Great Britain in 1931, Ashanti has an area of 24,560 square miles and a population (1921) of 407,000, including 400 Europeans. Kumasi, the leading town, has about 25,000 inhabitants. There were 4822 pupils in government and mission schools in 1929. Agriculture and gold mining are the chief industries, and valuable forests in the western districts yield mahogany, cedar, fruits, oil, rubber, and gum copal. Nana Prempeh, who as Kwaka Dua III ruled as last king of Ashanti from 1888 until his deposition by the British in 1896, died in Kumasi during 1931.

**NORTHERN TERRITORIES.** Constituted a British protectorate in 1901, the Northern Territories are under the governor of the Gold Coast but are locally administered by a commissioner, with headquarters at Tamale. Area, about 35,000 square miles, excluding the adjoining mandated territory of Togoland (q.v.); population, 527,914 in 1921, including 49 Europeans. Navrenge, the chief city, has about 15,000 inhabitants. Agriculture is the main occupation, though some gold has been found. About 794 miles of roads are passable to motors in dry weather.

Governor of the Gold Coast in 1931, Sir A. R. Slater; Chief Commissioner of Ashanti, H. S. Newlands; Chief Commissioner of Northern Territories, Major F. W. F. Jackson.

**GOLDEN GATE BRIDGE.** See BRIDGES.

**GOLD STANDARD.** See FINANCIAL REVIEW; GREAT BRITAIN under *History*; BANKS AND BANKING.

**GOLF.** The 1931 golf season was noteworthy for two reasons—1, the absence from competition of Robert Tyre Jones, winner of the four major titles in 1930, and 2, the remarkable comeback of Francis Ouimet, popular veteran, who captured the United States Amateur championship after 18 years had elapsed since his famous triumph in the National Open at Brookline, Mass., in 1913. With Jones out no player held a monopoly as he had for the years before his retirement. Ouimet won the Amateur; Billy Burke, a former Bridgeport, Conn., caddie, the Open; Tom Creary, another graduate of caddie ranks, the Professional Golf Association championship; Tommy Armour, former U. S. Open champion, the British Open; and Eric Martin-Smith, the British Amateur. Ouimet's feat stood out in the world of golf. This Boston veteran, who startled the world in 1913 when as a boy he defeated Ted Ray and Harry Vardon, the great English professionals, in the play-off, suddenly came to life in the Amateur championship played over rolling Beverly near Chicago,

and after a hard battle with Billy Howell, 18-year-old youngster from Richmond, Va., in the semi-final, managed to win from Jack Westland, Chicago District champion, in the final.

Billy Burke's triumph in the Open, played at Inverness, was remarkable because he was forced to play 144 holes of golf before winning the title. At the end of the regulation 72-hole grind he and George Von Elm, were tied with 292 each. A 36-hole play-off found the pair still deadlocked with 149 each, and it was not until the final hole of the second double round play-off that Burke managed to obtain an edge. He finally won, by carding 148 in the second 36-hole play-off against Von Elm's 149.

The season of 1931 was a remarkable one for Miss Helen Hicks of Hewlett, L. I. The young New York star, who had promised great things for years, finally had her strokes working perfectly and won the Women's Metropolitan, Eastern and National championships. In the National at Buffalo, she defeated the defending titleholder, Miss Glenna Collett, in the final round.

Miss Maureen Orcutt was the only United States representative in the British Women's championship, the one prize of the golf world that has always eluded American golfers. The tournament was played on an Irish course and Miss Orcutt was eliminated in the third round. Miss Enid Wilson, who later was eliminated in the United States championship by Miss Hicks, won the British tournament with a fine display of putting.

The new lighter weight (1.55—1.68) golf ball adopted by the United States Golf Association, January 1, was a source of much argument. The experts seemed to play as well with the new ball, about a stroke every 18 holes was added to their scores, but the average golfer had greater trouble controlling his shots with the new ball and the flood of complaints, petitions, and letters, aroused the Golf Association and the new ball was supplanted by a heavier one (1.62—1.68) at the annual fall meeting of the U.S.G.A.

George T. Dunlap, of Princeton University, won the Intercollegiate championship; Charles Ferrara, of San Francisco, the Public Links title; the veteran Aubrey Boomer, the French Open; and the American professional team defeated the British in the Ryder Cup matches played over the Scioto Country Links, at Toledo, the last week in June. The Canadian Open was won by Walter Hagen; the Canadian Amateur by C. Ross Somerville of London, Ontario.

**GORDON BENNETT CUP COMPETITION.** See AERONAUTICS.

**GOSPLAN.** See UNION OF SOVIET SOCIALIST REPUBLICS under *History*.

**GOUCHER COLLEGE.** A nonsectarian college for women in Baltimore, Md., founded in 1885. The enrollment for the first semester of the year 1931-32 was 806. The faculty had 103 members. The endowment funds of the college amounted to \$2,434,782. The library contained 50,000 volumes. President, David Allan Robertson.

**GRAHAM LAND.** See FALKLAND ISLANDS.

**GRAIN.** See AGRICULTURE; OATS, RYE, WHEAT, ETC.

**GRAIN CORPORATION, NATIONAL FARMERS'.** See UNITED STATES under *Administration*.

**GRAIN STABILIZATION CORPORATION.** See AGRICULTURE; UNITED STATES under *Administration*.

**GRAMERCY PARK, NEW YORK CITY.** See CELEBRATIONS.

**GRAND ARMY OF THE REPUBLIC, THE.** A patriotic order formed in 1866 in Decatur, Ill., among a number of former soldiers who had served in the Civil War. Its purpose is to "enjoy a companionship made sacred by common sufferings and sacrifices"; its corner stones, "Fraternity, Charity, and Loyalty," demand the care and protection of sick and helpless comrades and their widows and orphans; the upholding of all comrades in their worthy endeavors; and loyalty to the flag and laws of the Republic. Affiliated with the Grand Army of the Republic are its auxiliary, the Woman's Relief Corps, and the allied bodies, the Ladies of the G. A. R., Daughters of Union Veterans of the Civil War, Sons of Union Veterans of the Civil War, and the auxiliary to Sons of Union Veterans.

The maximum strength of the organization was in 1890 a membership of 409,487. In 1931 there were 2021 active local posts with a membership of 16,597. The sixty-fifth national encampment was held in Des Moines, Iowa, Sept. 13-17, 1931, while Springfield, Ill., was selected for the 1932 encampment. The officers for 1931-32 were: Commander-in-chief, Samuel P. Town, Philadelphia, Pa.; senior vice commander-in-chief, Olney Nelson, Slater, Iowa; junior vice commander-in-chief, Russell C. Martin, Los Angeles, Calif.; surgeon-general, Dr. Samuel A. Campbell, Mattoon, Ill.; chaplain-in-chief, the Rev. Jesse B. Bartley, Omaha, Neb.; quartermaster-general, Edward Hurley, Buffalo, N. Y.; and adjutant-general, W. F. Hambright, Lancaster, Pa. National headquarters are in Springfield, Ill.

**GRAND NATIONAL AT AINTREE.** See RACING.

**GRAPEFRUIT.** See HORTICULTURE.

**GRAPES.** See HORTICULTURE.

**GRAPHITE.** The total quantity and value of graphite sold by graphite miners in the United States in 1930 were considerably smaller than the corresponding figures for 1929, according to the U. S. Bureau of Mines. The sales of natural amorphous graphite by producers in 1930 were 1941 tons, valued at \$20,525. In comparison with 1929, there was a decrease of 1641 tons, or 45 per cent in quantity, and of \$26,125, or 56 per cent in value. Because only two operators reported sales of crystalline graphite in 1930, it is impossible to publish figures without disclosing confidential information. In 1929 the production was 5,806,410 pounds valued at \$264,241. The States reporting the sale or use of graphite by the miner in 1930 were Alabama, Michigan, Nevada, and Rhode Island. Alabama was the only State reporting sales of crystalline graphite in 1930. The foregoing figures represent the sales or shipments of graphite. The production figures were somewhat different. Only one amorphous graphite mine was in operation in 1930, that of the Carson Black Lead Co., in Nevada. Two other operators used or sold material from stock mined previously. The imports of graphite in 1931 amounted to 9090 short tons, valued at \$428,808 in comparison with 16,726 short tons, valued at \$624,608, in 1930.

**GRASSELLI MEDAL.** See CHEMISTRY, INDUSTRIAL.

**GRASSHOPPERS.** See AGRICULTURE under *Droughts and Pests*; ENTOMOLOGY, ECONOMIC

**GRAVES, ALFRED PERCEVAL.** An Irish poet, died in Harlech, North Wales, Dec. 27, 1931. He was born in Dublin, July 22, 1846, and was educated at Windermere College and Dublin University. He held important posts in the civil service, and was inspector of schools from 1875 to 1910 and chairman of the representative managers of the London County Council schools from 1911 to 1919, having also founded the London Educational Councils. He took a leading part in the Irish literary and musical renaissance and in the Pan-Celtic movement, being one of the founders of the Irish and Welsh folk song societies and twice president of the Irish Literary Society. His most celebrated ballad was "Father O'Flynn." Among his volumes are: *Songs of Kilmarnock* (1872); *Irish Songs and Ballads* (1879); *The Irish Song Book* (1894); *The Absentee* (a play produced in 1908); *Welsh Poetry, Old and New, in English Verse* (1912); *The Book of Irish Poetry* (anthology, 1915); and *To Return to All That* (autobiography, 1930). He also collaborated with Sir Charles Villiers Stanford in publishing *Songs of Old Ireland* and *Irish Songs and Ballads* (1882-92); with Charles Wood in *Irish Folk Songs* (1897); with Michele Esposito in *Roseen Dhu*, a dramatic monologue, and *The Postbag: A Lesson in Irish*, an operetta with Arthur Somervell and Lloyd Williams in *Welsh Melodies* (1907); and with Guy Pertwee in *The Reciter's Treasury of Irish Prose and Verse* (1915).

**GREAT BRITAIN.** UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND. A constitutional monarchy comprising England, Scotland, Wales, Northern Ireland, the Channel Islands, and the Isle of Man. Capital, London; ruling sovereign in 1931, George V. The term Great Britain literally applies only to the island including England, Scotland, and Wales, but is often extended to include the other units of the United Kingdom. The British Empire comprises the United Kingdom, India, the Irish Free State, the dominions of Australia, Canada, Newfoundland, New Zealand, and South Africa, and the various colonies, protectorates, dependencies, and other territories subject to the ultimate control of the British Parliament.

**AREA AND POPULATION.** The area of England, Scotland, Wales, the Isle of Man, and the Channel Islands is 89,041 square miles and that of Ireland, 32,586 square miles. (See IRELAND, NORTHERN, and IRISH FREE STATE.) The population of England, Scotland, and Wales at the census of Apr. 26, 1931, totaled 44,790,485, according to preliminary returns, as compared with 42,019,710 at the census of June 19, 1921, an increase of 1,870,775 during the decade. The population of England and Wales was 39,947,931, as against 37,886,699 in 1921, an increase of 2,061,232. Scotland, on the other hand, declined in population by 39,943 during the decade, due largely to emigration, the total declining to 4,842,554 from 4,882,497 in 1921. Most of the large Scottish cities showed gains and most of the counties losses.

The growth of the population from 1925 to the census of 1931 is shown in the accompanying table. It excludes the army, navy, and merchant seamen abroad. Excepting 1931, for which preliminary census returns as of April 26 are given, the figures are estimates.

The numerical increase for England and Wales during the decade 1921-31 was less than that

BRITISH POPULATION, 1925 TO 1931

Year (30 June)	England and Wales	Scotland	Total of Great Britain
1925 .....	38,890,000	4,898,032	43,788,032
1926 .....	39,067,000	4,897,000	43,964,000
1927 .....	39,290,000	4,895,000	44,185,000
1928 .....	39,482,000	4,898,000	44,375,000
1929 .....	39,607,000	4,884,000	44,491,000
1930 .....	39,806,000	4,886,000	44,692,000
1931 .....	39,947,931	4,842,554	44,790,485

of any ten-year period since 1861, when the population was only half as large, with the exception of the War decade of 1911-21. The reduced rate of population increase was due wholly to the steadily falling birth rate. Births during the period 1921-31 were 1,250,000 (16.3 per cent) fewer than in the War period 1911-21 and between 2,000,000 and 2,500,000 fewer than in the normal decennium of 1901-11. The birth rate of 16.3 per 1000 of population in 1930 was about half that recorded before 1890 and about two-thirds that of the pre-War years. Sweden was the only nation having a lower birth rate than Great Britain in 1930. The British rate was said to be insufficient to maintain a stationary population in the future.

The death rate of 11.4 per 1000 of population also represented a considerable reduction. Deaths during the census period 1921-31 were more than 500,000 fewer than those recorded during either of the two preceding decades. According to the British Registrar General, the reduction in true mortality for the period 1921-31 was about 20 per cent, as compared with 1911-21, and about 30 per cent, as compared with 1901-11, thus "indicating a definite advance in the general vitality of the nation as a whole." Births in England and Wales in 1930 numbered 648,811, or 5138 more than in 1929, and deaths totaled 455,427, or 77,065 fewer than in the previous year. For Scotland, births numbered 94,538 (92,880 in 1929) and deaths 64,283 (70,917). The 1931 birth rate of 15.8 (provisional) for England and Wales was the lowest on record, while the death rate of 12.3 was .9 above the 1930 figure. The Scottish birth rate in 1931 was 19 per 1000 and the death rate was 13.3.

Preliminary 1931 census returns for the principal cities, with figures for 1921 in parentheses, were: Greater London, 8,202,818 (7,480,201); Glasgow, 1,088,417 (1,034,174); Birmingham, 1,002,413 (919,444); Liverpool, 855,539 (802,940); Manchester, 766,333 (730,307); Sheffield, 511,742 (490,639); Edinburgh, 438,000 (420,264). Greater London is officially the world's largest city, New York City proper, the next in size, having 6,981,927 residents.

Emigration from Great Britain and Northern Ireland during 1930 totaled 92,158, as against 143,686 in 1929. The inward movement amounted to 66,203, leaving an excess of emigrants over immigrants of 25,955, as compared with 87,469 in 1929. Of the total 1930 emigrants, 59,241 went to other parts of the Empire (106,900 in 1929), or 7799 more than the number returning to Great Britain and Northern Ireland from other parts of the Empire.

**EDUCATION.** Primary education is free and compulsory between the ages of 5 and 14. In England and Wales in 1930 there were 20,803 ordinary public elementary schools, with accommodation for 7,123,279 pupils and an average attendance of 4,940,831. In Scotland (1928-29) there were 2915 primary schools, with

an average attendance of 584,473. Certified secondary and technical schools in England and Wales numbered 1904 in 1929-30, with 473,644 pupils; in Scotland, 252, with 154,206 pupils. The universities enrolled an aggregate of 49,660 students in 1930-31, of whom 34,951 were in 11 English universities, 11,643 in four Scottish universities, and 3066 in the University of Wales.

**AGRICULTURE.** Only 7 per cent of the working population of Great Britain is engaged in agriculture, as compared with 41 per cent in France and 31 per cent in Germany. There were but 474,993 farm holdings in England, Wales, and Scotland in 1929, distributed as follows: Holdings of from 1 to 5 acres, 91,039; from 5 to 50 acres, 271,035; from 50 to 300 acres, 151,635; over 300 acres, 14,684. The cultivated area in England and Wales in 1930, including permanent pasture, totaled 25,380,447 acres; in Scotland, 4,640,718 acres. The area and production of the principal crops in 1929 and 1930 are shown in the accompanying table from the 1931 *Commerce Yearbook*.

UNITED KINGDOM: AREA AND PRODUCTION OF CROPS

[Including Northern Ireland]

Crop	Area (thousands of acres)		Production <sup>a</sup>	
	1929	1930	1929	1930
Wheat .....	1,385	1,405	49,757	42,246
Barley .....	1,223	1,135	51,372	38,925
Oats .....	3,057	2,942	179,462	158,563
Potatoes .....	816	682	219,034	166,427
Turnips and swedes ..	1,113	...	15,752 <sup>a</sup>	14,503 <sup>a</sup>
Sugar beets <sup>b</sup> .....	231	349	1,923 <sup>a</sup>	3,013 <sup>a</sup>
Beet sugar <sup>b</sup> .....	...	...	314 <sup>a</sup>	457 <sup>a</sup>
Hops <sup>d</sup> .....	24	20	40,219 <sup>a</sup>	28,336 <sup>a</sup>
Flax <sup>f</sup> .....	34	28	15,487 <sup>a</sup>	11,984 <sup>a</sup>
Hay ..	2,159	2,003 <sup>b</sup>	2,798 <sup>a</sup>	2,972 <sup>a</sup>

<sup>a</sup> Unit, long ton.

<sup>b</sup> Exclusive of Northern Ireland.

<sup>c</sup> Seasons ended following year.

<sup>d</sup> England and Wales.

<sup>e</sup> Unit, pound.

<sup>f</sup> Northern Ireland only.

<sup>g</sup> Thousands of units—bushels except as indicated.

In 1931, the total arable acreage reported for Great Britain declined by 2,510,000 acres to 9,500,000 acres, while that under permanent grass increased by 1,490,000 acres to 15,000,000. The wheat acreage dropped to 11,970,000 from 13,460,000 in 1930; farm workers declined by 25,000.

**INDUSTRY.** The industrial output of the United Kingdom in 1930 was 7.6 per cent less than that of 1929 and 2.2 less than that of 1928, according to official estimates of the Board of Trade. Based upon production in 1924 as 100, the Board of Trade's general index number for manufacturing and mining industries combined was 103.3 for 1930, 111.8 for 1929, 105.5 for 1928, and 106.8 for 1927. Index numbers for the respective industries in 1930 showed a decline in output from 1929 of 22 per cent in iron and steel, 20 per cent in textiles, 12.7 per cent in chemicals, 5.7 per cent in mining and quarrying, 3.6 per cent in engineering and shipbuilding, 1.2 per cent in nonferrous metal working, and 1 per cent in food, drink, and tobacco manufacturing. Output of the boot, shoe, and leather industry increased 3 per cent, and of gas and electricity, 2.9 per cent.

The output of the principal mineral and metallurgical industries in 1930, with comparative figures for 1929 in parentheses, was: Coal,

247,235,300 long tons (260,662,700 in 1929); pig iron, 6,192,400 gross tons (7,589,300); raw steel, 7,325,700 gross tons (9,636,200). Coal exports amounted to 54,879,479 tons, valued at £45,671,032 (\$222,258,000), compared with 60,266,618 tons, valued at £48,616,811 (\$236,593,000) in 1929, a decrease of 9 per cent in quantity and 6 per cent in value. The monthly pig iron output declined steadily during the year from 650,000 tons in January to 349,800 tons in December. So did the production of steel ingots and castings—from 771,100 tons in January to 337,200 tons in December. On Dec. 31, 1930, there were 76 blast furnaces and 104 open hearths in operation; there were closed down during the year 86 blast furnaces and 159 open hearths. A total of 2743 mines of all descriptions were in operation in 1929, with 985,422 employees. Production of steel and iron during 1931 was only half that of 1929, according to preliminary returns. The total output of pig iron was 3,750,100 tons, and of steel 5,164,800 tons.

British shipyards in 1930 produced approximately 1,500,000 gross tons of shipping, or about the same as in 1929. The bulk of the business was done in the first part of the year, mostly on orders obtained in 1929. Tonnage under construction June 30, 1931, was 60 per cent below the same date of 1930, a reduction of 836,460 tons.

The cotton and wool textile industries were acutely depressed in 1930, due to disturbed conditions and impaired buying power in India, China, and other overseas markets. Exports of cotton piece goods declined 33 per cent from 1929. Rayon production declined to 48,770,000 pounds from 56,900,000 pounds in 1929. The serious import of these declines on the British economy was indicated by the fact that yarns, textiles, and apparel accounted for 48 per cent of the aggregate value of British overseas shipments of all wholly or mainly manufactured articles for the five years 1924 to 1928, inclusive. For 1930, the proportion declined to less than 40 per cent.

The number of persons registered with unemployment exchanges increased from 1,491,519 at the end of January, 1930, to 2,613,749 on the same date of 1931 and to 2,627,324 at the end of November, 1931. The British economic situation was not wholly unfavorable, however. The number of workers employed was greater in 1931 than before the World War. Production of electrical machinery had doubled since 1913 and the output of central electric stations had doubled since 1918. The period since the War had seen important advances in the production of rayon, motor cars, airplanes, in road and harbor development, building construction, banking, insurance, and the chemical industries.

**COMMERCE.** British foreign commerce in merchandise declined by £357,443,000 (about \$1,747,200,000) in 1930 from the total of the preceding year. Imports fell off from £1,220,765,000 in 1929 to £1,044,840,000 in 1930, or 14.4 per cent; domestic exports from £729,349,000 to £570,553,000, or 21.8 per cent; and reexports from £109,702,000 to £86,980,000, or 20.7 per cent. The aggregate value of imports was the smallest since 1922, while the export total was the lowest in any postwar year. In 1931, the drastic trade declines continued. Imports totaled £862,226,000, exports of British products £389,156,000, reexports £64,029,000, and the excess of



imports £400,041,000, according to preliminary returns from the Board of Trade.

Due to the general decline in price levels, the value of British trade in 1930 showed a greater decrease than the volume of trade. Board of Trade statistics of the volume-value of trade, arrived at by converting declared values to 1924 values, give a better indication of the general trend of trade in 1930. On this basis, the volume of imports was 2.5 per cent less than in 1929, the volume of domestic exports was 18.1 per cent less, and the volume of reexports 4.3 per cent less. A summary of British foreign trade for the years 1924 to 1930, inclusive, is shown in the accompanying table from *Commerce Reports*.

BRITISH FOREIGN TRADE, 1924 TO 1931\*  
[In thousands of pounds sterling]

Calendar year	Imports <sup>b</sup>	Exports		Total <sup>c</sup>	Excess of imports
		King-dom goods <sup>a</sup>	Reexported merchandise <sup>a</sup>		
1924 ..	1,277,439	800,967	139,970	940,937	336,502
1925 ..	1,320,715	773,381	154,037	927,418	393,298
1926 ..	1,241,361	653,047	125,495	778,542	462,819
1927 ..	1,218,341	709,081	122,953	832,034	386,307
1928 ..	1,195,598	723,579	120,283	843,862	351,736
1929 ..	1,220,765	729,349	109,702	839,051	381,714
1930 ..	862,226	389,156	64,028	453,185	409,041
1931 <sup>d</sup> ..	862,226	389,156	64,029	453,185	409,041

\* Not including bullion and specie movements.

<sup>b</sup> C. i. f. value.

<sup>c</sup> F. o. b. value.

<sup>d</sup> Preliminary figures.

The merchandise balance of trade in 1930 was unfavorable by £387,307,000, compared with an adverse balance of £381,714,000 in 1929 and £351,736,000 in 1928. Bullion and specie movements in 1930 raised the adverse visible balance of trade to £392,337,000. Imports of bullion and specie totaled £95,175,440 and exports £90,145,824, leaving a net import balance of £5,029,616. In 1929, exports of bullion and specie amounted to £86,671,986, exceeding by £15,929,854 the imports of £70,742,132 and reducing the total adverse balance of trade for the year to £365,784,000. These unfavorable visible balances were more than offset by invisible items, such as tourist expenditures and returns on foreign investments. The Board of Trade estimated that all international commercial transactions resulted in a credit balance for Britain of £28,000,000 in 1930, compared with a credit balance of £103,000,000 in 1929. In 1931, the normal credit balance was converted to an estimated debit balance of £110,000,000.

The United States remained the leading source of supply for British imports in 1930, although its share of the total declined from 16 per cent in 1929 to 14.7 per cent. This decrease was due chiefly to the marked falling off in shipments and prices of raw cotton and grain. For much the same reasons, Argentina's share declined from 6.7 per cent of the total in 1929 to 5.4 per cent. The percentages of imports supplied by other leading countries, with figures for 1929 in parentheses, were: Germany, 6.2 (5.6); Denmark, 5.1 (4.6); British India, 4.8 (5.2); France, 4.7 (4.6); Australia, 4.4 (4.6); New Zealand, 4.3 (3.9); Irish Free State, 4.1 (3.7); Netherlands, 3.7 (3.5); Belgium, 3.6 (3.6); Canada, 3.6 (3.8); Russia, 3.2 (2.2). The percentage of British imports coming from other parts of the Empire totaled 29.1 in 1930, 29.4 in 1929, 30.4 in 1928, and 32.5 in 1925. Imports

from the Soviet Union increased in value to £34,245,000 from £26,487,000 in 1929.

Of the 16 leading customers of Great Britain, Norway was the only one whose purchases increased in value in 1930. Exports to British India, Australia, and the United States, the three leading markets in 1929, registered sharp declines. While British India retained first place in 1930, her purchases of British exports declined to £52,944,000, or 9.2 per cent of the total, from £78,227,000, or 10.7 per cent of the total, in 1929. The Irish Free State replaced Australia as the second important export market, while the United States fell from third to sixth place, taking £28,716,000 of British exports in 1930 and £45,558,000 in 1929.

FINANCE. For the fiscal year ended Mar. 31, 1931, actual revenues were £775,894,975 and actual expenditures £799,170,946, leaving a deficit of £23,275,971 (about \$113,268,000) instead of the surplus of £2,236,000 anticipated by the Chancellor of the Exchequer in his Budget speech. Expenditures, however, included £66,830,431 applied to redemption of debt. Eliminating this item, there remained a surplus of ordinary revenue (£775,894,975) over ordinary expenditure (£732,340,515) of £43,554,460, as compared with the 1929-30 surplus of £33,225,052. Included in revenue was £32,890,000 as receipts from loans. Budget estimates for the year were: Revenues, £789,445,000; expenditures, £787,209,000.

Actual ordinary expenditure included about £37,000,000 contributed for unemployment relief and transitional benefit. In addition, £36,440,000 was borrowed for the unemployment insurance fund.

The budget for the fiscal year beginning Apr. 1, 1931, was submitted to the House of Commons April 27 by the Chancellor of the Exchequer. On the basis of existing taxation, receipts were estimated at £803,500,000 (about \$3,910,233,000) while expenditures were placed at £803,366,000 (about \$3,909,581,000), leaving an anticipated deficit of £134,000 (about \$652,000). The above figures cover ordinary items only. The deficit for the total budget, including ordinary and extraordinary items, was placed at £37,366,000 (about \$187,000,000).

Mr. Snowden proposed to meet the deficit by three measures. The gasoline tax was raised to 12 cents a gallon from the existing rate of 8 cents, the extra income from this source being estimated at £7,500,000 (about \$36,450,000). The system of income-tax payments was changed so that three-fourths of the annual tax was to be collected Jan. 1, 1932, and one-fourth July 1, 1932, instead of one-half on each date. This measure, justified by Mr. Snowden on the ground that economic conditions were likely to improve in 1932, would bring an extra quarter of the income-tax payments, estimated at about £10,000,000 (\$48,600,000), into the Treasury during the 1931-32 fiscal year, which ended Mar. 31, 1932. Finally, £20,000,000 (about \$97,200,000) was taken from the £33,000,000 (\$160,380,000) reserve established in New York after the World War to buy dollars at the most favorable rate in anticipation of debt payments to the United States. Additional revenues from these three sources were calculated at £37,500,000 (about \$182,250,000), which added to anticipated revenue from existing sources, yielded a nominal budget surplus of £134,000 (about \$651,240). The feature of the budget was the

proposal to lay a tax of one penny per pound sterling (2 cents in \$4.86) on land values, commencing in 1933-34. The political aspect of this measure and of the budget in general is discussed below under *History*.

At the end of the first six months of the 1931-32 fiscal year (on September 30), the budget showed an estimated deficit of £98,410,249. The Chancellor of the Exchequer accordingly presented an emergency supplementary budget (on September 10), calculated to wipe out the deficit for the year, which he then estimated at £74,679,000. Expenditures were to be reduced £22,000,000 by drastic economies; £13,700,000 was to be saved through the Hoover moratorium on debt payments to the United States; and new taxation amounting to £40,500,000 was imposed.

The economies of £22,000,000 were provided through a reduction of about 10 per cent in unemployment benefits and an increase in unemployment assessments. Drastic cuts were made in the road-fund expenditure, and in salaries of Cabinet Ministers, members of Parliament, judges, teachers, police, civil servants, and defense personnel; other retrenchments were made in educational grants and defense services. New taxation included the raising of the basic standard rate of income tax from 4 shillings sixpence to 5 shillings in the pound (from 22½ to 25 per cent), a higher surtax, and the reduction of sinking fund applications from £50,000,000 to £32,500,000.

Great Britain's public debt on Mar. 31, 1931, totaled £7,473,000,000 (about \$36,218,000,000), as compared with £654,000,000 (\$3,168,000,000) on Aug. 1, 1914. The debt was reduced from £8,033,000,000 in 1919. The British debt in 1931 was the largest in the world. Measured on a per capita basis, it was six and a half times as large as that of the United States. Its service consumed nearly half of the public revenues.

**SHIPPING.** The net tonnage of vessels entering the ports of the United Kingdom with cargoes during 1930 was 63,715,296 (62,702,000 tons in 1929) and the net tonnage of vessels cleared was 65,853,620 (68,679,000 in 1929). The net tonnage of vessels entering and clearing from the Port of London in 1929 was 57,578,000. Vessels registered as belonging to the United Kingdom at the beginning of 1930 totaled 18,044, of 12,369,041 net tons; of these 12,795 vessels, of 11,888,976 tons, were steam and motor vessels. See **SHIPPING**.

**RAILWAYS.** At the beginning of 1931, the four great railway systems had about 20,420 miles of line, equivalent to more than 50,000 miles of single track. About one-twelfth of the population was estimated to be dependent on the railway industry for a living. As a result of the industrial depression and increasing motor-vehicle competition, the four systems reported a revenue decline of £10,319,000 (about \$50,150,000) in 1930, as compared with 1929, or £15,819,000 (\$76,880,000) below the "standard" revenue the railways were permitted by statute to earn. Of the 1930 revenue decline, \$15,581,000 represented the falling off in passenger receipts and \$34,569,000 the decrease in freight receipts. Passenger journeys, excluding season ticket holders, declined by more than 16,000,000. Upon application of the railways, the National Wages Board on Mar. 5, 1931, ordered a general reduction of 2½ per cent in the wages of all employees, and an additional 2½ per cent reduc-

tion for those in higher-salaried grades. There was a further drastic decline in revenue in 1931 to a total of £156,284,000, as compared with £170,808,000 in 1930.

A committee appointed by the Minister of Transport in September, 1929, to report upon the electrification of the main railway lines submitted favorable findings on Apr. 24, 1931. The committee estimated the required capital expenditure at about £261,000,000 (\$1,267,000,000) spread over 20 years.

On Sept. 14, 1931, the Great Western Railway inaugurated a time schedule which made the afternoon express from Cheltenham to London the fastest train in the world. The train was scheduled to cover the 77.3 miles from Swindon to Paddington in 67 minutes, equal to an average of 69.2 miles per hour.

**OTHER COMMUNICATIONS.** Highways of all descriptions in the United Kingdom extended 179,286 miles in 1930, and canals about 3822 miles. Air lines radiate from Croydon to the various European capitals and to Palestine, India, Egypt, and South Africa. A new and shorter air route to India through Haifa, Palestine, was opened in October, 1931. The Imperial air line from Cairo to Mwanza, Tanganyika, on Lake Victoria Nyanza, was scheduled for extension to Capetown in December, 1931. A weekly mail service was thereafter to be operated between London and Capetown on a schedule of 11 days, later to be reduced to nine days. Including the line to India, planes of Great Britain's civil airways in 1930 flew 1,286,000 miles, as compared with 1,386,000 miles in 1929. Passenger traffic in passenger-miles was 6,011,000 (7,127,000 in 1929).

**ARMY AND NAVY.** The Royal Air Force in March, 1931, comprised 72 regular and eight Special Reserve or Auxiliary Air Force squadrons, each squadron consisting of 12 aeroplanes.

See the articles on **MILITARY PROGRESS**; **NAVAL PROGRESS**.

#### BRITISH NAVY: BY CLASSES OF SHIPS

Class	Completed by end of		
	1928	1929	1930
Battleships and battle cruisers . .	20	20	19
Cruisers . . . . .	50	54	54
Aircraft carriers and tenders . . .	7	7	7
Flotilla leaders and destroyers . .	157	150	149
Submarines . . . . .	51	53	61

**GOVERNMENT.** The head of the state, George V, was born June 3, 1865, and succeeded to the throne May 6, 1910. The Cabinet at the beginning of 1931 was composed as follows: Prime Minister and First Lord of the Treasury, James Ramsay MacDonald; President of the Council, Lord Parmoor; Chancellor, Lord Sankey; Privy Seal, Vernon Hartshorn; Chancellor of the Exchequer, Philip Snowden; Home Affairs, John Robert Clynes; Foreign Affairs, Arthur Henderson; Dominions, J. H. Thomas; Colonies, Lord Passfield; War, Thomas Shaw; Air, Lord Amulree; Secretary of State for India, Wedgwood Benn; Admiralty, Albert Victor Alexander; President of the Board of Trade, William Graham; Health, Arthur Greenwood; Agriculture and Fisheries, Christopher Addison; Education, Sir Charles Philips Trevelyan; Labor, Margaret Bondfield; Works, George Lansbury; Secretary of State for Scotland, William Adamson.

The composition of Parliament at the beginning of 1931 was as follows: Labor, 288; Con-

servative, 261; Liberal, 58; others, 8; total 615. For changes in the Government in 1931, see *HISTORY*.

### HISTORY

The year 1931 was undoubtedly one of the most critical and eventful in modern British history. The Labor Government, a Coalition Government which succeeded it, and the pound sterling all crumbled beneath a complex of internal and external forces. These forces were economic, political, and social in character. They flowed most directly from the world-wide economic depression of 1929-31. But their roots lay farther back—in the World War's vast destruction of wealth, in the growth of economic nationalism which excluded Britain from important markets, and in the development by the United States, Canada, Germany, and other nations of new industrial methods, summed up in the term "mass production," which deprived Great Britain of her former advantage in supplying the markets of the world.

With the advent of the world depression in the fall of 1929, all these adverse forces were intensified. Revenues declined, necessitating still higher taxes. By the end of 1930, according to the Royal Economic Society, the wholesale price level had dropped 25 per cent, the physical volume of production 18 to 20 per cent, imports 20 per cent, and exports 30 per cent, as compared with the 1929 peaks. The number of unemployed increased to 2,825,772 on Sept. 28, 1931, a total comprising considerably more than one-fifth of all Britain's industrial workers. The unemployment insurance fund was unable to meet the demands upon it. Additional contributions were required from the government and these made it increasingly difficult to balance the budget.

A balanced budget and the equalization of national income and expenditure was essential, however, to maintain the pound sterling at par. And a firmly secured pound sterling was essential, in turn, to the maintenance of London's unique position as a sort of international bank of deposit—a position which brought British financiers large commissions and profits on reinvestments (estimated at \$800,000,000 in 1930) sufficient to offset the highly adverse visible balance of trade. In the period 1924-29, British commodity exports were sufficient to pay for only 69 per cent of the goods imported.

With economy and the upholding of British credit as the most pressing of national issues, the question arose as to how the required sacrifices were to be distributed among the population. Labor demanded that the cost be borne by the rich, through higher income taxes, and lower returns on fixed investments. The British industrialists and financiers stood firm for a reduction of wages to enable British industry to compete more successfully in foreign markets, and a tariff to protect the domestic market. It was on this crucial issue that the political battle of 1931 was fought out.

**THE SNOWDEN BUDGET.** Intimations of the weakness of the Exchequer's position were given early in the year. On March 17, in accordance with a parliamentary resolution of February 11, the Prime Minister appointed a committee of financial experts headed by Sir George May to recommend all possible reductions in national expenditure. The fears of an impending deficit

were confirmed April 27, when Chancellor of the Exchequer Snowden in his budget speech announced that at the existing rate of taxation the budget for 1931-32 would show a deficit of about \$180,000,000. In his proposals for balancing the budget (see above under *Finance*), he admitted resorting to temporary expedients to balance the budget, his explanation being that he believed the worst of the economic depression had passed and that a revival of business activity in 1932 and 1933 would quickly restore the treasury balance. Gamble though it was, his budget was generally accepted as the best that could be expected, although Conservatives criticized his raiding of the debt sinking fund to reduce the deficit.

**DEVELOPMENT OF THE CRISIS.** Recounting the causes of the financial storm in a radio address of Sept. 21, 1931, the Chancellor of the Exchequer said:

"The actual crisis started with the collapse of the chief bank of Austria last May and the crisis which followed in Germany. The tying up of funds in Germany had an immediate effect on the London market, because London is the centre of international banking, and it was known, of course, that we had been lending to Germany. Once foreign centres became aware of this, the difficulties of our situation came to the front."

Austria turned to Britain for help when the French refused a loan except on political conditions and the British advanced \$21,000,000 unconditionally in an effort to preserve European stability (see *FRANCE and AUSTRIA under History*). On June 4 appeared an interim report of a commission charged with the investigation of the unemployment insurance fund. The fund, according to the report, was then \$400,000,000 in debt to the Exchequer and its income sufficed to meet only half of the demands upon it. It was running behind at the rate of about \$5,000,000 a week, and the deficit for the full year 1931-32 was estimated at \$197,250,000. The commission proposed that this deficit be reduced to \$38,250,000 by cutting down the weekly benefit rates by about 50 cents weekly, thus saving \$65,000,000, and by increasing the contributions of employees, employers, and the State, thus bringing in \$45,000,000 additional. The Labor party firmly opposed any alteration in the existing schedule of payments and contributions.

The Government accordingly pushed through a measure which ignored the commission's recommendations. It established an advisory body to deal with abuses of the fund and provided machinery for the transference of unemployed workmen and their families to districts where employment might be available. The borrowing powers of the fund were increased by \$125,000,000, making a total indebtedness of \$575,000,000. Parliament also advanced money to the depleted road fund to provide unemployment relief. These and other measures called for an expenditure of \$35,000,000 in excess of the expenditure estimates upon which Mr. Snowden based his budget of April 27.

Meanwhile the increasing seriousness of the German situation was emphasized by the visit of Chancellor Brüning and Foreign Minister Curtius to London (June 5-7) and the conferences held between them and British government officials at Chequers, the country home of the Prime Minister. Their joint manifesto, declaring

that "a revival of confidence and prosperity depend upon international coöperation" was generally considered a bid for reparation and debt revision. As such, it aroused resentment in some French circles.

President Hoover's proposal of June 20 for a year's moratorium on reparation and intergovernmental debts served to stabilize the situation in Germany temporarily. But its effect was impaired by the two weeks of negotiation required to gain France's consent to the agreement. In the course of the negotiations Hungary was forced to close its banks and the increasing instability of the European financial structure caused heavy withdrawals of short-term credits from London. A steady stream of gold flowed from London to Paris for the five weeks commencing about the middle of July. The drain on British gold reserves was felt the more acutely because of the tying up of large British credits in Germany and Central Europe by the action of the Seven-Power Conference, held in London (July 20-23), in recommending that such credits be left intact. Great Britain thus contributed to her own financial difficulties through her efforts to prevent a debacle in Germany and Central Europe. British assets locked up in Germany during this crucial period were estimated by Mr. Snowden at \$350,000,000. The moratorium agreement, furthermore, resulted in a direct loss to the British Exchequer for the year commencing July 1, 1931, of about \$55,000,000, or the amount that would otherwise have been received from her various debtors in excess of British debt payments to the United States.

The final event which convinced foreign investors in the London money market of the necessity of getting their funds out of danger was the publication on July 31 of the majority report of Sir George May's commission. The commission tripled Mr. Snowden's estimate of the budget deficit for 1931-32, placing it at approximately \$600,000,000. They reached this startling conclusion by putting into the national balance as simple revenue liabilities the unemployment insurance and road funds.

The May Commission proposed to eliminate the estimated budget deficit by drastic cuts in expenditure, rather than by increased taxation. The report of the May Commission forced the Government onto the horns of a dilemma. Defiance of this second warning from the highest financial authorities of the necessity of immediate action could not safely be ignored. Yet adoption of the commission's economy programme would be equivalent to repudiation of Labor's electoral promises.

Great harm to British credit had already been done. During the 13 days ending July 25 withdrawals of foreign funds from the Bank of England totaled \$145,500,000. To check the outward flow of gold, going chiefly to Paris, the Bank of England on July 23 raised its rediscount rate from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  per cent. The rediscount rate was raised again on July 30 to  $4\frac{1}{4}$  per cent and still the flight of gold continued. Mr. Snowden declared it essential to balance the budget at all costs and warned Parliament, which was to adjourn the next day (July 31), that he would balance it. On August 1 the Bank of England obtained a credit of about \$250,000,000 from the Federal Reserve Bank of the United States and from the Bank of France to meet withdrawals. By the middle

of August these reserves were virtually exhausted, and the pound sterling was evidencing a growing weakness in foreign money markets.

The Economy Committee of the Cabinet met on August 12, in response to demands from the Chancellor of the Exchequer and British bankers for immediate action. With a balanced budget, Mr. Snowden hoped to carry through a conversion operation which would considerably reduce the burden of interest on the public debt. A split within the Labor party now appeared, growing wider as the negotiations continued. A group under Arthur Henderson, the Foreign Minister, held out for the maintenance of the existing social services, while Snowden, MacDonald, and J. H. Thomas, the Minister for Dominions, considered it necessary to reduce them. The Cabinet split in another direction on the proposal for a tariff of 10 per cent on imports; the measure was favored by Henderson, Thomas, and others and vigorously opposed by Snowden, and William Graham, President of the Board of Trade.

During these negotiations, the Prime Minister was in consultation with the Liberal and Conservative leaders. On August 20, Mr. MacDonald and Mr. Snowden outlined their proposals for balancing the budget to representatives of the other parties. The Trades Union Council was also informed. The proposals, which had been approved by a majority of the Labor Cabinet, called for a 10 per cent cut in social services. They were rejected, however, on August 21, by both the Conservatives and the Trades Union Council. The Conservatives objected because only half of the deficit was to be made up through economies; the Trades Union Council, on the other hand, demanded that all the deficit be made up through increased taxation. The Liberals made it clear that they would no longer support the Government unless drastic economies were effected.

The decision of the Trades Union Council not to accept the cuts precipitated the actual Cabinet crisis. The Council acted for the Trades Union Congress, which included 210 unions with 3,750,000 members and controlled 130 of the 286 Labor members of Parliament. In a later account of the crisis, Mr. Henderson said that the majority of the Cabinet had agreed on economies totaling \$280,000,000 and that his faction split with the Prime Minister when told that additional economies of \$150,000,000 were required and would have to be taken from unemployment insurance.

At this stage (August 23) the King arrived in London from Balmoral and took a hand in the negotiations. To his endeavors was attributed the final decision to form an emergency Coalition Cabinet. On August 24, the Labor Ministry resigned. And, much to the chagrin of the opposition group within the Cabinet, Mr. MacDonald accepted the task of forming the new Government. In doing so he sacrificed the leadership of his party, to which he had devoted his life, and won the bitter enmity of many of his erstwhile colleagues. The same course was followed by a few other members of the Cabinet—Philip Snowden, J. H. Thomas, Lord Sankey, Lord Amulree, and Sir William Jowitt—who entered the Coalition Government with Mr. MacDonald. The entire group was read out of the Labor party, which on August 28 confirmed Mr. Henderson as the official leader of the party.

A Labor manifesto of August 27 set forth the party's programme. It rejected any impairment of the standard of living or of social services and proposed to meet the deficit by the taxation of higher incomes and fixed interest-bearing securities, the reduction of war debts, and the suspension of payments into the debt sinking fund. It was recalled that British investors had some \$20,000,000,000 invested abroad, which had not been drawn upon.

**THE COALITION GOVERNMENT.** The Coalition Government was formed for the specific task of balancing the budget and restoring confidence in Britain's national credit. Party hostilities were to be suspended during this period, but it was agreed that as soon as its task was completed new elections would be held. In the interests of efficiency, the Cabinet was limited to 10 members, instead of the usual 19 or 20. It was constituted as follows: Prime Minister and First Lord of the Treasury, J. Ramsay MacDonald (Labor); Chancellor of the Exchequer, Philip Snowden (Labor); Secretary for Dominions and Colonies, J. H. Thomas (Labor); Lord Chancellor, Lord Sankey (Labor); Lord President of the Council, Stanley Baldwin (Conservative); Secretary for India, Sir Samuel Hoare (Conservative); Minister of Health, Neville Chamberlain (Conservative); President of the Board of Trade, Sir Philip Cunliffe-Lister (Conservative); Foreign Secretary, Lord Reading (Liberal); Home Secretary, Sir Herbert Samuel (Liberal). The remainder of the 54 Ministers who were not on the Cabinet included: Air Secretary, Lord Amulree (Labor); Attorney General, Sir William Jowitt (Labor); Lord Privy Seal, Lord Peel (Conservative); First Lord of the Admiralty, Sir Austen Chamberlain (Conservative); Minister of Labor, Sir Henry Betterton (Conservative); First Commissioner of Works, Lord Londonderry (Conservative); Agriculture and Fisheries, Sir John Gilmour (Conservative); War, Lord Crewe (Liberal); Education, Sir Donald MacLean (Liberal); Secretary for Scotland, Sir Archibald Sinclair (Liberal); Chancellor of the Duchy of Lancaster, Lord Lothian (Liberal).

The country remained calm during and after the Cabinet crisis, except for a few demonstrations against the Government in London. The King set an example in economy by reducing his civil list by \$250,000, while the new Government moved rapidly to meet the emergency. Parliament was convened in special session September 7, the Cabinet carrying a vote of confidence by 309 to 250. The Conservatives, Liberals, and 12 Laborites supported the Ministry; the remainder of the Laborites and Sir Oswald Mosley's group of five opposed it. Emergency legislation to give effect to Mr. Snowden's new budget was rushed through Parliament in three weeks, after a radical revision of the rules of procedure to cut short or eliminate discussion. For details of the Snowden budget (see above under *Finance*).

The formation of a coalition cabinet with a drastic economy programme served to restore foreign confidence somewhat, and on August 28 the new Government obtained a loan of about \$400,000,000, half from the United States and half from France. Withdrawals from the Bank of England fell sharply and it was hoped that they would cease entirely. The nation, however, failed to heed Prime Minister MacDonald's plea

for a united front. Inflation and repudiation of debts were urged by a few prominent persons. Labor showed bitter hostility to the financial reforms. On September 15 the nation and the world was astounded at reports of disorders in the British Navy in protest against wage cuts. The reports proved exaggerated, but they served to arouse nervousness abroad and the "run" on the Bank of England started once more. On September 17, London financiers informed the Prime Minister that the stability of the pound sterling was again imperiled. Withdrawals of foreign funds from the Bank of England that day totaled \$50,000,000. The next day they rose to \$90,000,000. With the credits raised by the Government in New York and Paris approaching exhaustion, the Government sought additional loans, but without success. On September 19, the Bank of England advised the Ministry that if withdrawals continued it would be impossible to meet the demands on it for gold. In the two preceding months, Britain had lost in foreign exchanges about \$1,000,000,000, of which \$175,000,000 was in gold. There remained in the vaults of the Bank of England only about \$650,000,000 of gold to serve as a basis for British currency.

**GOLD STANDARD ABANDONED.** The Government checked further withdrawals by abandoning the gold standard on September 21. The gold standard act of 1925, which had stabilized the pound at \$4.8665 by making British pound notes payable on demand at the Bank of England in gold, was repealed. Thereafter the exchange value of the pound was determined by the interplay of supply and demand in the market. On the same day the Bank of England raised the rediscount rate from 4½ to 6 per cent. Through internal disunity and the maladjustment of the world's complex economic and financial machinery, Britain had lost her gallant struggle to bring the pound back to par after the World War and to keep it there. And the Coalition Cabinet had failed in its effort to maintain confidence in British credit.

The reverberations of the abandonment of the gold standard were felt throughout the world. The exchange value of the pound quickly slumped to \$3.83 on September 24, and in many instances the French franc or the American dollar supplanted it as a basis for foreign contracts. Business throughout the world was profoundly disturbed. The currencies of many countries having close relations with British finance were weakened and prices broke sharply on the New York, Paris, and other stock markets. There commenced a considerable outflow of gold from the United States, which hitherto had been receiving large quantities. Banks and stock exchanges were closed temporarily in a number of countries and on September 27 Sweden, Norway, and Egypt abandoned the gold standard. Finland, Northern Rhodesia, and Southern Rhodesia followed suit on October 12.

**THE NATIONAL ELECTION.** Within a month after the formation of the Coalition Ministry it became evident that the confused political situation could be clarified only through a general election. The tariff issue, in particular, threatened to split up the coalition, and partisan intrigues were undermining the prestige of the Government. For several weeks the Cabinet sought to evolve a formula on which the coalition parties could go before the nation. The Con-

servatives demanded that the platform include a high tariff as the chief remedy for the country's economic ills. But the Prime Minister refused to continue his association with the Government on that basis. The Liberals were split wide asunder by the tariff issue. A section under Sir John Simon favored an emergency tariff, while Lloyd-George and his followers bitterly opposed it. The dissident groups finally recognized in Mr. MacDonald the sole unifying force of the coalition. Without a party following of his own, he was given a free hand to draft an electoral platform. Free Traders and protectionists alike on the Cabinet agreed to support whatever tariff programme he decided upon. Parliament was dissolved on October 7, and on the same day the Prime Minister launched the election campaign with an appeal for the return of the Coalition Government so that it might complete its task of financial and economic reconstruction.

Mr. MacDonald asked for the return of a government free to consider every proposal likely to help, such as tariffs, the expansion of exports, the contraction of imports, commercial treaties and mutual economic arrangements with the Dominions. It was essential, he said, that international action be taken "to remove some of the fruitful causes of economic misfortunes—like war debts and reparations—." He invited the support of all parties and classes in the task of national reconstruction and charged his opponents in the Labor party with shirking their duty to the nation in connection with the August Cabinet crisis.

Meanwhile, on September 30 and October 1, there had been serious riots in London, Glasgow, and Manchester in protest against unemployment insurance reductions. The Labor party, in its annual conference at Scarborough, October 5-7, had adopted a platform of radical socialism, including the socialization of land, industries and mines, complete government control of all banks and financial institutions, and the repeal of the unemployment insurance reductions and of other economy measures.

The Conservative election manifesto, issued October 8 by Stanley Baldwin, pointed out that although the budget had been balanced Britain could be saved from "ultimate bankruptcy" only through elimination of the excess of imports over exports. Mr. Baldwin stressed the Conservative view that "a tariff is the quickest and most effective weapon not only to reduce excessive imports but to enable us to induce other countries to lower their tariff walls."

Despite the issues at stake and the undertone of bitterness, the campaign was fought, on the whole, good-humoredly. Mr. MacDonald, however, was freely hissed and booed in his old constituency at Seaham. Mr. Thomas was shouted down at Liverpool. And Sir Oswald Mosley and a number of Government candidates in London were roughly handled by hooligans. In general, the Government parties were successful in avoiding contests between their members in the same constituency, and a large number of straight fights between candidates of the National Government (Liberal, Labor, or Conservative) and Opposition Laborites resulted. In some districts, however, high tariff Conservatives and free trade Liberals attacked one another more fiercely than they did their Labor opponents. In addition, each party was divided into two or

more factions on the election issues. The Conservative followers of Mr. Baldwin were harassed by the activities of the high-tariff Conservatives and the "Empire Crusaders" (see 1930 YEAR BOOK). The Liberals were split into a small faction headed by Lloyd George, which opposed the Government because it appeared pledged to a tariff experiment, another free trade group under Sir Herbert Samuel, and a group under Sir John Simon which had gone over to protection. Both Sir Herbert and Sir John supported the Government. Labor was likewise divided into three camps—the orthodox majority headed by Arthur Henderson, the MacDonald adherents, and the left wing Laborites of the Independent Labor party. There were also in the field a number of Communists and Sir Oswald Mosley's New party, with 18 candidates, which he had formed following his withdrawal from the Labor party on February 28. Sir Oswald stood for a semi-dictatorial national government. The old party structure of the nation was being drastically reshaped under the stress of the economic and financial crisis.

**THE COALITION VICTORY.** The coalition parties on October 28 won the greatest electoral victory in a century of British political history. Of the 615 seats in the House of Commons, the coalition won 554, as compared with 338 in the previous House, while the standing of the Opposition parties dropped to 61 from 276. The standing of the various Government parties in the new House, with their membership in the preceding House in parentheses, was: Conservatives, 471 (263); National Liberals, 68 (58); National Laborites, 13 (13); Independents, 2 (4). In the Opposition ranks, the party standing was as follows: Labor 50 (270); Lloyd George Liberals, 4 (0); New party (Mosley), 0 (4); Independents, 7 (2). Although the Conservatives alone won 163 seats more than the number required to control the House, the victory was distinctly won on a National rather than a party basis. Premier MacDonald won a smashing triumph in Seaham, rolling up a majority of 5951 votes in one of the strongest Labor constituencies of the country. J. H. Thomas and Sir Herbert Samuel were elected despite opposition by both Labor and Conservative candidates in their constituencies. Among the members of the previous Labor Cabinet defeated at the polls were Messrs. Henderson, Alexander, Morrison, Shaw, Greenwood, Clynes, Turner, Trevelyan, and Miss Margaret Bondfield. The total vote cast was 21,399,175, of which the National Government received 14,423,507 and the Opposition 6,975,668. Sixty-eight constituencies were not contested.

In the municipal elections held a few days later (November 2) the Labor candidates were buried under another avalanche of adverse votes. The party lost 416 seats in various municipalities in England and Wales, while the Conservatives gained 338.

**THE NEW GOVERNMENT ORGANIZES.** The new House of Commons held its first session November 3, electing Capt. Edward A. Fitzroy as Speaker, and then adjourned until November 10, when both Houses of Parliament were formally opened by King George. November 3 marked the end of Lloyd George's long rule of the Liberal party, the 33 protectionist Liberal Members electing Sir John Simon as their leader and the free-trade Liberals, 31 in number, electing



Sir Herbert Samuel. On November 4, Lloyd George formally resigned.

Premier MacDonald announced his fourth Cabinet on November 5. The anxiously-awaited list was moderately protectionist in composition and was truly national in the sense that it contained 11 Conservatives, five Liberals, and four National Laborites. The chief surprise in the list was the appointment of Sir John Simon as Foreign Secretary to succeed Lord Reading. The 20 members of the new Cabinet were: Prime Minister and First Lord of the Treasury, James Ramsay MacDonald (National Laborite); Lord President of the Council, Stanley Baldwin (Conservative); Lord High Chancellor, Lord Sankey (National Laborite); Lord Privy Seal, Philip Snowden (National Laborite); Chancellor of the Exchequer, Neville Chamberlain (Conservative); Secretary of State for Home Affairs, Sir Herbert Samuel (National Liberal); Secretary of State for Foreign Affairs, Sir John Simon (National Liberal); Secretary of State for the Dominions, J. H. Thomas (National Laborite); Secretary of State for the Colonies, Sir Philip Cunliffe-Lister (Conservative); Secretary of State for War, Viscount Hailsham (Conservative); Secretary of State for India, Sir Samuel Hoare (Conservative); Secretary of State for Scotland, Sir Archibald Sinclair (National Liberal); Secretary of State for Air, Marquess of Londonderry (Conservative); First Lord of the Admiralty, Sir Bolton Eyres-Monsell (Conservative); President of the Board of Trade, Walter Runciman (National Liberal); Minister of Health, Sir Hilton Young (Conservative); President of the Board of Education, Sir Donald MacLean (National Liberal); Minister of Agriculture and Fisheries, Sir John Gilmour (Conservative); Minister of Labor, Sir Henry Betterton (Conservative); First Commissioner of Works, William Ormsby-Gore (Conservative); Chancellor of the Duchy of Lancaster.

**ECONOMIC MEASURES.** The National government lost little time in putting into effect some of the tariff measures foreshadowed by the Conservative victory. On November 19, the House of Commons passed an emergency bill authorizing the Board of Trade to impose duties up to 100 per cent on foreign manufactured goods. The next evening the President of the Board of Trade declared a 50 per cent tariff on 23 groups of manufactured articles for six months, starting November 25. Two supplementary lists were issued on December 4 and 17, respectively, extending the tariff to a wide variety of manufactured imports. On November 30, the House of Commons went a step further by authorizing a duty on fresh fruits, early vegetables, flowers, and bulbs. A quota system for home-grown and Dominion wheat was also proposed. The tariff action aroused much anxiety in Europe and the United States. In France there was open talk of a tariff war. The President of the Board of Trade informed the House of Commons, amid cheers, on December 4 that Great Britain was ready for tariff warfare if necessary. Recalling the vain appeals made by the British government for reductions in foreign tariffs while Britain was on a free trade basis, Mr. Runciman said that henceforth Britain's internal interest would receive first consideration. France, Germany, Holland, Belgium, and Spain started negotiations for mutual tariff accommodation, but met with little encouragement from the British government.

In an endeavor to end the "crazy economics," which Premier MacDonald declared were steadily undermining the prosperity and peace of the world, he sounded out the attitude of the Powers on a project for a world economic conference to consider reparations, war debts, tariffs, and other obstacles to trade. Speaking before the House of Commons December 9, Mr. MacDonald said it would be sheer madness to attempt to stabilize the pound before there was a settlement of the international situation. He also prepared to head the British delegation to the 1932 Disarmament Conference at Geneva. Following the report of the advisory committee, appointed by the Bank for International Settlements to inquire into Germany's capacity to resume reparation payments in July, 1932, the Prime Minister secured the consent of the principal Powers to hold an economic conference early in 1932 (see **REPARATIONS AND WAR DEBTS**). At the same time the Prime Minister accepted the Canadian government's invitation to the British Empire economic parley scheduled for July, 1932, in Ottawa.

The depreciation of the pound sterling led to a considerable revival in the textile and other industries, and unemployment showed some decrease toward the close of the year. Another optimistic note was the repayment on October 31 of \$100,000,000 of the \$250,000,000 credit secured on August 1 for three months from the Bank of France and the Federal Reserve Bank of New York. Arrangements were made to extend the balance for another three months. However, the pound sterling continued to fluctuate widely, depreciating to a low level of \$3.39¼ on November 31. Exports continued to decline in November and December. Revenue receipts for the first nine months of the 1931-32 fiscal year were £40,800,000 less than during the same period of 1930-31, and the gold holdings of the Bank of England fell on December 31 to the lowest level since 1920, or £121,449,000.

**THE STATUTE OF WESTMINSTER.** Another important act of the National government was the passage of the Statute of Westminster. The ordinance transferred to the Parliaments of the Dominions full and complete power to enact legislation in respect of all Dominion matters, including merchant shipping, which hitherto had been exercised by the British Parliament. The statute formally ratified the "equality of status" conferred on the Dominions by the Imperial Conferences of 1926 and 1930, thereby bringing to a close one of the remarkable constitutional changes of modern history. It defined the Dominions as Canada, Australia, New Zealand, South Africa, the Irish Free State, and Newfoundland. Certain reservations were made with regard to India during the transition period before India received full Dominion status. An amendment to the statute discriminating against the Irish Free State was introduced by a group of ultra conservatives led by Winston Churchill, but was rejected November 24 by a majority of 300. The statute was passed on third reading by the House of Lords December 3 and was signed by King George December 11.

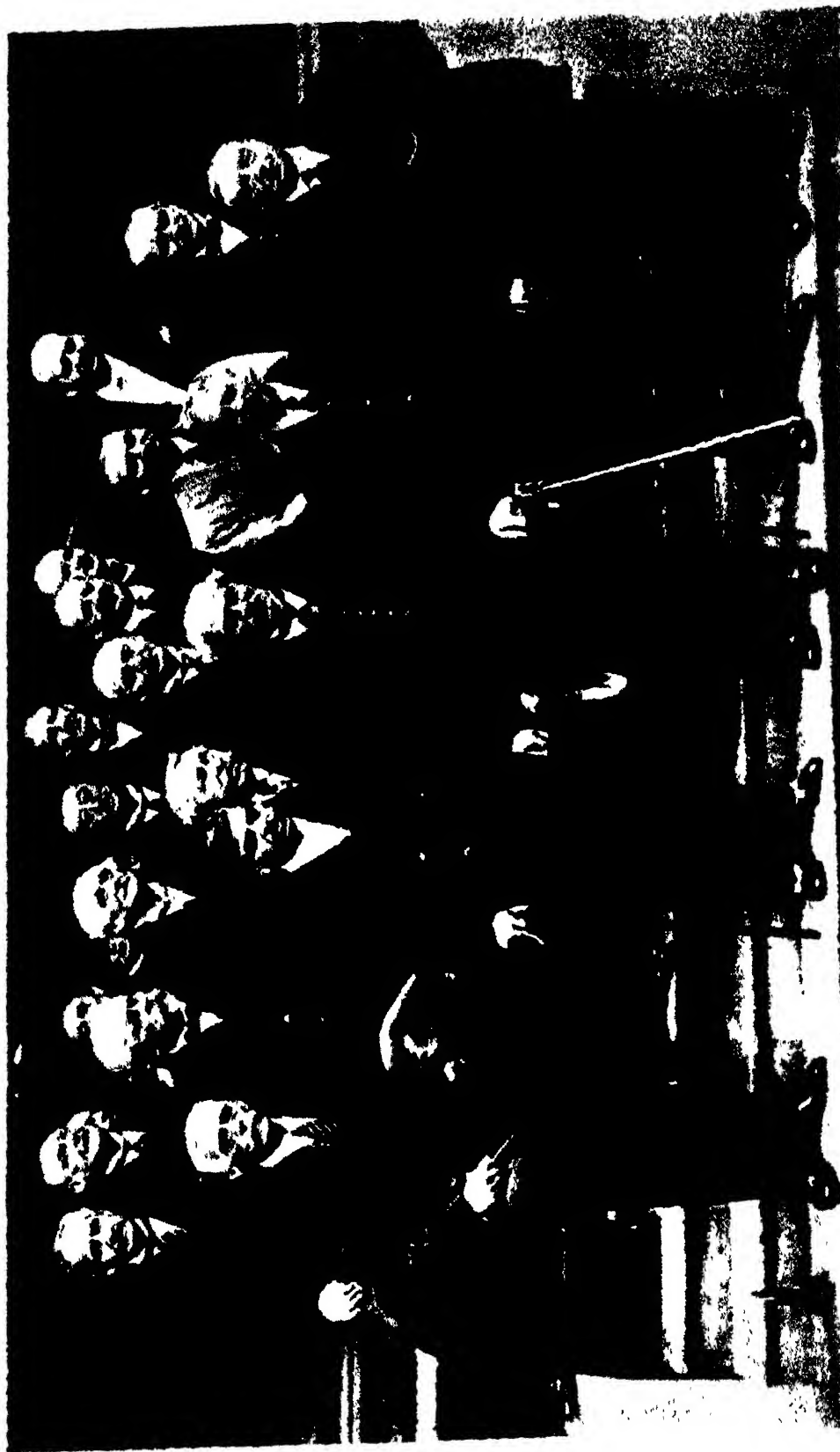
In the spring, a Land Utilization Bill was passed authorizing the Ministry of Agriculture to acquire land for demonstration farms and to establish small holdings, with financial assistance to unemployed men who became occupiers. The House of Lords eliminated a clause of this



*Acme Photograph*

THE NATIONAL GOVERNMENT OF GREAT BRITAIN OF 1931

Front row, left to right Philip Snowden, Chancellor of the Exchequer, Stanley Baldwin, Lord President of the Council, Ramsay MacDonald, Prime Minister; Sir Herbert Samuel, Home Secretary, and Lord Sankey, Lord Chancellor. Second row, left to right Sir P. Cunliffe-Lister, President of the Board of Trade; J. H. Thomas, Secretary for the Dominions, Lord Reading, Foreign Secretary; Neville Chamberlain, Minister of Health, and Sir Samuel Hoare, Secretary for India



Wide World

THE LEADERS OF THE SEVEN POWER CONFERENCE AT LONDON

Front Row, left to right Andrew Mellon, M Laval, M Briand, Ramsay MacDonald, Henry Stimson, and Arthur Henderson

bill which would have established a Land Corporation to conduct large-scale experiments in farming.

**LAND-VALUES TAX.** Perhaps the most radical and controversial piece of legislation enacted during the year was Mr. Snowden's measure for taxing land values. As explained by the Chancellor of the Exchequer in his speech of May 4, the basis of valuation of a site would be to assume that it was bare of buildings and improvements and that the surrounding land was as it actually was. Then the valuer would estimate how much a willing purchaser would give a willing seller for the land and levy the tax upon the figure. Agricultural land was exempted, as long as it had only a cultivation value. The Finance Bill, in which the land tax measure was incorporated, passed its third and final reading on July 3 after violent debate, a Conservative amendment having been defeated by 274 to 222. The support accorded the bill by Lloyd George and the majority faction of Liberals resulted in the resignation from the party of Sir John Simon, Lord Rosebery, Sir Robert Hutchinson, and Ernest Brown. In the debates, the Liberals abandoned their traditional principle of no double taxation. The work of ascertaining land valuations was stopped by Chancellor of the Exchequer Chamberlain on Dec. 8, 1931, on the ground that the cost was prohibitive. The measure was considered dead for the term of the new Parliament.

**LABOR DISPUTES.** The depressed condition of British industry was naturally reflected in a series of labor disputes. A combined strike and lockout on New Year's day threw 140,000 men out of work in the South Wales coal fields. The government had no sooner ended this than 250,000 cotton weavers were locked out in the Lancashire district (January 17). The cotton lockout ended February 16 with the abandonment by the mill owners of their plan for rationalization through extending the number of looms per weaver.

The Prime Minister in March began negotiations for an agreement to replace the act suspending the seven-hour day in the coal mines, which was due to expire on July 8. Miners and operators were unable to agree, however, and the government in the first days of July was forced to put through an emergency measure legalizing the seven and one-half hour day. The act was admittedly a temporary expedient, but it did not prevent serious strikes in the Scottish coal fields. The Coal Mines Reorganization Committee reported on August 3 that conditions in the industry were "positively self-destructive." It recommended the merging of more than a thousand colliery concerns into six regional organizations, closure of several hundred mines, and the coordination of production, transportation, sales, and research.

**FOREIGN RELATIONS.** Besides its strenuous efforts to check the financial crisis in Germany and Central Europe, and to reconcile France and Germany, the Labor Government during the first half of 1931 devoted its foreign diplomacy chiefly to the solution of the Franco-Italian naval controversy. An agreement was announced by the Foreign Offices of the three powers on March 1, but subsequent differences over the interpretation of the preliminary agreement nullified the British efforts (see FRANCE under *History*; NAVAL PROGRESS).

Relations with the Soviet Union were less

strained than in previous years. On January 19, the Prime Minister announced that the Conservative demands for a boycott of Russian timber products would be ignored, as the Government had found no evidence of forced labor in the Soviet lumber camps. Subsequently (January 26) the Soviet Government declined to allow an official British investigation of conditions in the camps.

With the tightening of the domestic crisis, the advent of the Coalition Government, and the resignation of Mr. Henderson as Foreign Secretary, Britain withdrew from her active rôle in Continental affairs. In the Manchurian crisis, however, Lord Reading lent his active support to the League Council in its effort to avert an open break between Japan and China. The new government, and particularly its Conservative element, was considered more in accord with the French viewpoint, and consequently more opposed to German policy, than had been Mr. Henderson and his Labor colleagues. Of special interest to the United States was the unanimity with which the three major parties pledged themselves during the electoral campaign to promote the revision or cancellation of reparation and inter-Allied debt payments. Lord Beaverbrook's powerful newspaper chain carried on an agitation for Britain's withdrawal from the League of Nations, urging that the country link its destiny instead to that of the Dominions and the United States.

**OTHER EVENTS.** One of the important victims of the depression was the Royal Mail Steam Packet shipping combine formed by Lord Kylsant after the World War. In February, 1931, it was saved from bankruptcy only by a moratorium extended by the White Star Line and by pledging all its assets. Losses of the Royal Mail were estimated at \$100,000,000. In August, Lord Kylsant was found guilty of making and publishing a prospectus which he knew to be false with intent to induce persons to invest in the Royal Mail Company, of which he was chairman. He was sentenced to serve twelve months in prison.

In order that Philip Snowden might remain in the National Cabinet without being a member of the House of Commons and in recognition of his distinguished services, he was awarded a Viscounty by the King on November 16 and took his seat in the House of Lords November 25.

For developments in India, the disorders of October, 1931, in Cyprus, and events in other parts of the Empire, see INDIA, CYPRUS, etc., under *History*.

**BIBLIOGRAPHY.** Consult H. Wilson Harris, "Britain's Two Years of Labor Government," *Current History*, June, 1931; Sir Austen Chamberlain, "The Permanent Bases of British Foreign Policy," *Foreign Affairs*, July, 1931; Robert A. MacKay, "Changes in the Legal Structure of the British Commonwealth of Nations," *International Conciliation*, No. 272, September, 1931; Maxwell S. Stewart, "Britain's Financial and Economic Crisis," *Foreign Policy Reports*, Nov. 11, 1931, Vol. 7, No. 18.

**GREAT SMOKY MOUNTAINS NATIONAL PARK.** See PARKS, NATIONAL.

**GREBLE, MAJ. GEN. EDWIN ST. JOHN, U.S.A., RET.** An American soldier, died in West Orange, N. J., Sept. 30, 1931. He was born in West Point, N. Y., June 24, 1859, and was graduated from the United States Military Acad-

emy in 1881, later attending the Infantry and Cavalry School at Fort Leavenworth, Kans., and the Coast Artillery School at Fortress Monroe, Va. He served during the Spanish-American War as a captain of artillery, and on the Spanish evacuation was appointed assistant adjutant general under Gen. William Ludlow, the military Governor of Havana.

He was made captain in the Regular Army in 1899 and was promoted through the grades to brigadier general in 1916. From 1910 to 1914 he was a member of the General Staff in charge of field artillery, and during 1914-16 commanded the 6th Field Artillery on the Mexican border. In 1917 he received the rank of major general in the National Army and was appointed commander of the 36th National Guard Division at Fort Worth, Texas. He was retired the following year on account of disability incurred in active service.

**GREECE.** A republic in southeastern Europe, comprising the lower Balkan peninsula and many islands in the Aegean Sea; formerly a constitutional monarchy. King George II was forced to leave Greece, Dec. 18, 1923, and the Republic was established Apr. 13, 1924, as the result of a plebiscite. In continental Greece are included Southern Macedonia, Western Thrace, and Epirus; the chief island possession is Crete. Capital, Athens.

**AREA AND POPULATION.** Greece increased her area by 20,730 square miles as a result of the Balkan Wars of 1912-13 and by an additional 3182 square miles under the Treaty of Lausanne (1923), the total area in 1930 being 50,270 square miles. The population at the census of May 15, 1928, was 6,204,684, as compared with 5,021,790 on the same territory in 1920. About 1,400,000 Greek refugees from Turkey were finally established in industry and agriculture by 1931. The chief cities, with their populations in 1928, are Athens, 452,919; Peiræus (Piræus), 251,328; Saloniki, 236,524; Patras, 61,278. For the period 1924-28 inclusive, birth rates averaged 27.7 per 1000 inhabitants annually and death rates, 16.

**EDUCATION.** Of persons over 10 years of age in 1928, 1,962,330 were illiterate. For the 1928-29 school years, 704,510 were enrolled in all schools, including 609,595 in primary schools, 87,015 in secondary schools, and 7900 in higher educational institutions. There were two universities at Athens and one at Saloniki.

**PRODUCTION.** Greece is primarily an agricultural country, with tobacco and currants as the two outstanding export crops. About one-fifth of the total area is cultivable. In 1930 there were 3,589,000 acres of arable land, and 550,000 acres of trees, shrubs, and bushes. In 1928 livestock numbered 910,000 cattle, 419,000 swine, 6,920,000 sheep, 4,919,000 goats, 290,000 horses, 150,000 mules, and 343,000 asses. The minerals produced included chromite, emery, iron ore, iron pyrites, magnesite, calcined magnesite, lignite, and lead. Excluding wine and olive oil, the value of factory production in 1930 was estimated at \$85,475,000 (\$93,041,000 in 1929).

**COMMERCE.** Imports in 1930 declined 18.3 per cent in value from the previous year, while exports were lower by 15.3 per cent. The adverse trade balance, which amounted to 6,290,335,000 drachmas in 1929, was reduced to 4,932,202,000 drachmas (1 drachma equals \$0.013 at par). Imports in 1930 were valued at 10,850,608,000 drachmas (\$141,058,000), compared with 13,275,-

531,000 drachmas (\$171,254,000) in 1929, while exports totaled 5,918,406,000 drachmas (\$76,939,000), compared with 6,985,196,000 drachmas (\$90,109,000) in 1929. Wheat, textile materials, machinery, construction lumber, coal, and livestock were the principal imports in 1930. Values of the chief exports, in drachmas, were: Leaf tobacco, 3,382,004,000; currants, 782,451,000; wine, 212,630,000; raisins, 184,830,000.

The United States continued in 1930 its predominant position in the Greek import trade, furnishing 15.3 per cent of the total. Imports in 1931 were valued at 8,825,496,000 drachmas and exports at 4,200,007,000 drachmas, according to preliminary figures, representing declines of 16 and 30 per cent, respectively, from 1930.

**FINANCE.** Preliminary data on budget operations for the fiscal year ended Mar. 30, 1931, showed an increase in both receipts and expenditures over the preceding year, with a surplus indicated for both years. According to the General Accounting Office, revenues in millions of drachmas (drachma equals \$0.013) were as follows, with comparative figures for 1929-30 in parentheses: Estimated, 11,166 (18,271, including 8190 as proceeds of loans added in March); verified, 12,646 (19,851); collected, 10,766 (9995). Expenditures were as follows: Allotments, 12,312 (10,608); obligations undertaken, 12,171 (10,342); expenditures authorized, 8540 (7563). The public debt, including the railway debt, stood at 40,838,000,000 drachmas (\$530,894,000) on Dec. 31, 1930. The external debt of about 26,642,000,000 drachmas included \$31,730,000 owing to the United States government. For the fiscal year 1931-32, revenues were estimated at 10,240,000,000 drachmas (\$133,120,000) and expenditures at 10,234,000,000 drachmas (\$133,042,000). About 38 per cent of the estimated revenues were allotted for service of the debt.

**COMMUNICATIONS.** In 1930, there were about 1600 miles of railway lines, of which 830 miles were operated by the Government. Highways extended about 6680 miles and were mostly of the graded earth or gravel type. Six international air lines used Greece as a transit station between western Europe and the Near and Far East. Vessels in the foreign trade entering Greek ports in 1930 numbered 3358, of 5,299,000 net registered tons capacity; clearances, 2323 vessels, of 4,205,000 tons.

**GOVERNMENT.** The Republic of Greece was established by a plebiscite on Apr. 13, 1924. The constitution, published on Sept. 22, 1926, was revised by the Chamber elected on Nov. 7, 1926. The new Constitution proclaimed on June 3, 1927, provides, among other things, that a second House (Senate) consisting of 120 members shall be established, that the Chamber of 250 members shall be elected by direct, universal, and secret voting, and that the Senate shall be elected partly by the people, partly by the Chamber and Senate in a joint meeting, and partly by the corporations of the different professions. President in 1931, Alexander Zaimis (elected Dec. 14, 1929). The Cabinet was composed at the beginning of 1931 in part as follows: Premier, Minister of Health, and Minister of Air, Eleutherios Venizelos; Foreign Affairs, Andreas Michalakopoulos; War, M. Katschakis; Marine, P. Argyropoulos; Interior, M. Karapanagiotis; National Economy, P. Vourloumis; Justice, M. Avraam; Finance, George Maris. The standing of the parties in the

Chamber elected Aug. 19, 1928, was: Republican parties, 227 (186 Venizelist Liberals); Royalist Popular party, 22; Metaxists, 1.

### HISTORY

Premier Venizelos remained firmly in the saddle in Greece during 1931 and except for minor incidents the internal political situation was relatively undisturbed. Animosity between the veteran Premier and former Premier Kaphandaris flared up in the Chamber in June when the latter attacked the Government's bill for censorship of the press. The 67-year-old Premier declared that only the dignity of his office prevented him from boxing M. Kaphandaris's ears. Efforts of a "court of honor," composed of members of various parties, failed to reconcile the pair and M. Kaphandaris on June 18 announced that he and his followers, forming the Progressive wing of the Liberal party, would absent themselves indefinitely from Parliament as a protest against Government repression. The incident aroused fears among Venizelist adherents that his health would not permit him to remain in office long.

Other internal developments included an anti-Jewish outbreak at Saloniki in July, which was quickly repressed by the Government; the increase in Communist propaganda, followed by the Government's decision to deport several hundred Communist prisoners to an uninhabited island; and riotous demonstrations during October and November in favor of the union of Cyprus and Greece, which followed the anti-British outbreak by the Greek inhabitants of Cyprus (q.v.). The new Athens water-supply system, supplementing the aqueduct constructed in the time of the Emperor Hadrian, was placed in operation in June, 1931. The abandonment of the gold standard by Great Britain in September forced the Greek government to take measures to protect the drachma. On September 28, a law became effective vesting in the Bank of Greece a monopoly on all foreign-exchange transactions, and providing that all deposits in Greece could be withdrawn only in drachmas. At the same time the discount rate of the Bank of Greece was raised from 9 to 12 per cent. The exchange rate of the drachma continued at \$0.0129 for the balance of the year.

**REFUGEE COMMISSION DISSOLVED.** The dissolution of the Refugee Settlement Commission on Dec. 31, 1930, left the Government with the responsibility of bringing to a close the important task assumed by the commission seven years earlier. The settlement work on behalf of Greek refugees from Turkey, however, had been almost completed. The commission had settled 145,000 refugee families on farm land and 25,000 families in urban areas at a total cost of \$65,124,000, or about \$384 per family. Up to July 31, 1930, about 1,016,000 acres had been distributed to refugee families, together with 66,048 houses built by the commission and the Government. A total of 63,886 houses previously belonging to exchanged Turks and Bulgarians, also were repaired and distributed to refugees.

**FOREIGN AFFAIRS.** In the field of foreign relations, the year was marked by the visit to Athens on October 3 of Premier Ismet Pasha and Foreign Minister Tewfik Rushdi Bey of Turkey, to exchange ratifications of the treaty of friendship and neutrality signed in 1930. The Turkish officials were welcomed with enthusiasm in

Athens, a circumstance which furthered the hope that peace between the two countries was at last assured, after nearly 600 years of strife. Relations with Bulgaria were strained as a result of several irritating incidents. On February 5, Greece renounced her trade convention with Bulgaria. During January and February there was a renewal of frontier clashes, causing the British, French, and Italian governments to exert pressure for a peaceful solution of the dispute on both Greece and Bulgaria. The Greek government reiterated its willingness to arbitrate the dispute, but the offer was not accepted by Bulgaria. In July a new dispute arose, when Greece, while refusing to accept the Hoover moratorium proposal in its original form, refused to pay Bulgaria sums due under an agreement for the exchange of nationals between the two countries. The justification advanced was that it would be unfair for Greece to discharge her obligation, while Bulgaria was freed from war reparation payments by the moratorium. For the Balkan Conference, see **TURKEY** under *History*; also see **BULGARIA**.

Consult William Miller, "Greece and Her Neighbors," *Foreign Affairs*, April, 1931.

**GREEK STUDIES.** See **PHILOLOGY**, **CLASSICAL**.

**GREENLAND.** Exceeded in size only by Australia among the islands of the world, Greenland is situated in the North Atlantic to the north and east of Canada. The total area is estimated at 839,782 square miles and the population in 1930 of the settled area (46,740 square miles) was 15,645, including 192 Europeans, mostly Danes. The settled area along the southern coast, which constitutes the only Danish colonial possession, is divided into the provinces of North, South, and East Greenland, with 6638, 8186, and 821 inhabitants, respectively.

Julianehaab, with 3532 inhabitants, is the largest settlement. Godthaab and Godhavn are the centres of administration for South and North Greenland, respectively. Trade, which is chiefly in seals, sealskins, fox skins, and oil, is a monopoly of the Danish Government. In 1928, imports totaled 2,707,000 kronor; exports, 8,864,000 kronor (1 krone equals \$0.267 at par). The budget for 1929-30 balanced at 4,190,000 kronor. Administration of the colony is in the hands of a director, who resides in Copenhagen. Director in 1931, J. Daugaard-Jensen.

**HISTORY.** The long-pending dispute between Denmark and Norway over the ownership of that part of East Greenland north of the Scoresby Sound region came to a head in 1931 and was submitted by Denmark to the Permanent Court of International Justice for adjudication. The more recent history of the dispute goes back to 1917 when Denmark proclaimed the extension of her sovereignty over the entire island. The claim was never recognized by Norway.

In 1930, British and German expeditions visited Eastern and Central Greenland to study the feasibility of transatlantic air routes via the Faroe Islands, Iceland, and Greenland. During June, 1931, a Danish expedition of 60 men under Dr. Lauge Koch sailed for Greenland with the reported object of pursuing scientific studies and establishing Danish authority throughout the region under dispute. Before the expedition reached Greenland, however, five Norwegian hunters at Myggbutka laid claim in the name of King Haakon to the territory under dispute.



The Norwegian Government supported the action of the hunters by formally proclaiming on July 10 its annexation of the coast between 71 degrees 30 minutes and 75 degrees 40 minutes North Latitude. Foreign Minister Graadland explained that this action was "purely technical" and was taken with a view to "future proceedings at The Hague."

Earlier in the year Denmark had proposed the submission of the dispute to the Permanent Court of Arbitration at The Hague. Norway held out for definite assurance that the Danes would recognize Norwegian sovereignty over certain areas in the event the arbitral decision upheld Norway's contention that the disputed territory was as yet "no man's land." This Denmark refused to do. Upon the Norwegian proclamation of annexation, Denmark, on July 13, formally submitted the case to the World Court with the request that the proclamation be declared null and void. See **WORLD COURT**. On Aug. 20, 1931, the Icelandic Parliament intervened in the dispute by authorizing the Cabinet to safeguard Iceland's claims to Greenland in connection with the Danish-Norwegian litigation before the World Court.

Returning to Copenhagen on September 8, Dr. Koch reported the discovery of coal in Vochstetter foreland, part of the territory occupied by Norwegians. He said his search for petroleum had been unsuccessful. The expedition built two main stations and two sub-stations where 61 scientists were to spend three years in geographic and geological investigation. A second Danish expedition under Dr. Knud Rasmussen investigated the coast for 2500 miles between the Greenland fjords of Julianehaab and Angmagssalik.

A Norwegian survey and exploration party under Dr. Adolf Hoel also visited East Greenland during the summer and two Norwegian students, Mehren and Hoygaard, crossed the ice cap by dog team from Umanak on the east to the west coast, a distance of about 1000 miles. See **POLAR RESEARCH**.

**GREENLAW, EDWIN**. An American philologist, died in Chapel Hill, N. C., Sept. 10, 1931. He was born in Flora, Ill., Apr. 6, 1874, and was graduated from Northwestern University in 1897, receiving the Ph.D. degree from Harvard in 1904. He became professor of English at Adelphi College, Brooklyn, N. Y., in 1905 and at the University of North Carolina in 1913, serving also at the latter institution as editor of *Studies in Philology* (a quarterly) during 1915-25 and as dean of the graduate school during 1920-25. At the time of his death he was William Osler professor of English literature and director of the English Seminar at the Johns Hopkins University. His works include: *Spenser and the Earl of Leicester* (1910); *A Syllabus of English Literature* (1912); *An Outline of the Literature of the English Renaissance* (1916); and *Builders of Democracy* (1918).

**GREIFFENHAGEN**, gri'fen-hä'gen, MAURICE. A British painter and illustrator, died in London, Dec. 27, 1931, aged 69. He received his art education at the Royal Academy, entering its classes at the age of 16. His painting was characterized by strong, emphatic line and tapestry-like beauty of color. He exhibited abroad on many occasions, his work being well known in the United States through its frequent appearance at the Carnegie Institute, Pittsburgh. He received gold medals at Munich (1897) and Dresden

(1901). In 1906 he was appointed head master of the life department of the Glasgow School of Arts. He was elected an associate of the Royal Academy in 1916 and a fellow in 1922. The University of Glasgow conferred on him the LL.D. degree in 1926. Among his pictures in permanent collections are: "The Idyll," in the Walker Art Gallery, Liverpool; "The Judgment of Paris," in the Sydney (Australia) National Gallery; "Portrait of Mrs. M. G.," in the Carnegie Institute, Pittsburgh; "The Sons of God Saw the Daughters of Men That They Were Fair," in the Municipal Museum, Ghent, Belgium. The Royal Academy purchased, with the Chantrey bequest, "Women by a Lake" in 1914 and "Dawn" in 1926. He also designed the historical panels for the Paris and Dunedin exhibitions of 1925.

**GRENADA**, gre-ná'dà. An insular possession of Great Britain in the Windward group of the West Indies. Area, 133 square miles; population at the census of 1921, 66,302; estimated Jan. 1, 1930, at 75,867. Grenada includes half the Grenadine Islands, the other half being administered from St. Vincent. The capital is St. George with a population of about 5000. The chief products, which are also the chief exports, are cacao, sugar, spices, lime juice, and cotton. The colony is under the Governor of the Windward Islands, whose headquarters are at St. George, but has its own institutions. By an Order in Council (1931) women over 30 years of age possessing the necessary qualifications became eligible for election to the Legislative Council. Colonial Secretary for Grenada in 1931, H. R. R. Blood. See **WINDWARD ISLANDS**.

**GRETA GARBO**. See **MOTION PICTURES**.

**GRINNELL COLLEGE**. A coeducational, non-sectarian institution of higher learning in Grinnell, Iowa., founded in 1846. The enrollment for the autumn of 1931 was 686, while that for the summer session was 110. There were 65 faculty members. The productive funds amounted to \$2,063,405, and the income for the year, exclusive of dormitories, was \$335,000. The library contained 85,000 volumes. President, John Scholte Nollen, Ph.D., LL.D.

**GROTIUS MEMORIAL**. See **INTERNATIONAL LAW**.

**GROTON HEIGHTS, CONNECTICUT, BATTLE OF**. See **CELEBRATIONS**.

**GRUBB, SIR HOWARD**. An Irish astronomical instrument maker, died Sept. 16, 1931, in Dublin where he was born July 28, 1844. After attending Trinity College, Dublin, he became associated with his father, Thomas Grubb, the famous optician, to whose business he succeeded in 1868. He also established a manufactory in Dublin for astronomical instruments and instruments of precision and constructed a large number of telescopes, including those for the University of Oxford and the observatories at Greenwich, Potsdam, Vienna, and Johannesburg. He introduced many improvements in the mounting and control of astronomical telescopes and in the construction and regulation of their driving clocks. In 1881 he received the Cunningham gold medal and in 1912 the Boyle medal. Knighthood was conferred on him in 1887.

**GUADELOUPE**, ga'dà-loop'. A French insular possession in the Lesser Antilles in the West Indies, consisting of two islands separated by a narrow channel, the one on the west being Guadeloupe proper or Basse-Terre, and the one on the east, Grande-Terre. Total area, including five

small dependent islands, 688 square miles; population in 1926, 243,243. Basse-Terre is the capital, with a population of 7379; chief town and port, Pointe-à-Pitre, with 26,455 inhabitants.

**GUAM**, gwām. An insular possession of the United States, situated at the southern end of the Mariana, or Marianne, Islands in mid-Pacific about 1500 miles from Manila and 5053 miles from San Francisco. The largest and most populous island of the Mariana group, it has an area of 210 square miles. The native population in 1931 was 19,611, as compared with 9675 in 1901. Including the military establishment, the 1930 census population was 18,509. Capital, Agaña, with about 8500 inhabitants.

The public-school registration in 1931 averaged 3491 pupils. Education is compulsory between the ages of 7 and 12. Spanish and English are spoken in addition to the native Chamorro. Cacao, coffee, copra, corn, rice, sugar, sweet potatoes, and timber are the chief products of the island, but only copra and coconut oil are exported. The trade of the island is principally with the United States and Manila. For the year ended June 30, 1931, imports totaled \$541,939 and exports, \$130,588.

Guam is a United States naval station, of which the governor, who is appointed by the President, is commander. Medical care for the entire population is provided by the Navy. Commander Willis W. Bradley, U. S. N., was relieved as Governor on May 15, 1931, by Capt. E. S. Root, U. S. N. It was reported in June, 1931, that the naval personnel and equipment at Guam would be reduced to a minimum basis required for the civilian government in connection with the Government's naval-economy programme. The upkeep of the garrison of marines, a shore naval force, a squadron of airplanes, and various equipment maintained on the island cost approximately \$750,000 annually.

**GUATEMALA**, gwä'tä-mälä. A republic of Central America lying between the Caribbean Sea and the Pacific Ocean, south of Mexico, west of British Honduras, and north and west of Salvador and Honduras. Capital, Guatemala City.

**AREA AND POPULATION.** Guatemala has an approximate area of 42,364 square miles. The population totaled 2,004,900 at the census of 1921 and was estimated at 2,163,546 in 1930. About 60 per cent are pure Indian, the remainder being largely mestizos. The chief cities, with their populations in 1928, were: Guatemala City, 120,707; Quezaltenango, 30,125; Cobán, 26,774; and Escuintla, 21,840.

**EDUCATION.** About 80 per cent of the population are illiterate. The school age is nominally from 5 to 17 years. The total number between these ages in 1921 was 577,568, and in 1930 the total school enrollment was 119,228, with an average attendance of 94,047. For 1929-30, there were 3188 primary schools, with an enrollment of 88,846. The University of Guatemala was established in 1910.

**PRODUCTION.** Agriculture is the principal industry and coffee is the chief crop cultivated, furnishing about 80 per cent of the value of all exports. Sugar and bananas are other leading export crops, while wheat, corn, potatoes, and rice are produced for domestic consumption. The continued decline in the world price of coffee led to a depression in the middle of 1929 which grew worse during 1930 and 1931. The 1930-31 coffee

crop totaled 91,776,000 pounds, compared with 107,868,000 pounds in 1929-30, while the 1931-32 crop was estimated at 10 to 15 per cent lower than that of the previous year. Banana exports, which totaled 8,424,000 stems in 1929 and 4,874,000 stems in 1930, declined another 10 per cent in 1931. Production of refined sugar was estimated at 40,000,000 pounds in 1930 (47,164,000 in 1929). In June, 1931, a five-year agreement to limit sugar production to the domestic consumption was reached among sugar producers. Livestock in 1930 included 416,000 cattle, 63,000 horses, 184,000 sheep, and 79,000 swine. There are about 1,316,000 acres of forests, from which hardwoods and chicle are exported. Gold, lead, and mica are the only minerals produced in commercially important quantities, although some chromium and silver are produced, and copper, zinc, coal, salt, and marble are said to exist. Industrial establishments are confined chiefly to coffee-cleaning plants and sugar mills.

**COMMERCE.** General imports declined sharply in 1930 to \$16,474,000 from \$30,399,000 in 1929, while exports of Guatemalan products receded only slightly to \$23,578,000 from \$24,928,000 in 1929. The imports included the value of parcel-post trade. The United States supplied nearly 60 per cent of the total overseas imports in 1930, or \$7,631,000 (\$13,540,000 in 1929), while Germany occupied second place, with 13 per cent, or \$1,641,000 (\$3,365,000 in 1929). The United States purchased 39 per cent of the total exports, as against 46 per cent in 1929, while Germany, in second place, took 35 per cent as against 40 per cent in 1929. The value of coffee exports in 1930 was \$18,936,000; of bananas, \$2,437,000. Cotton fabrics, machinery and tools, iron and steel, wheat, flour, and railway supplies were the leading imports. A further considerable decrease in both exports and imports was registered in 1931.

**FINANCE.** According to a report of the Minister of Finance ordinary budgetary revenues and expenditures in the fiscal year ended June 30, 1930, totaled 13,426,739 quetzales and 14,342,812 quetzales, respectively—a deficit of 916,073 quetzales resulting (quetzal equals \$1 at par). In the latter part of 1930 the financial position of the government became more and more difficult, and near the end of the year the accumulated deficit was reported to total around 3,600,000 quetzales. Government salaries and obligations to commercial houses were in arrears. The expenditure budget for the 1931-32 fiscal year was fixed at 12,272,305 quetzales by an executive decree of June 22, 1931. The appropriation for service of the public debt, or 3,329,100 quetzales, was the largest expenditure item.

The public debt increased during 1930, and according to the President's message of Mar. 1, 1931, total obligations of the Government on Dec. 31, 1930, amounted to 20,916,732 quetzales.

**COMMUNICATIONS.** The only railroad of importance is the International Railway of Central America, which during 1930 operated 509 miles of line within Guatemala, the gross receipts of which totaled \$4,859,000.

**GOVERNMENT.** The executive power is vested in the President elected for six years and legislative power, in the National Assembly, consisting of representatives elected for four years, and the Council of State of 13 members, part of whom are elected by the National Assembly and part appointed by the president. General Lázaro Chacón, elected President in December, 1926, for

a term expiring Mar. 15, 1933, was incapacitated by a cerebral hemorrhage on Dec. 12, 1930, and his government was overthrown by a revolution (see under *History*).

**HISTORY.** On the last day of December, 1930, the National Legislative Assembly had elected its president, José María Reyna Andrade, as first designate to the Presidency. In accordance with the Constitution, Dr. Reyna Andrade immediately assumed the vacant post of Provisional President, thus bringing to a close the constitutional crisis precipitated by Gen. Manuel Orellana's coup d'état of December 16 (see 1930 *YEAR BOOK*). General Orellana had been forced to resign December 30 by the refusal of the United States to recognize his régime. His action and the simultaneous resignation of the ill and incapacitated President Lázaro Chacón left the way open for a legal solution of the constitutional tangle.

The United States formally recognized Dr. Reyna Andrade as Provisional President on Jan. 8, 1931, following his announcement that Presidential elections would be called for February 6, 7, and 8. The other Central American republics followed the lead of the United States both in refusing to recognize Orellana and in extending recognition to the provisional régime of Dr. Reyna Andrade. They were bound by a treaty, which was adhered to by the United States, not to recognize governments which obtain power in that region by revolution. The recognition of the provisional régime was automatically extended to the government of Gen. Jorge Ubico, a leader of the Liberal Progressive party, who was elected President at elections held February 6-8. General Ubico, who was educated in the United States and Europe, was inducted into office February 14, to serve the six-year term beginning Mar. 15, 1931. His predecessor, Gen. Lázaro Chacón, died April 10 in New Orleans, where he had gone to receive treatment.

The increasing difficulty of the economic situation forced President Ubico to devote his attention primarily to remedial measures during the remainder of 1931. Under pressure from local manufacturers, the Legislative Assembly at the close of 1930 had adopted a selective policy of tariff protection, which increased the price of many articles of consumption, particularly food. To relieve the distress among the poorer classes, caused by price rises and income declines, the President on August 5 offered the use of all public lands for agricultural purposes. A single person was allowed to take up 6.9 acres and a married person 8.7 acres. Title to the property was withheld. Among other measures, the government in September imposed an additional tax of four cents a gallon on gasoline, raising the tax to nine cents a gallon. In the same month a state monopoly on cigarette paper was established. In May an agreement was concluded with a large foreign fruit company for the construction within seven years of a port on the south coast of Guatemala and a branch railway line, which would open up a large area of rich banana land. The treaty of arbitration and its additional convention, signed in Washington July 10, 1930, by representatives of Guatemala and Honduras for the purpose of settling the Guatemala-Honduras boundary dispute, was ratified by the National Congress of Honduras Feb. 25 and 26, 1931, and by the Legislative Assembly of Guatemala May 30, 1931. Ratifications were

exchanged by the Ministers of the two Republics at Washington, Oct. 15, 1931.

**GUGGENHEIM FELLOWSHIPS.** See *PAINTING; SCULPTURE*.

**GUIANA.** See under *DUTCH, BRITISH, FRENCH GUIANA*.

**GUNN, HUGH.** A British educator, died in London, Feb. 23, 1931. He was born in Rogart, Sutherlandshire, May 20, 1870, and attended Aberdeen and Edinburgh Universities. After serving in the Scottish Education Inspectorate from 1898 to 1901, he became Director of Education in the Orange River Colony, Union of South Africa, reorganizing the educational system of that state, rebuilding Grey College School, and founding Grey University College. In 1912 he accepted the call to organize the University of Western Australia in Perth. He served during the World War in the British Army and as liaison officer at the headquarters of the Ministries of Munitions, Pensions, and Labour. He was a member of the council of the Royal Colonial Institute and edited *The British Empire—A Survey* (12 vols., 1924).

**GYMNASTICS.** Although durable and agile Alfred Jochim, of the Swiss Turn Verein of New Jersey, won three individual championships at the national A.A.U. gymnastic meet held in March in Philadelphia, his teammate, Frank Haubold, captured the most important title of all—the all-around championship. Jochim won championships in calisthenics on the parallel bars and at the long horse, while Haubold won on the side horse. Chiefly through the brilliant work of these two gymnasts the New Jersey Swiss Turn Verein retained team title honors. Other champions who were crowned at the meet were James Nicoll, unattached, Indian clubs; Gustav Baack, Philadelphia Turngemeinde, rope climbing; Gustav Schmelcher, Philadelphia Turngemeinde, horizontal bar; William J. Hermann, jr., Penn. A.C., tumbling; and Arthur Gillmore, Twenty-Third St., Y.M.C.A., New York, flying rings. Herman Witzig of New York University again dominated intercollegiate competition, winning the all-around championship for the second consecutive year as well as individual honors on the horizontal and parallel bars. In annexing the all-around laurels he set a new high scoring record for the competition. Miss Roberta C. Ranck, of the Philadelphia Turngemeinde, dominated the women's national championships, capturing the all-around championship with ease.

**GYNANDROMORPHISM.** See *ZOOLOGY*.

**GYPSUM.** Production of gypsum in the United States in 1931 fell below the level for the preceding year, according to the U. S. Bureau of Mines, the quantity mined being 2,519,000 short tons, a decrease of 952,000 tons, or 27 per cent, compared with 1930. This production was less than that of any year since 1919. In 1931 plant prices were maintained at a fairly uniform figure compared to 1930, when the total value of the calcined and uncalcined gypsum sold by producers was \$27,051,484, a decrease of \$4,241,485, or 14 per cent, compared with 1929. The quantity of gypsum sold by producers without calcining in 1930 was 989,591 short tons, a decrease of 76,106 tons, or 7 per cent, compared with 1929, and was valued at \$1,886,254, or \$1.91 per ton, a decrease of \$210,525, or 10 per cent, in value and of 6 cents per ton; the quantity of calcined gypsum sold by producers was 2,191,376 tons, a decrease of 1,170,204 tons, or 35 per cent, and was valued

at \$25,165,230. This was a decrease of 14 per cent in total value compared with 1929.

The production of crude gypsum in New York in 1930 was 912,070 tons, a decrease of 29 per cent from that of 1929. This was 26 per cent of the entire quantity mined in the United States. New York marketed 275,294 tons without calcining, or 28 per cent of the United States total, and 573,802 tons calcined, or 26 per cent of the total. Other important States in the production of crude gypsum in 1930 were Michigan, 519,225 tons; Iowa, 481,047 tons; Texas, 359,315 tons; and Ohio, 255,337 tons. These five States reported 73 per cent of the total production of crude gypsum in 1930.

**HADRAMAUT**, THE. See ARABIA.

**HAGUE TRIBUNAL**. See ARBITRATION, INTERNATIONAL.

**HAITI**, hā'tē. A West Indian republic, comprising the western third of the island of Haiti, the other part forming the Dominican Republic, or Santo Domingo (see DOMINICAN REPUBLIC). Capital, Port au Prince.

**AREA AND POPULATION**. The area is estimated at 10,204 square miles; population, estimated in 1929 at 2,550,000, excluding 3000 foreign white residents and the military and naval forces of the United States. The capital, Port au Prince, had a population of approximately 80,000 in 1929, excluding suburbs; Cape Haitien, about 12,500; Aux Cayes, 12,500; Gonaives, 10,000; St. Marc, 8000; Jacmel, 7500. The inhabitants are Negroes and mulattoes. The language is a dialect known as Creole French.

**EDUCATION**. In 1929-30, there were 1190 schools, with 106,505 pupils enrolled, including about 10,000 in American-directed agricultural and vocational schools. Secondary education is provided by national lycées and by private institutions. The University of Haiti was established in 1921.

**PRODUCTION**. Predominantly agricultural, Haiti produces coffee, cotton, tobacco, logwood, sugar, and cacao for export. Prosperity is chiefly dependent upon coffee production and prices. Of total exports valued at \$14,124,000 in 1929-30, coffee was valued at \$10,406,000, and raw cotton, second in importance, was valued at \$2,071,000. Cotton exports in 1929-30 were 11,298,000 pounds; sugar production, about 18,907 long tons. One pineapple and six sisal plantations have been started in the Cape Haitien district. Mining is unimportant commercially and manufacturing is confined to the production of sugar, alcohol, rum, molasses, and other products for local consumption. For conditions in 1931, see under *History*.

**COMMERCE**. The total value of all imports during the fiscal year ended Sept. 30, 1931, was \$9,576,318, compared with \$12,841,626 in 1929-30 and with \$17,237,922 in 1928-29. Exports during 1930-31 were valued at \$8,963,418, compared with \$14,144,567 in 1929-30 and \$16,723,833 in 1928-29. The decline in imports in 1930-31 was 25 per cent and in exports 37 per cent, as compared with 1929-30. Coffee and cotton accounted for over 84 per cent of the total export values in 1929-30.

**FINANCE**. For the fiscal year ended Sept. 30, 1931, revenues totaled 31,746,582 gourdes, a decline of 6,901,581 gourdes, or 17.9 per cent, as compared with 1929-30 receipts (1 gourde equalled \$0.20). Expenditures amounted to 35,190,000 gourdes, a reduction of 4,453,159 gourdes,

or 10.9 per cent, from the previous year. The deficit of 4,443,488 gourdes, was more than twice the deficit of 1,995,066 gourdes reported for 1929-30. Total receipts in 1929-30 were 38,648,000 gourdes; expenditures, 40,543,000 gourdes. The gross public debt as of May 31, 1931, totaled 78,816,000 gourdes, compared with 83,652,000 gourdes on May 31, 1930, and 88,890,000 gourdes on the same date in 1929. The service of the debt in 1929-30 required 13,208,000 gourdes.

**COMMUNICATIONS**. In 1931, there were 158 miles of railway line, all privately owned. The National Railway of Haiti, with about 120 miles of line connecting Port au Prince with Verrieres and Cape Haitien, discontinued operations on July 1, 1931. At the beginning of 1931, there were 1072 miles of highway, mostly graded earth and gravel, which provided the most important means of transportation.

**GOVERNMENT**. The Constitution adopted June 12, 1918, provided for a national assembly, consisting of a senate and house of representatives. The National Assembly was elected for the first time on Oct. 14, 1930, legislative functions having been carried on in the interim by a council of state of 21 members appointed by the President. As amended in 1928, the Constitution vested executive power in a President elected for six years and ineligible for reelection. The President in 1931 was Sténio Vincent, elected Nov. 18, 1931, by the 36 Deputies and 15 Senators, sitting as a National Assembly. Under a treaty between the United States and Haiti concluded Sept. 16, 1915, the constabulary, finances, public health, public works, and agriculture of the Republic were supervised by American advisers appointed by the President of Haiti on recommendation of the President of the United States. The post of American High Commissioner was abolished in 1930, and most of the duties of that office were taken over by the newly appointed American Minister, Dr. Dana G. Munro.

### HISTORY

An important step toward the evacuation of Haiti, recommended in the report of the Forbes Commission (see 1930 YEAR BOOK), was taken in an agreement signed Aug. 5, 1931, between the American Minister and the Haitian Minister for Foreign Affairs. In accordance with the accord, the Haitian government on October 1 assumed full control of three of the five services reserved to American officials by the 1915 treaty, namely the Service of the Public Works, the Technical Service of Agriculture and Industrial Education, and the National Public Health Service. All American personnel was withdrawn from these services, with the exception of a scientific mission of three American naval officers and six hospital corps men, which retained control of the sanitation of Port au Prince and Cape Haitien.

The United States remained in control of the office of Financial Adviser-General Receiver and of the *Garde d'Haiti*, or gendarmerie. The agreement abolished the right of the American Legation to object to proposed Haitian legislation and of the Financial Adviser to hold up payments authorized by the Haitian Secretary of Finance. The land-title registry office was detached from the Financial Adviser and placed under the complete control of the Secretary of Finance. Moreover, it was indicated in a State Department memorandum issued at Washington Oct. 1, 1931, that American officers of the *Garde d'Haiti* would

be withdrawn as soon as trained Haitians were available to replace them, and that the replacement of all American officers was anticipated before the expiration of the 1915 treaty in May, 1936. Financial control was to continue during the life of the bonds of the Haitian government held by American investors. There were about 800 officers and men of the Marine Corps in Haiti in 1931.

The agreement of August 5 was preceded by increasing restlessness among the native population and demands for immediate American evacuation. The agitation was particularly aggressive in the Legislative Assembly but that body helped to delay negotiations for a settlement by overturning the Cabinet, as a result of a dispute as to jurisdiction. The new Cabinet, formed May 19, included Abel Leger as Minister of Foreign Relations; Emmanuel Rampy, Interior and Commerce; Ernest Douyon, Finance and Public Works; Trasybule Laleau, Justice; and A. Etienne, Education, Agriculture, and Labor. Foreign Minister Leger concluded the negotiations with Dr. Munro embodied in the accord of August 5. The agreement by no means satisfied the more extreme Haitian Nationalists, who attacked President Vincent for approving it. Their specific objections were: (1) That it involved continued subordination of the Haitian Minister of Finance to the American Financial Adviser; (2) that it permitted the American Legation to interfere in the execution of Haitian laws; (3) that it admitted the principle of American occupation of Haiti; (4) that the American sanitation commission was to be subsidized by the Haitian government, although maintained in the interest of Americans in Haiti; and (5) that the Haitian government, without legal authority, granted an indemnity to some 25 American officials in the three transferred services to compensate for their precipitate discharge.

Haitian nationalism found expression in the Cauvin Law, which would have imposed special taxes on foreign employees in Haiti, and a law prohibiting foreigners from engaging in certain lines of retail trade. Both measures were passed by the National Assembly, but vetoed by President Vincent in August and September, respectively. As much of the retail and wholesale business of Port au Prince and other cities was in the hands of Syrians and other foreigners, the proposal caused uncertainty among the business community and made even more acute the effects of the economic depression. Other proposals for limiting the hours of work, fixing minimum wage scales, and introducing profit-sharing systems, had a similar effect. The severity of the economic crisis, due chiefly to the sub-normal coffee crop of 1929-30 and the low prices received, was evidenced in the closing down of the National Railway of Haiti July 1, and the suspension of operations by the pineapple plantation and canning factory and by five of the six sisal plantations during the last half of 1931.

**HAMAGUCHI, YUKO.** A Japanese statesman, died in Tokyo Aug. 25, 1931. He was born in Kochi-ken in 1870, the son of a small landed proprietor named Minakuchi. At the age of 19 he was married to a daughter of the prominent and wealthy house of Hamaguchi whose name he thereafter bore. In 1895 he was graduated in law from the Imperial Tokyo University, and after several years practice became in 1907 director of the Tobacco Monopoly Bureau. He

was appointed Vice Minister of Communications in 1912 and Vice Minister of Finance in 1914-15. After serving for several sessions as representative of his native province of Tosa in the Lower House of Parliament, he was appointed Minister of Finance in 1924 in the Kato ministry and Minister of Home Affairs in 1927 in the Wakatsuki ministry. He became Prime Minister in July, 1929, and, as president of the Minseito or Liberal party, was head of the first real party ministry Japan had known. Following the London Naval Conference, there was considerable opposition to the government's stand on ratification of the Naval Treaty by the Supreme Military Council and others, and on Nov. 14, 1930, an attempted assassination of Premier Hamaguchi was made by a misguided "patriot," a member of the Aikokusha (Love of Country Association). He recovered from his serious wound but was forced to resign his office in April, 1931, after a relapse.

**HAMBURG, STATE AND FREE CITY OF.** A constituent republic of the German Reich, the State and Free City of Hamburg has an area of 160 square miles; the population (on Oct. 10, 1929) was 1,226,111, of whom 1,143,079 resided in the City of Hamburg and 83,032 in Landgebiet. Estimated budget receipts (ordinary) for 1930 were 378,884,880 Reichsmarks; expenditures, 394,567,044 Reichsmarks (1 Reichsmark equals \$0.2382 at par). The extraordinary budget balanced at 25,753,300 Reichsmarks. Hamburg is the chief seaport of Germany; in 1929, 18,175 vessels of 21,965,410 tons entered and 20,798 of 22,134,875 tons cleared. The Constitution of Jan. 7, 1921, vests supreme power in the House of Burgesses of 160 members, which delegates executive authority to a Senate of 16 members. The elections of Feb. 19, 1928, returned 60 Social Democrats, 27 Communists, 22 German Nationalists, 21 Democrats, 20 German People's party members, 2 Centrists, and 8 others to the House of Burgesses. See GERMANY.

**HAMILTON COLLEGE.** A nonsectarian institution for the higher education of men in Clinton, N. Y., founded in 1812. A total of 451 students was registered for the 1931 autumn session. There were 44 members of the faculty for the year 1931-32. The productive funds of the college were approximately \$4,182,000 and the income for the year 1930-31 was \$395,860. The library contained 142,214 volumes and 31,000 pamphlets. President, Frederick C. Ferry, Ph.D., Sc.D., LL.D.

**HAMPTON INSTITUTE.** An institution founded in 1868 in Hampton, Va., for the education of Negroes. The enrollment for the autumn term of 1931 was 1087, while that for the summer school was 1055. The faculty numbered 159. The endowment for the fiscal year ending June 30, 1931, was \$9,464,310 from which the income was \$464,966. Gifts to the endowment and investment funds amounted to \$211,344. There were 78,464 volumes in the library. A school of nursing and a new practice school, the George P. Phenix School, were opened in 1931. President, Arthur Howe.

**HANDBALL.** For the third consecutive year, Al Banuet of San Francisco was the outstanding figure in handball in 1931. In March at Minneapolis Banuet faced a strong field in the national four wall singles and successfully played through to his third straight title. In the final he defeated George Nelson of Baltimore 21-13,



12-11. Strong as he was in the singles, however, he was unable to again capture the doubles title. Paired with Barney McGettigan, the champion was defeated in the final by Herman Dworman and Joe Bathe of Detroit, 21-8, 19-21, 21-9. Cy Alexander of Brooklyn won the national one-wall soft ball championship and A. Aiello and J. Seaman, also of the Trinity Club, Brooklyn, captured the doubles title. The national four-wall hard ball singles was won by Eric Peet of Brooklyn and G. Morabit teamed with M. Fitzgibbon to take the doubles. Angelo Trulio of the New York Athletic Club won the national junior four-wall singles and with William Barry captured the doubles championship.

**HARBORS.** See PORTS AND HARBORS.

**HARE, HOBART AMORY.** An American physician, died June 15, 1931, in Philadelphia, Pa., where he was born Sept. 20, 1862. He received the M.D. degree in 1884 from the University of Pennsylvania, where he was professor of children's diseases in 1890. In 1891 he was called to Jefferson Medical College as professor of therapeutics and diagnosis, remaining there until his retirement in 1927. He also edited the *Therapeutic Gazette* during this period. He wrote *Practical Therapeutics* (1890; 20th ed., 1927); *Practical Diagnosis* (1896); and *Practice of Medicine* (1907).

**HARMSWORTH TROPHY.** See MOTORBOATS.

**HARNESS RACING.** See RACING.

**HARRIS, FRANK.** A British author, critic, and editor, died in Nice, France, Aug. 26, 1931. Born Feb. 14, 1856, he ran away from school at the age of 15 and went to New York City where he found occupation as a bootblack and then as a sandhog during the construction of Brooklyn Bridge. He lived in the United States until 1878, part of which time he was a cowboy in the Middle West. He also studied law at the University of Kansas and was admitted to the bar of that State. Returning to Europe, he completed his education at different German and French universities. He edited successfully, the *Fortnightly Review*, the *Saturday Review*, the *Candid Friend*, and *Vanity Fair*, and was credited with "discovering" Bernard Shaw and Max Beerbohm, the latter of whom he turned from musical to dramatic criticism, succeeding Shaw as dramatic critic for the *Saturday Review*. In 1913 he returned to the United States to lecture, and for a short time edited *Pearson's Magazine*. His pro-German sympathies in this magazine later prevented his revisiting England. Harris's short stories, among which are *Elder Conklin* (1894), *Montes the Matador* (1900), and *The Yellow Ticket and Other Stories* (1914), are strong, impressive, and carefully constructed. Moreover, their wide removal from conventionality of motive, sentiment, and point of view give them, with their ironic and sardonic tendency, a genuine distinction. In 1885-86 his investigation of the Chicago labor troubles (which culminated in the Haymarket Square Riot) led him to a belief in the innocence of all but one of the Socialists executed as participants in a conspiracy, and in his vivid and impassioned realistic novel, *The Bomb* (1908), he presented a transcript of that tragic occurrence. In 1909 appeared *The Man Shakespeare* and in 1911 *The Women of Shakespeare*, both of which were valued by scholars as discriminating appreciations. Among his later works are: *Oscar Wilde, His Life and Confessions* (1920); *Contemporary Portraits* (1915,

1921, 1923, 1924, 1930); *Undreamed of Shores* (1924); *My Life* (4 vols., 1926); *On the Trail: My Reminiscences as a Cowboy* (1930); and *Life of Bernard Shaw* (posthumous, 1931, the proofs of this rather unflattering portrait having been read by Shaw himself). His plays include *Mr. and Mrs. Davenport* (1900) and *Shakespeare and His Love* (1910).

**HARRISON, MARY ST. LEGER** (pen-name, LUCAS MALET). A British author, died in Tenby, Pembrokeshire, Oct. 28, 1931. She was born at Eversley rectory, younger daughter of Charles Kingsley, the poet and novelist, and was educated at University College, London. In 1870 she was married to William Harrison, a young clergyman in whom her father had been much interested, and afterward settled at Clovelly in Devonshire, amid the scenes of her father's boyhood. Her husband died in 1897, after which she visited the continent, America, and India in search of health. Her popular novels of English life were written with an ethical purpose and were marked by a realism that was original and intellectually honest in its treatment. Among these are: *Mrs. Lorimer* (1882); *Colonel Enderby's Wife* (1885); *The Wages of Sin* (1891); *The Carissima, a Modern Grotesque* (1896); *The Gateless Barrier* (1900); *History of Sir Richard Calmady* (1901); *The Far Horizon* (1906); *The Score* (1909); *Adrian Savage* (1911); *Damaris* (1916); *The Survivors* (1923); and *The Dogs of Want* (1924).

**HART, EDWARD.** An American chemist, died in Easton, Pa., June 6, 1931. He was born in Doylestown, Pa., Nov. 18, 1854, and was graduated from Lafayette College in 1874 and with the Ph.D. degree from Johns Hopkins University in 1878. He was successively assistant and tutor in chemistry at Lafayette College (1874-76), adjunct professor (1876-82), and professor (1882-1924), and was also dean of the Pardee scientific department of that institution from 1909 until his retirement. As president of the Baker & Adamson Chemical Co. from 1881 to 1913, he interested himself in applied chemistry and took out ten chemical patents, for one of which, a ceresine bottle for containing hydrofluoric acid, he received the John Scott Medal and premium awarded by the Franklin Institute. He had also been proprietor of the Chemical Publishing Company since 1892 and had edited the *Journal of Analytical and Applied Chemistry* from 1887 to 1893 and the *Journal of the American Chemical Society* from 1893 to 1901. His works include *Volumetric Analysis* (1876); *Chemistry for Beginners* (1896); *Second Year Chemistry* (1905); *Text Book of Chemical Engineering* (1920); and *The Silica Gel Pseudomorph* (1924).

**HARVARD UNIVERSITY.** A nonsectarian institution of higher education for men in Cambridge, Mass., founded in 1636. The number of students enrolled for the year 1931-32 was 8530, distributed as follows: College, 3266, including 628 seniors, 720 juniors, 879 sophomores, 967 freshmen, and 72 out of course. Graduate schools: Arts and sciences, 1051; business administration, 1095; education, 339. Professional schools: Engineering (undergraduate and graduate), 293; theology, 47; law, 1595; medicine, 518; dentistry, 129; public health, 24; architecture, 74; landscape architecture, 53; city planning, 5; special students, 47. For the summer session of 1931, the registration was 2492. The officers of



instruction for 1931-32 numbered 1807, of whom 217 were professors, 95 associate professors, and 155 assistant professors.

Visiting professors and lecturers during the year included: Pierre Martino, professor of the French language and literature, and dean of the faculty of letters at the University of Algiers, who came as exchange professor from France for the second half-year; Sigurthur Nordal, professor of Icelandic literature at the University of Iceland at Reykjavik, who came as Charles Eliot Norton professor of poetry for the entire year; Friedrich von der Leyen, of the University of Cologne, who served as Kuno Francke professor of German art and culture for the academic year; Gottfried Haberler, *privat docent* in political economy at the University of Vienna, who came as lecturer on economics for the academic year; Arthur Kent Griffin, associate professor of classics at the University of King's College and Dalhousie University, Halifax, N. S., who came as lecturer on Greek and Latin for the academic year; David Mitrany, assistant European editor of the *Economic and Social History of the War* (Carnegie Endowment for International Peace), who came as lecturer on government for the academic year; Dr. Ernst Wolf, *privat docent* in the institute of zoology at the University of Heidelberg, who came to lecture on zoology; Lucius Chapin Porter, professor of philosophy at Yenching University, who was lecturer on Chinese philosophy for the first half-year.

The book value of endowment funds of the university in June, 1931, exclusive of land and buildings used for educational purposes, was \$117,204.250; and the total expenses for the year were \$13,466,991.

Building activity during the year included the completion of the Harvard House Plan, with five houses, Adams, Eliot, Kirkland, Leverett, and John Winthrop, being put into operation to join the first two units ready a year ago, Dunster and Lowell. Simultaneous with the opening of the House Plan, the freshman class was moved to the Yard, and began to take meals in the Harvard Union. The freshman year was reorganized under the direction of a dean of freshmen, subordinate to the dean of the college but charged with the coördination of the activities of the separate freshman year. Three new dormitory buildings, known as Wigglesworth Halls, and a new University Memorial Chapel, to commemorate the part taken by Harvard men in the World War, were completed in the Yard. The new School of Geographical Exploration began operation under the directorship of Dr. A. Hamilton Rice. The new biological laboratories building was completed and occupied by the departments of biological sciences. The library contained 3,165,400 volumes and pamphlets. President, Abbott Lawrence Lowell, LL.B., LL.D.

**HAVERFORD COLLEGE.** An institution of higher education under the control of the Society of Friends in Haverford, Pa., founded in 1833. Registration for the autumn term of 1931 totaled 312 students. There were 42 members on the faculty. The productive funds of the institution amounted to \$3,988,099 (book value). The library contained 122,860 volumes. President, William Wistar Comfort, Ph.D., Litt.D., LL.D.

**HAWAII,** hā-wī'ē. A territory of the United States, consisting of a group of islands in the north central Pacific Ocean 2089 miles southwest of San Francisco; formally annexed Aug. 12,

1898. With a total area of 6449 square miles, the islands had a population of 368,336 at the census of 1930, compared with 255,912 in 1920. The capital city, Honolulu, on the island of Oahu, had 137,582 inhabitants in 1930 (83,327 in 1920). Hilo, on the island of Hawaii, followed with 19,468 in 1930 (10,431 in 1920). Between 1920 and 1930 the population of the Territory increased 43.9 per cent; that of Honolulu, 65.1 per cent; and that of Hilo, 80.6 per cent.

The population of the nine inhabited islands in 1930, with the area in square miles in parentheses, was as follows: Oahu, 202,887 (598); Hawaii, 73,325 (4016); Maui, 48,756 (728); Kauai, 35,806 (547); Molokai, 5032 (261); Lanai, 2356 (139); Niihau, 136 (97); Midway, 36 (2.7); and Kahoolawe, 2 (69). The racial and national composition of the population in 1930 was: Japanese, 141,515; Filipino, 65,785; Portuguese, 30,609; Chinese, 25,968; Hawaiian, 21,106; Caucasian-Hawaiian, 17,164; Asiatic-Hawaiian, 10,903; Porto Rican, 7109; Korean, 6593; other Caucasian, 39,154; other, 515. Of the total 1930 population, 81.4 per cent were native born, as compared with 65.9 per cent in 1920. Foreign born who had not become naturalized or taken out first papers amounted to 16.9 per cent of the total population in 1930 as against 32 per cent in 1920. In 1930, there were 10,873 births and 3976 deaths, or a rate of 29.6 and 10.8, respectively. In the five years, 1925 through 1929, a total of 37,640 Filipinos migrated to Hawaii and 18,539 returned to the Philippines from Hawaii.

**EDUCATION.** During the fiscal year ended June 30, 1931, there were 76,634 pupils enrolled in public elementary and high schools, as against 73,180 in the previous year. Japanese constituted 54 per cent of the public school enrollment in 1929-30; in the same year there were 11,835 in private schools, and 2095 in the University of Hawaii. The 1931 Legislature authorized the development of the Territorial Normal School into a full four-year teachers' college affiliated with the University of Hawaii; it also provided for the reorganization of the department of public instruction. English is the language of instruction.

**PRODUCTION.** Agriculture and cattle raising are the leading industries and raw sugar and canned pineapples are the principal exports. Considerable quantities of molasses, fresh pineapples, bananas, honey, coffee, tallow, and beeswax are shipped annually, and rice, sisal, tobacco, and cotton are also grown. In 1930, there were 5942 farms on the islands, ranging from one on Niihau to 3422 on Hawaii. Large plantation companies control much of the land devoted to sugar and pineapples. Preliminary estimates placed the sugar crop for 1930-31 at about 993,787 short tons (924,463 short tons in 1929-30); pineapples, 13,000,000 cases of 24 cans each (12,672,000 cases in 1929-30); coffee, from 8,000,000 to 9,000,000 pounds (7,000,000 pounds in 1929-30). The chief manufacturing industries are sugar refining, pineapple canning, and the production of tin cans, iron and steel, machinery, batteries, and clothing.

**COMMERCE.** During 1930 Hawaii purchased goods valued at \$81,726,000 from the mainland of the United States and sold there in return Hawaiian products valued at \$98,924,000. Comparative figures for the previous year were \$82,951,000 and \$106,313,000, respectively. General

imports from other countries totaled \$9,487,000 in 1930 (\$9,753,000 in 1929) and general exports to other countries were \$1,992,000 (\$2,128,000 in 1929). In the fiscal year ended June 30, 1931, exports totaled \$108,439,103 and imports \$91,213,040.

**FINANCE.** For the fiscal year ended June 30, 1931, receipts of the Territorial Government totaled \$12,889,702 and expenditures \$11,895,693, as compared with revenues of \$12,530,357 and expenditures of \$11,666,956 in the previous year. The bonded debt was increased by \$295,000, making a total on June 30, 1931, of \$32,000,000. Customs receipts for 1930-31 were \$1,908,632 and internal-revenue receipts \$4,816,475.

**COMMUNICATIONS.** During the fiscal year 1929-30, a total of 1407 vessels of 10,807,000 tons called at Hawaiian ports, compared with 1321 ships of 10,142,000 tons in 1928-29. At Honolulu, there arrived 871 ships of 7,524,000 tons. All the principal islands are supplied with railways. Inter-island steamship and airplane services are maintained. A telephone service linking the larger islands and the mainland was installed in 1931.

**GOVERNMENT.** The Governor and Secretary of the Territory are appointed for four years by the President of the United States. There is a legislature of two houses, the Senate of 15 members, elected for four years, and the House of Representatives of 30 members, elected for two years. A delegate, elected biennially, represents the Territory in the Congress of the United States. Governor in 1931, Lawrence M. Judd, appointed in 1929; Secretary, Raymond C. Brown; delegate to Congress, Victor S. K. Houston.

**HISTORY.** Governor Judd at the end of the legislative session in May, 1931, vetoed a joint resolution of the Senate and House of Representatives requesting Congress to pass an enabling act authorizing the establishment of a state government. Laws passed by the Legislature created a board of prison directors with wide powers, and a board of hospitals and settlement to reorganize and administer the Kalaupapa leper settlement and the Kalihi receiving station. The Territorial budget for 1931-32 was reduced to just under \$9,000,000.

Tension between the naval and military personnel and the civilian population reached a serious stage toward the end of 1931, following a criminal assault by five natives on the wife of a young naval officer September 12 and the release of the defendants after a mistrial. On the night of December 13, Horace Ida, one of the defendants, was abducted and severely beaten by a mob in an effort to force a confession of his guilt. Ida asserted that the leader of the mob was a naval officer. Between December 12 and 18, six assaults were made on enlisted personnel in Honolulu, and on the latter date Rear Admiral Yates Stirling, Jr., commandant of the 14th Naval District, issued a statement to the effect that the trouble was "gradually dividing the people into two camps, the military being on one side and a large portion of the population on the other."

A survey of labor conditions in Hawaii, made by the Bureau of Labor Statistics of the U. S. Department of Labor in 1930, was published in 1931 as Bulletin No. 534 of the bureau and summarized in the *Monthly Labor Review* for April, 1931.

**HAY.** The hay crop of the United States in 1931 was the smallest since 1914 as a result

mainly of the low native or wild hay production due to severe drought in the northern Great Plains States where the acreage harvested is usually quite extensive and of the low yields of alfalfa hay in the Great Plains and Western States. Estimates by the U. S. Department of Agriculture placed the 1931 hay crop at 72,366,000 tons, compared with 74,214,000 tons in 1930 and 87,308,000 tons in 1929. The total acreage harvested in 1931 was 65,426,000 acres of which 53,449,000 acres was cultivated or tame hay, and 11,977,000 acres wild hay. The total value of the year's production as of December 1 was \$632,110,000. The 1931 production of tame hay was 64,233,000 tons at the rate of 1.2 tons per acre. At the average farm price of \$9.06 per ton on December 1, the lowest for many years, the value of the crop was \$581,833,000. The crop of wild hay for the year was 8,133,000 tons and the average yield per acre 0.68 of a ton. The average farm price on December 1 was only \$6.18 per ton giving a total value of \$50,277,000. The tame hay yield of 1931 was 1.2 per cent greater than in 1930 but 15.6 per cent smaller than in 1929, and the wild hay crop was 24.4 per cent less than in 1930 and 27.3 per cent less than in 1929.

The crops grown for tame hay production include alfalfa, clover, timothy, lespedeza or Japan clover, millet, Sudan grass; the annual legumes: soy beans, cowpeas, velvet beans and peanuts; and cereal grains. The production of alfalfa hay in 1931 owing to dry weather was reduced to 20,914,000 tons (see ALFALFA). The yield of clover and timothy hay, also lowered materially by drought, was 27,594,000 tons, of sweet clover hay 765,000 tons, of lespedeza 384,000 tons, of annual legume hay 4,420,000 tons, of grain crops cut for hay 4,645,000 tons and of hay of millet, Sudan grass and other miscellaneous crops 5,511,000 tons. The more southerly States produced 3,676,000 tons of sweet sorghum forage, used as a roughage for feeding live stock, which is not included here in the figures on tame hay production.

The enumeration of the leading producing States in 1931 indicates the general distribution of hay production by classes. The largest yields of tame hay by States were reported as follows: New York 5,288,000 tons, Wisconsin 3,833,000 tons, California 3,679,000 tons, Iowa 3,312,000 tons, Ohio 3,196,000 tons, Pennsylvania 3,154,000 tons and Missouri 2,784,000 tons. These States produced nearly 30 per cent of the total crop and harvested over 36 per cent of the total acreage. The production of wild hay made from marsh, salt and prairie grasses in the leading States was given as follows: Nebraska 1,532,000 tons, Minnesota 1,332,000 tons, South Dakota 884,000 tons, North Dakota 809,000 tons, Kansas 758,000 tons, and Oklahoma 399,000 tons. Nebraska led in area harvested with 2,786,000 acres, followed by Minnesota with 1,776,000 acres, South Dakota with 1,769,000 acres, and North Dakota 1,349,000 acres. These four States accounted for 70 per cent of the acreage of wild hay harvested. The clover and timothy hay crop exclusive of Japan clover and sweet clover hay was produced to the extent of nearly 72 per cent in nine eastern and northern Mississippi Valley States. The more important producing States and their yields were as follows: New York 4,158,000 tons, Wisconsin 2,847,000 tons, Pennsylvania 2,754,000 tons, Ohio 2,574,000 tons, Iowa 1,959,000 tons, and Missouri 1,730,000 tons.

In the production of sweet sorghum for forage and hay among 19 States reporting Texas ranked first with 997,000 tons, Kansas second with 990,000, and Oklahoma third with 388,000 tons. Among the seven States reporting Japan clover hay crops Tennessee produced 130,000 tons or over one-third of the total crop. Millet, Sudan grass, and other miscellaneous hay crops were grown in every State, the leading ones being New York producing 510,000 tons. Tennessee 333,000 tons and Kentucky 274,000 tons. Owing to the shortage of other hay and prospects of low grain yields, increased acreage of cereal crops were cut for hay in 1930 and 1931. The leading States and their production in 1931 were reported as follows: California 802,000 tons, Washington 600,000 tons, Oregon 516,000 tons, South Dakota 484,000 tons, and Montana 254,000 tons. Among 28 States reporting production of annual legume hay Illinois stood first with a yield of 577,000 tons, followed by Indiana with 525,000 tons, Missouri with 402,000 tons, North Carolina with 351,000 tons, and Alabama with 335,000 tons.

**HAYTI.** See **HAITI**.

**HEALY, TIMOTHY MICHAEL.** An Irish Nationalist leader and statesman, died in Dublin Mar. 26, 1931. He was born in Bantry, County Cork, May 17, 1855, and attended St. Colman's College of Fermoy. While a railroad clerk in Newcastle-upon-Tyne he associated himself with the "active" section of the old Home Rule party and gained the attention of the leader, Charles Stewart Parnell, to whom he was appointed secretary.

In 1880 he was elected member of Parliament for Wexford, and on delivering his maiden speech astounded the House of Commons by his belligerent attitude. Time and again he was dismissed from the House on account of his frank and often caustic remarks, but he was not deterred in his advocacy of home rule. In 1883 he was cited to appear before the Queen's Bench for the speeches he had made, and upon refusing to give bail was sentenced to a six months' imprisonment. From the first, however, he showed that he was one of the best-informed men in the House on matters pertaining to Irish political history, and succeeded in obtaining many important concessions in settling the Irish land question.

Healy's parliamentary career extended nearly 40 years. In 1891 he joined the opposition to Parnell. Nine years later, however, he was instrumental in reconciling both factions by the nomination of John Redmond as chairman of the Irish Nationalist party. He was called to the Irish bar in 1884, became Queen's Counsel in 1899, and received the compliment of a "special call" to the English bar in 1903. He was elected bencher of King's Inn, Dublin, in 1905 and bencher of Gray's Inn and King's Counsel in 1910. In 1922 he was appointed first Governor General of the Irish Free State, distinguishing himself during his five-year tenure as a wise and able representative of the Crown. In the opinion of many, his pen was even more effective than his tongue, his writing being characterized by mordant wit, happy illustration, and trenchant argument. He was the author of *Why There Is an Irish Land Question and an Irish Land League* (1881); *Loyalty Plus Murder* (1884); *A Word for Ireland* (1886); *Why Ireland Is Not Free* (1898); *Stolen Waters: A Page in the Conquest of Ulster* (1913); *The Great Fraud of*

*Ulster* (1917); and a final volume of reminiscences, *Leaders and Letters of My Day* (1928).

**HEIMWEHR.** See **AUSTRIA** under *History*.

**HEJAZ** or **HEDJAZ.** See **ARABIA**.

**HELIUM, LIQUEFACTION OF.** See **CHEMISTRY, INDUSTRIAL**.

**HEMMETER, JOHN CONRAD.** An American physician, died Feb. 25, 1931, in Baltimore, Md., where he was born Apr. 25, 1864. He was educated in Germany, at the Baltimore City College, the University of Maryland (M.D., 1884), and Johns Hopkins University (Ph.D., 1890). At the University of Maryland he was appointed professor of physiology, clinical professor of medicine, director of the physiological laboratory, and regent of the medical department. A specialist in diseases of the digestive organs, he was at one time president of the American Gastro-Enterologic Association and of the American Therapeutic Society, and at the time of his death was president of the American section of the International Association for the History of Medicine. He was also associate editor of several American and foreign medical journals and published, among other works, *Diseases of the Stomach* (1897); *Diseases of the Intestines* (2 vols., 1901); *Manual of Practical Physiology* (1912); and *Master Minds in Medicine—A History of the Evolution of Ideas in Medicine* (1927).

**HEMPHILL, REAR ADMIRAL JOSEPH NEWTON, U.S.N., RET.** An American naval officer, died in Washington, D. C., July 8, 1931. He was born in Ripley, Ohio, June 18, 1847, and was graduated from the U. S. Naval Academy in 1866. He was made captain in 1901 and rear admiral in 1906. During the Philippine insurrection he was in Manila, and was in Venezuela at the time of the Andrade-Castro revolution of 1900. He then became chief of staff of the North Atlantic fleet, commanding the Kearsarge (1902-04), captain of the New York Navy Yard (1904-06), president of the Board of Inspection and Survey (1906-07), commander of the Asiatic station and fleet (1907-08), and president of the Naval Examining and Retiring Boards (1908-09). He retired in 1909.

**HENRY, ALFRED JUDSON.** An American meteorologist, died in Washington, D. C., Oct. 5, 1931. He was born in New Bethlehem, Pa., Sept. 1, 1858, and attended Columbian (later George Washington) University. After serving in the meteorological section of the Signal Service of the U. S. Army, he became in 1895 chief of the division of meteorological records of the U. S. Weather Bureau. Five years later he was advanced to professor of meteorology, being in charge of river and flood work, and was also executive officer of the Mount Weather (Va.) Research Observatory during 1908-12. In 1917 he became senior and principal meteorologist, and after 1921 edited the *Monthly Weather Review*. His publications include *Climatology of the United States* (1906); *Weather Forecasting in the United States* (with others, 1916); and numerous bulletins published by the U. S. Weather Bureau.

**HENRY, SIR EDWARD RICHARD.** A British police commissioner and criminologist, died Feb. 20, 1931, in London where he was born July 26, 1850. He entered the Indian Civil Service as an assistant magistrate-collector in 1873 and was advanced to magistrate-collector in 1888, inspector-general of the police in Bengal in 1891,

and division commissioner in 1900. After being assigned to special duty in South Africa, he returned to England in 1901 to become assistant commissioner of the London metropolitan police and chief commissioner in 1903.

At Scotland Yard, of which he was superintendent, he introduced a finger-print system of identifying criminals which he had evolved as a result of observation and experiment in India. This system was later adopted in many countries. He was created a baronet on his resignation in 1918.

**HENRY, JOSEPH, ANNIVERSARY.** See CELEBRATIONS.

**HERCULANEUM.** See ARCHÆOLOGY.

**HEREDITY.** See ZOÖLOGY.

**HERFORD, CHARLES HAROLD.** A British scholar, died in London, Apr. 27, 1931. He was born in Manchester in 1853 and was educated at Trinity College, Cambridge, and in Berlin. He was appointed professor of English language and literature at University College, Aberystwyth, Wales, in 1887; lectured at Oxford in 1897 and at Johns Hopkins University and the University of Chicago in 1900; and became professor of English literature at the University of Manchester in 1906.

Painstaking scholarship appears in his contributions to the *Dictionary of National Biography* and in his *Studies in the Literary Relations of England and Germany in the Sixteenth Century* (1886); *The Age of Wordsworth* (1897); *English Tales in Verse* (1902); *Robert Browning* (1904); *Goethe* (1913); *Shakespeare's Treatment of Love and Marriage, and Other Essays* (1921); *Sketch of Shakespeare Investigation, 1893-1923* (1923); and *The Post-War Mind of Germany* (1926).

**HESSE, HES.** A constituent republic of the German Reich, with an area of 2968 square miles and a population at the census of 1925 of 1,347,279 (1,290,988 in 1919). Capital, Darmstadt. See GERMANY.

**HESSIAN FLY.** See ENTOMOLOGY, ECONOMIC.

**HETCH-HETCHY.** See AQUEDUCTS under San Francisco.

**HEWINS, WILLIAM ALBERT SAMUEL.** A British economist, died in London, Nov. 16, 1931. He was born near Wolverhampton, May 11, 1865, and attended Pembroke College, Oxford. He was director of the London School of Economics (1895-1903), taught modern economic history in the University of London (1902-03), and was Tooke professor of economic science and statistics at King's College, London (1897-1903). He was also a member of the Senate of the University of London (1900-03). In 1910 he contested the Shipley division of Yorkshire and southeast Lancashire in the Unionist interest, and in 1912 was elected to the House of Commons for north Herefordshire, serving until 1918. During 1917-19 he was Under-Secretary of State for the Colonies. He was one of the early advocates of Joseph Chamberlain's policy of imperial preferential tariffs, serving from 1903 to 1917 as secretary of the Tariff Commission. He wrote *English Trade and Finance in the Seventeenth Century* (1892); *Imperialism and Its Probable Effect on the Commercial Policy of the United Kingdom* (1901); *Trade in the Balance* (1924); *Empire Restored* (1927); and *The Apologia of an Imperialist* (1929).

**HICKSITE FRIENDS.** See FRIENDS.

**HIDES.** See LEATHER.

**HIGGINSON, REAR ADMIRAL FRANCIS JOHN,** U.S.N., RET. An American naval officer, died in Kingston, N. Y., Sept. 12, 1931. He was born in Boston, Mass., July 19, 1843. Graduating from the U. S. Naval Academy in 1861, he served throughout the Civil War, participating in the bombardments and passage of Forts Jackson and St. Philip, in the attack on the Chalmette batteries and the capture of New Orleans, and in the engagement at Fort Sumter.

During the Spanish-American War he commanded the *Massachusetts*, being promoted to commodore in 1898 and rear admiral in 1899. He served as chairman of the Lighthouse Board from 1898 to 1901, was commander-in-chief of the North Atlantic fleet from 1901 to 1903, and had charge of the Navy Yard at Washington from 1903 until his retirement in 1905. He published *Naval Battles in the Century* (1903).

**HIGH SCHOOLS.** See EDUCATION in THE UNITED STATES.

**HIGHWAYS.** See ROADS AND STREETS.

**HILL, SAMUEL.** An American lawyer, railroad executive, and financier, died in Portland, Ore., Feb. 26, 1931. He was born in Deep River, N. C., May 13, 1857, and was graduated from Haverford College in 1878 and Harvard in 1879. On admission to the bar the following year, he served successively as associate counsel of the St. Paul & Northern Pacific, the Minneapolis & St. Louis, and the St. Paul, Minneapolis & Manitoba. From 1890 to 1900 he was president for various periods of three subsidiaries of the Great Northern Railway, of which his father-in-law, James J. Hill, was president—the St. Paul, Minneapolis & Manitoba, the Eastern of Minnesota, and the Montana Central. He then became engaged in banking, acting as president of the Minneapolis Trust Company until 1903 and of the United States Trust Company, Seattle, Wash., after 1908.

During the World War, when the transportation of import shipments of war munitions for Russia across Siberia was badly congested, he acted for the Allied nations in restoring train service from Vladivostok to the northern battle front. He received decorations from the Governments of France, Belgium, Rumania, and Japan.

**HIMALAYA MOUNTAINS.** See EXPLORATION.

**HINKSON, KATHARINE TYNAN.** See TYNAN, KATHARINE.

**HIPERNIK.** See CHEMISTRY, INDUSTRIAL.

**HISPANIC SOCIETY OF AMERICA, THE.** An international organization founded in New York City in 1904 to establish a public library and museum designed to be a link between the English-, Spanish-, and Portuguese-speaking peoples, and to advance the study of the Spanish and Portuguese languages, literature, and history, and the study of the countries wherein Spanish and Portuguese are or have been spoken languages. Since 1904, when a collection of paintings, manuscripts, maps, and coins, and a library of about 40,000 volumes were placed in charge of the society, valuable additions have been made to this collection, and a number of temporary exhibitions have been held of the works of noted Hispanic artists. Membership of the society is limited to 100, is honorary, and includes specialists and scholars of all nationalities distinguished in the Hispanic field. The society has published more than 200 catalogues, reprints of old manuscripts, and monographs.

The president is Archer M. Huntington and the secretary, George Bird Grinnell. The museum and headquarters of the society are at 156th Street, West of Broadway, New York City.

#### HISTORICAL ASSOCIATION, AMERICAN.

A society for the promotion of historical studies and writings, formed in 1884 by a group of American scholars and chartered by Congress in 1889. Under provision made by the United States government, it publishes annual reports and is charged with the office of communicating its proceedings and its information on the state of historical study and writing to the secretary of the Smithsonian Institution, for transmission to Congress. In 1931 the Association had a membership of 3710, who represented not only every State of the Union but also Canada and many European and South American countries.

The forty-sixth annual meeting of the association was held in Minneapolis, Minn., Dec. 28-30, 1931. Among the general topics presented and discussed at the sessions were: "Nineteenth Century Liberalism"; "The Far East"; "The Byzantine Empire"; "Aspects of European Economic History"; "American Foreign Relations"; "Military and Diplomatic Aspects of the World War"; "Nineteenth Century England"; and "Missionary Activities in America."

The prizes awarded by the association in 1931 were as follows: Herbert Baxter Adams Prize, to Prof. Vernon J. Puryear of Albany College, Albany, Ore., for *England, Russia, and the Straits Question*; John H. Dunning Prize, to Francis B. Simkins and R. H. Woody, for *South Carolina during Reconstruction*; and George Louis Beer Prize, to O. J. Hale, assistant professor of history, University of Virginia, for *Germany and the Diplomatic Revolution: A Study in Diplomacy and the Press, 1904-1906*.

The official organ of the association is the *American Historical Review*, a quarterly. The *Annual Report* contains proceedings, important papers read at the annual meeting, texts of significant documents, reports on American archives, reports on history teaching, and papers on agricultural history. The officers for 1931 were: President, Carl Becker, Cornell University; first vice president, Herbert E. Bolton, University of California; second vice president, Charles A. Beard, New Milford, Conn.; secretary, Dexter Perkins, University of Rochester; treasurer, Constantine E. McGuire, Washington, D. C.; assistant secretary-treasurer, Patty W. Washington; and editor, Lowell Joseph Ragatz, George Washington University. Headquarters are at 40 B Street, S. W., Washington, D. C.

**HISTORY.** See FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LITERATURE, ENGLISH AND AMERICAN; PHILOLOGY, MODERN; SPANISH-AMERICAN LITERATURES; SPANISH LITERATURE.

**HITLER, ADOLF.** See GERMANY under *History*.

**HOBART COLLEGE.** An institution for the higher education of men in Geneva, N. Y., founded chiefly under the auspices of the Protestant Episcopal Church in 1822 and permanently chartered by the Regents of the University of the State of New York in 1825. William Smith College, a coordinate institution for the separate instruction of women, administered by the Hobart College corporation, and with instruction given by the Hobart College faculty, was established in 1908. The student enrollment in Hobart Col-

lege for the autumn of 1931 was 320, while the enrollment in William Smith College was 121. The combined faculty of the two colleges numbered 42. The endowment amounted to \$1,403,000, and the income for the year was approximately \$240,000. President Murray Bartlett, D.D., S.T.D., LL.D.

**HOCKEY.** The Montreal Canadiens won the Stanley Cup, that treasured trophy emblematic of the world's professional hockey championship, in 1931, after a gruelling regular campaign and an extraordinary series in the playoffs. The Montreal team played flashing hockey all the season and finished on top of the Canadian division of the National Hockey League standing. The Boston Bruins topped the American division. The Canadiens and the Bruins then met according to the present playoff rules, which provide that the two leaders meet and then the winner faces the winner of an elimination of the second and third place teams. After a hard series with the Bruins, the champions met the Chicago Black Hawks in the final series, winning three of five games.

The Windsor (Ont.) Bulldogs topped the International Hockey League, a professional league, by winning in the playoffs, after Buffalo had led throughout the season. The Oakland Sheiks won the California Hockey League title, defeating the Oakland Checkers in the playoff, 12 goals to 11. Vancouver won the Pacific Coast Hockey League championship for the year, winning the playoff series with Seattle, 3 games to 1. The Springfield Indians, "farm" for the New York Rangers of the National League, won the Canadian-American League title and the Fontaine Cup for 1931, downing the Boston Cubs in the playoff, 3 games to 2. At the start of the new season in November this league moved into New York City, the Bronx Tigers playing their home games at the Coliseum in the Bronx.

The Winnipeg Hockey Club won the Allan Cup, emblematic of the world's senior amateur championship, by defeating the Hamilton Tigers in two straight games. In the world's amateur championship tournament played at Krynicia, Poland, in February, the Manitoba Grads won the title for Canada, defeating the Boston Hockey Club, representing the United States, 2-0, in the final of the round robin. The national amateur tournament, held under the auspices of the Amateur Athletic Union, with an eye to developing a team for the 1932 Olympics, was won by the Crescent Athletic Club team. The Crescents defeated the Atlantic City Sea Gulls in the final, at Madison Square Garden, New York City, 4 to 2. The Winnipeg Elmwood Millionaires won the Ontario Hockey Association Memorial Cup, the symbol of supremacy in junior amateur hockey.

Yale University was considered the champion intercollegiate team, yielding only once in 16 games. This lone defeat to the Boston Hockey Club, 1-0, came in the early part of the season, and after that the Elis swept everything before them, defeating Harvard in two games, 5-1, and 3-1. Harvard, Princeton, and Dartmouth were also strong.

**HÖFFDING, hëvding, HARALD.** A Danish philosopher, died July 2, 1931, in Copenhagen where he was born Mar. 11, 1843. He attended the University of Copenhagen from which he received the Ph.D. degree in 1870. In 1880 he

became lecturer and in 1883 professor of philosophy at the University of Copenhagen, retiring in 1915.

Of his contributions to philosophy, the most notable was his concept of religion by which the religious emotion was correlated with feelings intellectual, æsthetic, or moral through the reaction of mind to the sense of values. For him the chief problems of philosophy were: the problem of knowledge; the problem of existence; the problem of the estimation of worth; and the problem of consciousness. Early influenced by Kierkegaard, he held to a distinction between knowledge and belief, but later he became a positivist who applied to the views of that school the methods of critical philosophy and the results of psychological study. In ethics he was a utilitarian of a moderate type. His works include *Psychology* (1882; 10th ed., 1925); *Ethics* (1887); *History of Modern Philosophy* (1894); *The Philosophy of Religion* (1901); *Philosophical Problems* (1902); *Modern Philosophers* (1904); *Human Thought* (1910); *Henri Bergson's Philosophy* (1914); *The Concept of Totality* (1917); *Spinoza's Ethics* (1918); *Leading Conceptions in the 19th Century* (1920); *The Concept of Relation* (1921); *The Conception of Analogy* (1923); *Epistemology and Conception of Life* (1925); *Religious Types of Thought* (1927); *Present State of Epistemology* (1930).

**HOGS.** See LIVESTOCK; VETERINARY MEDICINE.

**HOLLAND.** See NETHERLANDS, THE.

**HOLY CROSS, COLLEGE OF THE.** A Roman Catholic college for men, under the Society of Jesus, in Worcester, Mass., founded in 1843. The enrollment for the autumn of 1931 totaled 1070. The faculty numbered 79. The library contained 75,000 volumes. President, the Rev. John M. Fox, S.J.

**HOLYLAND.** See JEWS; PALESTINE.

**HOME DEMONSTRATION WORK.** See AGRICULTURAL EXTENSION WORK.

**HOME ECONOMICS.** See AGRICULTURAL EXTENSION WORK; FOOD AND NUTRITION.

**HOME MANAGEMENT.** See AGRICULTURAL EXTENSION WORK.

**HOMICIDE.** See CRIME

**HONDURAS, hón-doo-rás.** A Central American republic, bounded on the north and east by the Caribbean Sea, on the west by Guatemala, Salvador, and the Gulf of Fonseca, and on the south by Nicaragua. Capital, Tegucigalpa.

**AREA AND POPULATION.** The estimated area is 46,250 square miles; population, according to the census of 1926, 700,811, compared with 859,760 (estimated) in 1930. The inhabitants are mostly Indians with a strain of Spanish blood. The chief towns, with their estimated populations in 1930, are Tegucigalpa, 40,049; San Pedro Sula, 24,292; La Ceiba, 13,073; Choluteca, 12,371; Juticalpa, 10,809. The chief ports are Amapala on the Pacific and Porto Cortez and Omoa on the Atlantic. In the fiscal year 1929-30, there were 31,694 births and 15,476 deaths.

**EDUCATION.** Primary education is nominally compulsory for children between the ages of 7 and 15. According to the Presidential message of January, 1931, primary schools in 1930 numbered 1527, with a total enrollment of 57,359 pupils and an average attendance of 46,200. The enrollment in secondary and normal schools was 2288, and in the university (1929), 167. In 1929,

41.8 per cent of the children of school age attended school.

**PRODUCTION.** Honduras is the world's largest producer of bananas, exports of this fruit (totaling 26,982,099 stems in 1930) normally comprising 85 per cent of all foreign shipments. The industry, upon which about 30 per cent of the population is dependent, is almost exclusively controlled by the United Fruit and other foreign companies. Sugar, coffee, coconuts, hardwood, and minerals are the other chief export products. Two large foreign-owned mills on the north coast account for all sugar produced. Coffee is grown in western and southern Honduras, principally by native farmers. Mineral resources include silver, gold, lead, copper, iron, zinc, antimony, and coal, but only the first four are exported.

**COMMERCE.** Exports established a record in the fiscal year ended July 31, 1930, amounting to \$26,171,000 as compared with \$24,569,000 in the previous year. Bananas comprised approximately 87.8 per cent of the total exports, being valued at \$22,981,000 as against \$20,869,000 in the previous year. The United States was the leading purchaser of Honduran products and in the fiscal year 1920-30 took approximately 74 per cent of the total value of exports. Foreign enterprises controlled about 90 per cent of the value of all exports. Imports increased from \$14,861,000 in 1928-29 to \$15,946,000 in 1929-30. Imports from the United States increased from \$11,563,000 in 1928-29 to \$11,886,000 in 1929-30, but constituted only 74.5 per cent of the total as against 77.8 in 1928-29. The United Kingdom and Germany made slight gains in the amounts supplied.

**FINANCE.** Total government receipts for the fiscal year ended July 31, 1930, amounted to 14,314,299 pesos (1 peso equaled about \$0.50 in 1930) and total expenditures to 15,021,739 pesos, leaving a deficit of 707,440 pesos. As 404,892 pesos of expenditure were paid out of the balance of the previous year, the final deficit was 302,548 pesos. Receipts were 585,911 pesos higher than in 1928-29 and expenditures 2,158,114 pesos higher. The budget for the fiscal year 1930-31, as adopted by Congress, balanced at 15,109,628 pesos; that for 1931-32 at 16,568,612 pesos. On Sept. 25, 1931, however, the Government announced that it had reduced the 1931-32 budget expenditures by 4,000,000 pesos in line with declining revenues. On July 31, 1930, the internal public debt stood at 16,569,724 pesos and the external (sterling) debt at the equivalent of 10,400,000 pesos, compared with 18,602,341 pesos and 10,800,000 pesos, respectively, at the end of July, 1929.

**COMMUNICATIONS.** Inadequate transportation facilities hinder the economic development of the country. Railway lines, which totaled 1048 miles in 1929, are all located on the north coast and, with the exception of the government-owned National Railway (57 miles long), are the property of foreign fruit companies. Highway mileage in 1930 was 196 miles. Tela, San Pedro Sula, and Tegucigalpa are connected by a fruit company's air line. The Miami-Panama air line touches at Tela and San Lorenzo, while another air route connects San Lorenzo with San Salvador, Guatemala, and Mexico.

**GOVERNMENT.** According to the Constitution as amended in 1924, executive power is vested in the President nominated and elected by popular vote, and holding office for four years; legislative



power is in the Congress of Deputies consisting of 43 members chosen for four years directly by popular vote. A permanent commission of five members transacts the routine business for Congress while that body is not in session. President in 1931, Dr. Vicente Mejía Colindres, who assumed office Feb. 1, 1929, for a four-year term.

**HISTORY.** A serious revolt broke out on the north coast of Honduras on Apr. 18, 1931, led by Gen. Gregorio Ferrera, a full-blooded Indian with a large following among the Indian laborers on the large American banana plantations of that region. The revolt was attributed partly to unrest among unemployed plantation workers and partly to the refusal of President Mejía Colindres to include General Ferrera in his Cabinet. Following the looting of the town of Progreso and unsuccessful rebel attacks on Sonaguera and Tela, American naval and commercial vessels evacuated several hundred Americans employed by the fruit companies from that region. On April 20 the Honduran Congress declared martial law throughout the country and 3000 well-trained troops were dispatched to the north coast to quell the revolt. Government troops reported having defeated rebel forces at Chamelecon, San Pedro Sula, and other points, but on May 1 insurgents captured Santa Rosa de Copán. Reports stated that 200 were slain in the attack on the city and that the insurgents then massacred 50 civilians and officials. Government forces repulsed a severe attack on Tela May 23 and on June 20 decisively defeated General Ferrera near Lake Yojoa. The revolt was definitely terminated with the killing of General Ferrera by pursuing government troops on June 26.

The revolt caused a severe setback to the economic condition of the country, which was already unfavorable as a result of the decline in the price of bananas and other export products and the reduction of activities by the foreign fruit companies. Business was at a standstill on the north coast for three months, the financial burden of the country was increased, plans for highway and other public improvements had to be curtailed, and the price of native foodstuffs rose to levels which caused severe hardship among the population.

On Jan. 1, 1931, the Liberal and Conservative parties in Congress reached a compromise, which averted the possibility that President Mejía Colindres would be forced to declare a dictatorship. Following the elections of October, 1930, in which both parties won an equal number of seats in Congress, each demanded the right to organize Congress, under threat of abstention. Had either party withdrawn, a quorum would have been lacking and the President would have had no alternative but to rule by decree. By the compromise reached on Jan. 1, 1931, the Presidency of Congress was decided by lot, the choice falling upon a Liberal. The other posts were divided between the two parties. A new Cabinet was announced during the course of the revolt (May 18), including: Foreign Affairs, Salvador Zelaya; Finance, Coronado Garcia; War, José María Ochoa Velasquez; Interior, Ernesto Argueto.

Congress by the decree of Mar. 10, 1931, adopted the gold lempira, with a value of \$0.50 U. S. currency, as the new monetary unit, and made provision for the withdrawal of the existing silver currency within one year. The change in currency had not become effective during 1931.

**Delimitation of the Nicaraguan-Honduras boundary** by a commission in accordance with an award made by the King of Spain in 1906 was provided for by a treaty signed by representatives of the two countries in Managua, Jan. 21, 1931. The neutral member of the commission was to be an engineer appointed by the U. S. Department of State. For ratification of the treaty for settlement of the Honduras-Guatemala boundary dispute, see GUATEMALA under *History*.

**HONG KONG.** A possession of Great Britain at the mouth of the Canton River, about 90 miles to the south of Canton, China; comprising the island of Hong Kong, with an area of 32 square miles, and the opposite Peninsula of Kowloon, separated from it by a strait about a half-mile wide. Total area, 391 square miles. In addition, considerable land in Kowloon Bay has been reclaimed from the sea. At the 1931 census the population was 852,932 (provisional figure), of which about 18,150 were non-Chinese. There are about 7000 British residents, 2500 Portuguese, 2000 British Indians, and 400 Americans. Registered births and deaths in 1929 numbered 10,223 and 17,565, respectively. Chinese emigrants in 1929 totaled 227,523 and Chinese immigrants 185,390. The city of Victoria on Hong Kong Island has a population of over 580,000 (577,500 Chinese).

Hong Kong's prosperity has been built primarily on its extensive transit trade, the free port of Victoria being the distributing centre for that part of China and French Indo-China situated south of Foochow and north of Saigon. Local industries include the refining of sugar and tin, rice polishing, furniture making, shipbuilding, and engineering. Provisional trade returns for the fiscal year ended Mar. 31, 1931, showed total imports of about \$217,452,000 (U. S. currency) and exports of \$168,219,000, compared with imports of \$318,715,000 and exports of \$281,295,000 in 1924.

In the budget for 1931, receipts and expenditures were estimated to balance at 29,800,000 Hong Kong silver dollars, as compared with a budget total of about 23,800,000 dollars in 1930 (1 Hong Kong silver dollar exchanged at an average rate of \$0.3385 in U. S. currency in 1930). Expenditure for defense totaled 3,343,095 Hong Kong dollars in 1929. The colony is headquarters for the China squadron of the British navy. A total of 42,970 steamers of 39,473,000 tons and 21,146 junks of 2,673,000 tons entered and cleared the port in the foreign trade in 1930. Of the steamers, 11,772 aggregating 28,295,000 tons were ocean-going. Comparative figures for 1924 were 57,765 steamers of 38,770,000 tons and 27,725 junks of 3,299,000 tons. The colony is administered by a governor, assisted by executive and legislative councils. Governor and Commander-in-Chief in 1931, Sir William Peel, appointed in 1930.

Sir John Simon charged in the British House of Commons May 11, 1931, that thousands of little girls were being sold into virtual slavery in Hong Kong under the "mitsai system." The system operated under conditions which sometimes led to deplorable cruelty, he said. Dr. Drummond Shiels, Under-Secretary of State for Colonies, replied that it was inaccurate to speak of the mitsai (girl servants) as slaves. He added that the Government had taken steps to abolish by ordinance the initial payment of money for the mitsai and that propaganda

was being spread to do away with the system altogether.

The Japanese occupation of Mukden in September, 1931, was followed by three days of fierce anti-Japanese rioting by Chinese in Hong Kong, during which Japanese shops were looted and wrecked. Six Japanese were killed by a mob, many others were beaten, and the police and British troops were forced to take strenuous measures to end the disorders. See JAPAN and CHINA under *History*.

**HOOKWORM.** See ZOOLOGY.

**HOOVER, HERBERT, PRESIDENT OF THE UNITED STATES.** See UNITED STATES under *Administration*.

**HOOVER DAM.** See DAMS; WATER POWER.

**HOOVER MORATORIUM.** See REPARATIONS AND WAR DEBTS; GERMANY under *History*.

**HOOVER POLICY.** For developments in the so-called Hoover Policy toward the Caribbean and Central American countries, see NICARAGUA, HONDURAS, PANAMA, GUATEMALA, HAITI, and CUBA and SALVADOR under *History*.

**HOPS.** The production of hops in 1931 in most of the hop growing countries of the world suffered a further decline as compared even with the low yield of the preceding year. The total production of Belgium, England and Wales, Czechoslovakia, and the United States as reported by the International Institute of Agriculture was 71,766,000 pounds as compared with 87,208,000 pounds in 1930, a reduction of 17.7 per cent and of 22.6 per cent below the average annual yield for the five years 1925-1929. The total acreage in these countries had declined from 80,000 acres in 1930 to 74,000 acres in 1931 and stood 11.8 per cent below the average annual acreage of the five-year period. The 1931 yields reported for the European countries were 24,725,000 pounds for Czechoslovakia, 18,928,000 pounds for England and Wales, and 2,271,000 pounds for Belgium. Germany produced 24,366,000 pounds in 1930 on 32,000 acres, but the acreage in 1931 had been reduced to 25,000 acres. In view of declining hop prices the German Government passed a decree effective Sep. 1, 1931 directing certain breweries to use a minimum of 75 per cent German hops but the decree did not apply to establishments brewing for export.

In the United States according to reports issued by the U. S. Department of Agriculture the production of hops in Washington, Oregon, and California combined had been lower than the 1931 crop of 25,852,000 pounds only four times since 1917. The production in these three States was only 23,447,000 pounds in 1930 but in 1929 it was 33,195,000 pounds. The acreage harvested in these States in 1931 was 21,400 acres, compared with 19,500 in 1930 and 24,400 in 1929. In recent years Oregon had produced from half to two-thirds of the crop in the three Pacific Coast States. The yields of these States in 1931 were reported as follows: Oregon 16,430,000 pounds, California 5,550,000 pounds, and Washington 3,872,000 pounds. The areas devoted to the crop were 15,500, 3700, and 2200 acres, respectively. The average yield per acre for the total area was 1208 pounds. On the basis of the average farm price of 13.8 cents per pound the total hops crop was \$3,564,000.

**HORACE.** See PHILOLOGY, CLASSICAL.

**HORSE RACING.** See RACING.

**HORTICULTURE.** Abundant crops and low prices may be said to characterize horticulture

in the United States in 1931. Yet horticulture did not perhaps suffer as severely in the stressful times as did certain field crops such as wheat and corn, which may be stored for several years, the perishable nature of fruits and vegetables being for once a benefit as well as a handicap. The 1931 apple crop was the largest since 1926 and rather evenly distributed over all important producing sections. The 1931 peach crop was the largest on record. The grape crop, on the other hand, was 35 per cent below that of 1930. In California excessive heat and overproduction in 1930 cut the grape crop almost in half, a situation which proved a blessing rather than a disaster and removed the necessity of leaving a large part of the crop on the vines as happened in 1930. Pecans, with a tremendously increased production, sold at unprecedented low prices. Yet in the long run this large crop should help the pecan growers as it aided in the formation of the new National Pecan Marketing Association which is certain to help stabilize the pecan industry in the future. A large citrus crop in prospect for the 1931-1932 season promised to complete a year of plentiful production.

A highly promising development of the 1931 season was the further expansion of the freezing method of preserving fresh fully ripe fruits. Fresh frozen peaches and berries appeared on city markets and because of the fact that little of the original flavor and delicacy is lost in the freezing process there appears to be a bright future for this young industry.

**PRODUCTION IN 1931.** In times characterized by a general surplus of production crop yields have a dual interest, that of actual quantity and also their effect on the general price of commodities. Fruits and vegetables, because of their quickly perishable nature, have, however, no such widespread influence on markets and marketing as do corn, wheat, and cotton. Although less acreage was planted to most truck crops in 1931, increased yields per acre usually offset the anticipated reductions. Contrary to the usual situation, where smaller crops were actually harvested, they brought lower returns to the growers, there being in fact no definite stimulus from short yields. Data released on December 16 by the Bureau of Agricultural Economics of the U. S. Department of Agriculture show a yield of 211,506,000 bushels of apples in 1931 as compared with 155,982,000 bushels in 1930; 77,743,000 bushels of peaches in 1931 and 53,864,000 bushels in 1930; 23,009,000 bushels of pears in 1931 and 25,540,000 bushels in 1930; 1,582,982 tons of grapes in 1931 and 2,438,514 tons in 1930; 108,090 tons of cherries in 1931 and 115,250 tons in 1930; fresh plums and prunes 117,750 tons in 1931 and 147,875 tons in 1930; dried prunes 203,750 tons in 1931 and 206,465 tons in 1930; oranges 50,814,000 boxes in 1931 as compared with 54,559,000 boxes in 1930 and 34,034,000 boxes in 1929; grapefruit 14,770,000 boxes in 1931 and 18,690,000 boxes in 1930; lemons 8,000,000 boxes in 1931 and 7,950,000 boxes in 1930. cranberries 651,000 barrels in 1931 and 560,480 barrels in 1930; pecans 74,985,000 pounds in 1931 and 46,469,000 pounds in 1930; strawberries 11,286,000 crates in 1931 and 9,637,000 crates in 1930.

Truck crop data show a decline in asparagus production in 1931, 9,307,000 crates as compared with 10,494,000 crates in 1930; snap beans 184,500 tons in 1931 and 214,000 tons in 1930;

cabbage 992,800 tons in 1931 and 998,500 tons in 1930; cantaloupes 17,962,000 crates in 1931 and 15,951,000 crates in 1930; carrots 11,833,000 bushels in 1931 and 10,662,000 bushels in 1930; cauliflower 7,087,000 crates in 1931 and 5,843,000 crates in 1930; celery 9,750,000 crates in 1931 and 10,419,000 crates in 1930; canning corn 771,800 tons in 1931 and 659,700 tons in 1930; cucumbers 10,757,000 bushels in 1931 and 13,842,000 bushels in 1930; eggplant 775,000 bushels in 1931 and 798,000 bushels in 1930; lettuce 18,569,000 crates in 1931 and 19,591,000 crates in 1930; onions 18,857,000 bushels in 1931 and 26,002,000 bushels in 1930; peas 247,000 tons in 1931 and 354,000 tons in 1930; peppers 4,623,000 bushels in 1931 and 3,690,000 bushels in 1930; early potatoes 46,381,000 bushels in 1931 and 43,551,000 bushels in 1930; spinach 171,000 tons in 1931 and 151,000 tons in 1930; tomatoes 1,475,500 tons in 1931 and 2,216,700 tons in 1930; watermelons 75,459,000 units in 1931 as compared with 82,401,000 in 1930.

**THE WORLD SITUATION.** Abundant crops of fruits and nuts throughout the world failed to yield normal returns due to the unfavorable market conditions. According to information released by the Bureau of Agricultural Economics, the Canadian apple crop was officially forecast on October 1 as 3,656,000 barrels as compared with 3,411,000 barrels in 1930. The Australian, Tasmanian, and New Zealand export apple crop totaled 4,280,000 boxes, a decline from the 5,420,000 boxes of the preceding year. Of this crop 77 per cent was exported to England and 23 per cent to continental Europe.

Final figures on the 1931 South African citrus crop showed an export of 1,734,000 boxes, 156,000 less than in 1930. Of this crop 94 per cent was oranges and the balance mostly grapefruit. Drought and intense heat were said to have injured the younger trees and greatly reduced potential yields. Porto Rico grew 8300 acres of grapefruit in 1931, from which was harvested 6.5 per cent of the world's crop, approximately 90 per cent being grown in the United States proper. The walnut crop in Italy, France, Rumania, and Yugoslavia was 33 per cent larger in 1931 than in 1930. The Mediterranean almond crop was 90 per cent of the 1930 crop with prices much lower. The Mediterranean fig crop was estimated at 74,800 tons in 1931 as compared with 75,565 tons in 1930.

**FOREIGN COMMERCE.** Summaries presented in the October, 1931, Monthly Summary of Foreign Commerce of the United States give a clear cut picture of the trade situation with respect to horticultural products during the ten months ended Oct. 31, 1931. Rather strangely, exports showed a considerable increase in value in 1931 as compared with the same period in 1930, from \$95,864,851 to \$102,618,229. At the same time imports declined very sharply in value, from \$100,904,998 in 1930 to \$73,728,298 in 1931, a result due in part at least to the decreased purchasing power within the United States.

The principal gains in export values were recorded for citrus fruits and apples, the rise being due to total quantities handled rather than to price per unit. The 1930 value of exported oranges was \$9,379,056, the 1931 value \$11,894,106. Grapefruit exports in 1930 amounted to

\$2,981,999 and in 1931 to \$3,439,311. Boxed apples exports in 1930 were valued at \$9,942,934 and in 1931 at \$14,851,468. Barreled apples were \$4,774,803 in 1930 and \$7,809,308 in 1931.

Among import items to show material losses in value were lemons, declining from \$2,064,953 in 1930 to \$536,857 in 1931; olives from \$2,074,017 in 1930 to \$1,141,649 in 1931; pineapples from \$2,418,397 in 1930 to \$1,909,469 in 1931; shelled almonds from \$3,321,119 in 1930 to \$2,351,280 in 1931; prepared coconut from \$3,125,192 in 1931 to \$1,728,127 in 1930. Two items, namely, canned tomatoes and cashew nuts, show a considerable increase in value, the former \$1,993,770 in 1930 and \$2,178,236 in 1931. Bananas, the principal import item, decreased in value from \$30,432,066 in 1930 to \$25,882,431 in 1931, data correlated closely with a decline in number of bunches, from 55,057,280 in 1930 to 48,974,942 in 1931. Flowering bulbs showed a sharp loss in import value, hyacinths, for example, dropping from \$1,122,436 in 1930 to \$702,096 in 1931.

**COÖPERATIVE MARKETING.** The extent of co-operative marketing in the horticultural industry was clearly indicated in an address delivered on August 27 by Charles S. Wilson of the Federal Farm Board before the Vegetable Growers Association of America. Mr. Wilson stated that there were in the United States 1386 cooperative associations, including a total of 182,000 growers, engaged in the marketing of fruits and vegetables aggregating 319 million dollars in value. Two nationwide horticultural selling associations were formed during 1931 with the aid of the Federal Farm Board, namely, the National Pecan Marketing Association and the National Fruit and Vegetable Exchange.

According to the Federal Farm Board, cranberry growers of New Jersey marketed approximately 100 per cent of their crop cooperatively and Massachusetts growers 52 per cent. Pennsylvania grape growers sold 65 per cent of their production cooperatively and New York growers only 31 per cent. In the case of pears, only 2 per cent of the New York crop was handled cooperatively, suggesting the need of further expansion of the co-operative marketing movement in the Eastern States.

Motor trucks are an important factor in the marketing of fruit and vegetables. According to the Bureau of Agricultural Economics approximately 15 per cent of the total shipments of fresh fruits and vegetables transported 20 miles or more to market was handled in motor trucks, some of which travel distances as great as 400 miles and more.

**PLANT QUARANTINES.** Foreign and domestic plant quarantines have played an important part in recent years in determining the distribution of horticultural products. Probably the outstanding development during 1931 was the removal of the Mediterranean fruit fly quarantine which had regulated the movement of Florida fruits and vegetables. Apparently the eradication programme conducted co-operatively by the Federal and State governments had been so thorough that not a single fruit fly remained to menace Florida's important fruit and vegetable industry. The Japanese beetle and the European corn borer unfortunately became so widespread that hope of elimination was no longer held, efforts being confined in 1931 to the development

of methods of control and to slowing down the rate of spread. Limitations on the importation of narcissus and other bulbs formerly brought in vast quantities to the United States from European countries resulted in the continued development of home production, which promises in a few years to meet all domestic demands and in fact to provide the nucleus for a profitable home industry. Substantial progress was made in the control of the so-called Phony peach disease which had proved so destructive to peaches in the Georgia peach belt and for a time appeared very menacing. The organism was found to be an infectious virus, confined apparently to the roots of peaches and nectarines and other trees grafted on these roots. As a result a search was made for disease resistant roots and at least one species, a native plum, was found promising. There was some indication that the peach tree borer carries the disease from tree to tree.

**HORTICULTURAL RESEARCH.** No more worthy example of the aid that research was rendering the horticultural industry was forthcoming than that of the solution of the arsenical residue problem, discussed rather fully in U. S. Department of Agriculture *Technical Bulletin No. 245* (1931). Faced on one hand with the necessity of applying poisons to combat insects and on the other with laws requiring the removal of excess poisons from the harvested fruit, the growers were in a difficult position until research workers found that a dilute hydrochloric acid wash would effectively cleanse fruit. Attempts at the New York (Cornell) Agricultural Experiment Station (*Amer. Soc. Hort. Sci. Proc.* 27, 1930, pp. 190-198), to change the biennial fruiting habit of Wealthy apple trees to annual fruiting by applying large quantities of available nitrogen fertilizer and pruning heavily, failed, indicating that fruiting habits in the apple, once established are highly fixed and difficult to change. Determinations at the Ohio Agricultural Experiment Station (*Amer. Soc. Hort. Sci. Proc.* 27, 1930, pp. 32-36), of the various sugars in the fruits of apple trees supplied with different amounts of nitrogen fertilizer, failed to show any significant differences in sugars that could be traced to the fertilizer treatment.

The observation at the Pennsylvania Agricultural Experiment Station (*Pennsylvania Sta. Bul.* 261, 1931, p. 35), that apple trees in soils containing abundant organic matter suffered much less severely from drought than did trees in soils lacking in organic matter, had a very practical bearing on orchard management, since the quantity of organic matter in the soil may be greatly influenced by cover crops.

**MISCELLANEOUS.** Dr. Liberty Hyde Bailey, noted horticulturist and author, received the Honorary Award Medal of the Garden Club of America in recognition of his outstanding contributions to horticulture. As further tribute to his eminent service, Dr. Bailey was awarded the Arthur Hoyt Scott Garden and Horticultural Medal of Swarthmore College, carrying with it a cash emolument of one thousand dollars. The George Robert White Gold Medal for distinguished horticultural service was awarded by the Massachusetts Horticultural Society to Dr. Frederick C. Coville of the U. S. Department of Agriculture for his success in breeding and developing improved varieties of blueberries.

A splendid new horticultural building was

completed at the New York (Geneva) Agricultural Experiment Station. Equipped with controlled storage facilities and other modern equipment, the new building promised to be of material aid to the pomological workers at the station. The new Florida Citrus Products Laboratory at Winter Haven, Florida, was officially opened on October 23, with Secretary of Agriculture Arthur M. Hyde as principal speaker. This new laboratory will study methods of canning, dehydration and cold-storage preservation of orange and grapefruit juices, the utilization of cull fruit, etc.

For the first time, an attempt was made to transport California grapes to the Eastern seaboard by water when a cargo of 8000 lugs of fancy table grapes was shipped in the cold-storage chambers of the steamship *Virginia* from San Francisco to New York. An even more novel departure in the handling of California products was inaugurated by a Los Angeles florist who shipped a consignment of gardenias by aeroplane to New York City. The New Dawn rose, a bud sport of the well-known climbing variety Dr. Van Fleet, was the first plant to receive a patent under the recently amended U. S. Patent Law, thus marking a historical step in the advancement of American horticulture. The recipient of the patent will receive a royalty for a certain stipulated period on all plants of this new variety sold.

**NECROLOGY.** The untimely death on January 13 of Dr. Frederick J. Pritchard, plant breeder in the U. S. Department of Agriculture, was a serious loss to the department. E. G. Dezell, general manager of the California Fruit Growers' Exchange since 1922, died August 2.

**BIBLIOGRAPHY.** Many attractive and useful books on horticultural subjects made their appearance during the year, presenting concrete evidence of the widespread appeal of the garden and its inhabitants. M. C. Allwood, *Carnations for Everyman* (1931); L. H. Bailey, E. Z. Bailey, *Hortus* (New York, 1930); F. J. Chittenden, *The Garden Doctor* (London and New York, 1930); A. McCully, *American Alpines in the Garden* (New York, 1931); E. R. Fisher, *The Garden Club Manual* (New York, 1931); E. B. Higgins, *Our Native Cacti* (New York, 1931); H. H. Hume, *Azaleas and Camellias* (New York, 1931); A. Laurie, *Chrysanthemums Under Glass and Outdoors* (New York, 1930); A. Laurie and L. C. Chadwick, *The Modern Nursery* (New York, 1931); J. J. Ochse, *Fruits and Fruitculture in the Dutch East Indies* (Batavia, 1931); E. W. Oliver, *Landscaping the Small Home* (New York, 1931); H. S. Orloff, *Perennial Gardens* (New York, 1931); H. C. Powell, *The Culture of the Orange and Allied Fruits* (South Africa, 1930); L. W. Ramsey and G. H. Lawrence, *Garden Pools, Large and Small* (New York, 1930); E. S. Rohde, *The Scented Garden* (London, 1931); J. M. Shull, *Rainbow Fragments* (Garden City, N. Y., 1931); O. C. Simonds, *Landscape Gardening* (New York, 1931); H. C. Thompson, *Vegetable Crops* (2d edition, New York, 1931); T. A. Weston, *Practical Carnation Culture* (New York, 1931); E. H. Wilson, *If I Were to Make a Garden* (Boston, Mass.).

**HOTELS.** See ARCHITECTURE.

**HOWARD, JOHN GALEN.** An American architect, died in San Francisco, Calif., July 18,

1931. He was born in Chelmsford, Mass., May 8, 1864, and was graduated from the Boston Latin School in 1882. After three years of study at the Massachusetts Institute of Technology, five years under private architects, and three years at the Ecole des Beaux-Arts in Paris, he established himself as a practicing architect in New York City. Among the earlier notable buildings which he planned were the Montclair (N. J.) Public Library, Majestic Theatre, Boston, and Electric Tower at the Pan-American Exposition in Buffalo. In 1901 he was appointed supervising architect and professor of architecture at the University of California. The majority of the buildings and monuments on the Berkeley campus were designed by him, outstanding among which are the Hearst Memorial Mining Building, Greek Theatre, California Hall, Doe Library, Sather Gate, and Jane K. Sather Campanile. From 1913 to 1927 he was director of the university's school of architecture.

In 1923 he established the firm of John Galen Howard & Associates, who were the architects of the First Congregational Church in Oakland and the Le Conte School in San Francisco. He was an advisory member of the San Francisco reconstruction committee after the fire of 1906, one of the architects-in-chief for the Alaska-Yukon-Pacific Exposition held in Seattle, Wash., in 1909, and a member of the board of consulting architects of San Francisco from 1912 to 1915.

**HOWARD, DR. LESLIE O., ENTOMOLOGIST.** See ENTOMOLOGY, ECONOMIC.

**HOWARD UNIVERSITY.** A nonsectarian institution for the higher education of men and women in Washington, D. C., incorporated by Act of Congress Mar. 2, 1867, "for the education of youth in liberal arts and sciences," open to students without regard to race but principally for the education of Negroes. The registration for the summer school and autumn quarter of 1931 totaled 2107. The faculty numbered 274. The total endowment amounted to \$844,337. The total appropriation of the U. S. government for 1931-32 was \$1,560,000. The university also received during 1930-31 \$73,682 from private sources. The library contained 56,038 volumes. President, Mordecai Wyatt Johnson, S.T.M., D.D.

**HUNGARY.** A kingdom of central Europe, formerly constituting, with Austria, the Dual Monarchy of Austria-Hungary. Capital, Budapest. Regent in 1931, Nicholas Horthy de Nagybánya (elected Mar. 1, 1920).

**AREA AND POPULATION.** At the census of 1930 (preliminary) Hungary had an area of 35,875 square miles and a population of 8,683,740, with 42.5 per cent of the total residing in cities of more than 10,000. The 1920 census population was 7,980,143. Of the 1930 total, about 90 per cent were Hungarians (Magyars), 6.8 per cent Germans, 1.7 per cent Slovaks, and the remainder Croats, Rumanians, Ruthenians, and Serbians. Births for the period 1926 to 1930 averaged 219,292 annually and deaths, 144,251. The birth rate per 1000 of population in 1930 was 24.7 and the death rate 15.3. Emigrants in 1930 numbered 6146, of whom 4366 went to the United States. The population of the chief cities in 1930, with 1920 census figures in parentheses, was: Budapest, 1,004,681 (928,996); Szeged, 135,131 (119,109); Debrecen (Debreczen), 117,410 (103,186); Kecskemét, 79,505 (73,109); Újpest, 67,374 (56,489); Kispeszt, 64,547 (51,064); Pécs,

61,801 (47,556); and Miskolcz, 61,465 (56,982).

**EDUCATION.** At the 1920 census, 15.2 per cent of the population over six years of age were illiterate. Persons of schools age, 6 to 14 years, numbered 1,325,707 in 1930. In 1928-29, there were 1,060,412 pupils in primary schools, 72,113 in secondary schools, 59,541 in high schools, and 16,322 attending universities and other graduate schools. There are four universities, at Budapest, Szeged, Pécs, and Debrecen.

**PRODUCTION.** Hungary is a fertile agricultural country, with about 13,757,000 acres of arable land, or 60 per cent of total area, 793,000 acres of vineyards and gardens, 4,144,000 acres of permanent meadow and pasture, and 2,707,000 acres of woods and forests. The value of field crops amounted to \$289,600,000 in 1929, \$433,200,000 in 1928, and averaged \$360,900,000 for the 5-year period 1923-27. Of the 1929 total the value of wheat was \$69,900,000; corn, \$39,200,000; potatoes, \$20,500,000; and rye, \$19,600,000. Livestock in 1930 numbered 1,778,000 cattle, 2,362,000 swine, 1,464,000 sheep, 22,000 goats, and 860,000 horses. Production of the chief crops in 1930, with 1929 figures in parentheses, was: Wheat, 84,338,000 bushels (74,985,000); rye, 28,406,000 bushels (31,424,000); barley, 27,605,000 bushels (31,353,000); oats, 17,998,000 bushels (28,292,000); corn, 55,304,000 bushels (70,632,000); potatoes, 67,682,000 bushels (79,669,000); sugar beets, 1,461,000 metric tons (1,607,000); beet sugar, 234,000 metric tons (247,000). The value of 1931 crops was estimated at 15 per cent less than in 1930, which in turn was about \$88,000,000 less than in 1929.

Hungary has important mineral resources, the bauxite deposits being among the largest known. Manufactured products in 1929 were valued at \$501,438,000 (\$503,187,000 in 1928). Production of the chief mineral and manufactured products in 1930 and 1929 in metric tons was: Coal, 812,000 (826,000); lignite, 6,174,000 (7,044,000); iron ore, 157,000 (252,000); pig iron, 257,000 (308,000); steel (ingots and castings), 369,000 (513,000); cement, 310,000 (375,000); alcohol, 10,826,000 gallons (11,613,000); iron, metal, and machinery, 103,602,000 (91,966,000). Both agriculture and industry were acutely depressed in 1930 and 1931. There were 29,412 unemployed at the end of August, 1931, compared with 25,583 on January 1.

**COMMERCE.** Imports for consumption in 1930 were valued at \$145,682,000 (\$186,041,000 in 1929) and domestic exports at \$159,234,000 (\$181,641,000). The trade balance was favorable by \$13,552,000, compared with an unfavorable balance of \$4,400,000 in 1929. Exports of wheat and wheat flour accounted for \$13,300,000 of the total decline of \$22,400,000. Czechoslovakia supplied 21.7 per cent of the total imports into Hungary, followed by Germany with 21 per cent and Austria with 11.8 per cent. Austria, the principal export market, took 28.2 per cent of the total. Preliminary trade figures for 1931 were: Imports, 543,770,000 pengos; exports, 570,555,000 pengos; favorable trade balance, 26,785,000 pengos (1 pengos equalled \$0.1749).

**FINANCE.** The budget estimates for the year ended June 30, 1931, placed receipts at 1,401,000,000 pengos and expenditures at 1,398,000,000 pengos. Instead of the anticipated surplus, the year ended with a deficit of 150,000,000 pengos. In addition there was left over a floating debt of 420,000,000 to 450,000,000 pengos, including



two 1-year issues of treasury bills valued at £8,200,000, which constituted a first lien on any future long-term loan. In the 1931-32 budget, receipts were originally estimated at 879,000,000 pengos and expenditures at 878,000,000 pengos. However, a deficit of 117,500,000 pengos was forecast by the autumn of 1931, and the budget was revised, by slashing expenditures by 25,000,000 pengos and levying new taxes aggregating 108,900,000 pengos, to give an estimated surplus of 16,400,000 pengos. The League of Nations placed the foreign indebtedness in October, 1931, at 4,094,000,000 pengos (State, 1,629,000,000 pengos; other, 2,465,000,000 pengos). One pengos equals \$0.1749 at par. For further financial developments in 1931, see *History*.

**COMMUNICATIONS.** Railway lines at the beginning of 1931 extended 5390 miles, of which about 4375 miles were under government operation. The government-operated railways began the 1931-32 fiscal year with a deficit of 54,000,000 pengos. There were (1930) 37,047 miles of highway, of which 11,555 miles were macadam and 17,485 miles were unimproved earth roads. Four air lines were in operation in 1929.

**GOVERNMENT.** Technically, Hungary is a constitutional monarchy with the throne vacant. The Horthy régime, which won control of the government on Aug. 7, 1919, decided that the question of who was to be chosen monarch would be postponed until the nation was liberated from external pressure. The Legislature has two Houses, the Lower House of 245 elected members, and the Upper House consisting of the six following groups: (1) Elected representatives of the former hereditary members; (2) members elected by the county councils and municipalities; (3) heads of the various religious communities; (4) high dignitaries of the state; (5) representatives of scientific institutions and the chambers of commerce; (6) life members appointed by the head of the state. Following the elections of Dec. 20, 1926, the Lower House was constituted as follows. Party of National Unity (Bethlen party), 171; Christian Social Union, 35; Socialists, 14; other parties, 25. Count Stephen Bethlen served as Prime Minister from 1921 to Aug. 19, 1931.

### HISTORY

**THE FALL OF BETHLEN.** The major political event of 1931 in Hungary was the resignation of Premier Bethlen on August 19, after ten years of veiled dictatorship exercised in collaboration with the Regent, Admiral Horthy. The motive for his withdrawal was not clear. In the first general election held in five years his Government bloc on June 28-30 secured 193 out of the 245 seats in the Lower House, the standing of the parties being: Bethlen's party of National Unity, 155; Christian Social Union, 30; Socialists, 14; Right Opposition, 17; Bourgeois Left Opposition, 11; Agrarian Opposition, 10; Legitimists, 6. While the Bethlen bloc lost 17 seats, it still retained a safe majority.

The Premier gave ill health as the reason for his resignation, but he was generally considered a victim of the financial crisis which gripped Germany and Central Europe, and which found his Government badly weakened by the extravagance of some of his Ministers. The crisis forced Hungary to turn to France for aid. But French aid was contingent upon the cessation of the agitation for revision of the Treaty of Versailles,

with which Count Bethlen was prominently identified. In particular, the French were said to have demanded the resignation of Minister of War Gömbös, an active Italophile and Fascist sympathizer. Observers believed that Bethlen resigned when Admiral Horthy refused to dismiss the Minister of War. Nevertheless, Count Bethlen approved the new Cabinet, which included M. Gömbös.

Count Bethlen's resignation occurred four days after the announcement in Paris that a \$25,000,000 loan had been advanced to Hungary for one year by a group of French, Dutch, Swiss, Italian, and Hungarian banks, with the French taking the largest part. The loan was necessitated by the withdrawal of some \$15,000,000 of short-term credits from Hungary following the collapse of the *Credit Anstalt* in Austria in May (see *AUSTRIA* under *History*). Hungarian banks, already weakened by the depression and by Government borrowing to meet deficits, had tied up large sums in dependent industries. The National Bank of Hungary was unable to assist generally, as its gold and foreign-exchange stock of 197,000,000 pengos at the beginning of 1931 had declined to 136,000,000 pengos on June 30. The Government was forced to close all banks on July 14, 15, and 16; and from July 17 to August 17 depositors were allowed to withdraw only 10 per cent of their holdings. After July 17, all foreign-exchange transactions were controlled by the National Bank.

**THE KAROLYI MINISTRY.** The new Ministry, which assumed the task of meeting the growing financial crisis, was formed August 23 by Count Julius Karolyi, a cousin of the great Hungarian statesman, Count Stephen Tisza, and also of Count Michael Karolyi. Unable to persuade any qualified person to accept the Finance portfolio, the new Premier finally assumed the task himself. Other members of his Cabinet were: Foreign Affairs, Dr. Ludwig Walko; Interior, Franz Keresztes Fischer; Justice, Tibor Zsitvay; War, Julius Gömbös; Agriculture, Adalbert Ivady; Commerce, Adalbert Kenéz; Social Welfare, Dr. Alexander Ernsts. Five of the Ministers were holdovers from the Bethlen Cabinet. The new Premier described his policy as one of economy, increased taxation, and the balancing of the budget. The extension of good relations with Italy would be his chief care in the foreign field, he said, but this was not to prevent friendly relations with both Germany and France. Upon Count Bethlen's insistence, Count Karolyi made no change in the electoral system, thus blasting hopes of the Left Opposition for the adoption of the secret ballot and of universal suffrage.

The Premier tackled the financial problem immediately by appointing a committee of 33 to work out fiscal reforms, vesting it with legislative authority upon adjournment of Parliament August 28. In August and September, the committee put into effect the financial economies and increased taxation described under *Finance*. On September 7, the Government appealed to the League of Nations for aid, and a League commission of seven members arrived in Budapest early in October to study the situation. Alarm as to the country's solvency had been further aroused by the discovery, confirmed by Count Karolyi on November 27, that the Bethlen Cabinet during its last term had expended about \$13,500,000 in excess of budget estimates and without Parliamentary sanction. On October 27,



the Finance Committee of the League of Nations appointed Royall C. Tyler, an American, as its permanent representative in Budapest. The report of the League commission, made public during October, declared that Hungary would be able to continue foreign debt payments by reducing her budget and her imports to a minimum. It did not contain the expected recommendation for a foreign loan.

With the continuation of the depletion of foreign exchange holdings, the Government on November 19 introduced a bill imposing drastic penalties for failure to place foreign currency debts due from abroad at the disposal of the Hungarian National Bank within 15 days. These restrictions led to retaliatory measures by the Yugoslav and other neighboring Governments. The Bank for International Settlement on December 16 extended the \$20,000,000 loan advanced by a consortium of ten Governments to Hungary and which was due December 18. On December 22, the Government declared a partial moratorium on foreign debt payments, explaining that the trade balance was insufficient to provide a surplus of foreign currencies acceptable to all Hungary's creditors. By the terms of the moratorium, the Government was to apply the foreign currency at its disposal to the service of the 1924 reconstruction loan, amounting annually to \$5,603,000. The interest and amortization on other loans was to be paid in a specified order of precedence, only as foreign currency became available. The moratorium affected about \$179,000,000 of American investments in Hungary, from which the income during 1932 had been estimated at between \$12,000,000 and \$14,000,000.

**POLITICAL UNREST.** Meanwhile the Government was being assailed by both the radical and ultra-reactionary elements in Hungary. The confiscation of the September 11 issue of the Socialist journal *Nepszava* and the suspension of its street sales for a month led to a great Socialist demonstration in Budapest, which was dispersed by repeated charges of the mounted police. Eleven foreign Communists were arrested in connection with the bombing of a train at Torbagy September 13, in which 14 persons were killed. On September 19, the Government widely extended the application of martial law, formerly restricted to bombing, incendiarism, and rioting. All public meetings and processions of a political nature were prohibited until further notice. A reactionary plot to seize the Government and establish a Fascist dictatorship was frustrated November 27 by the arrest of 40 or more conspirators.

**FOREIGN RELATIONS.** The temporary collapse of the revisionist agitation under French financial pressure was the outstanding development in the foreign sphere. On October 11, Ismet Pasha, Premier of Turkey, and Tewfik Rushdi Bey, Foreign Minister, arrived in Budapest for a series of conferences regarding the possibility of closer commercial relations between the two countries. Early in the year, Hungary entered upon tariff wars with Czechoslovakia and Rumania, seeking new markets in Austria for those in the Little Entente states. See FRANCE, GERMANY, AUSTRIA, and CZECHOSLOVAKIA under *History*. Consult Ferenc Eckhart, *A Short History of the Hungarian People* (London, 1931).

**HUNGER MARCH.** See COMMUNISM.

**HURRICANES; TYPHOONS.** See DOMINICAN REPUBLIC; JAPAN under *History*.

**HUSSEIN IBN ALI**, hōōs-sān' Ib'n ā'lē. First King of the Hejaz, died in Amman, Trans-Jordan, June 4, 1931. Born in Constantinople (now Istanbul) in 1856, he became Grand Sherif of Mecca following the coup d'état of the "Young Turks" in 1908. On the outbreak of the World War he at first coöperated with the Turks but subsequently, on the advice of his son Feisal and through the influence of Col. T. E. Lawrence, took the side of the Allies, his troops rendering efficient service to the British in Arabia. Following the proclamation of Arabian independence in June, 1916, he was made King of the Hejaz and the next year took the title of King of Arabia.

With the assistance of Great Britain he established and maintained a well-organized government in Arabia, but the Allies confined the extent of their recognition only to the kingdom of the Hejaz. He later refused to sign both the Versailles Treaty and a treaty with Great Britain in 1924, because the settlement of the Pan-Arab claims in Palestine and Syria and the status of Jerusalem were not satisfactory to him. On Mar. 7, 1924, at the request of delegations from Iraq (Mesopotamia), of which his son, Feisal, was king, Trans-Jordan, and the Hejaz, he accepted the Caliphate or leadership of the Mohammedan world, laying claim to the title by virtue of his direct descent from Mohammed and his control of the two holy cities, Mecca and Medina. The Arabs of central Arabia, however, looked askance at a dynasty which they believed was being used as a pawn by British imperialism, and the resulting invasion of the Wahabis under Abdul-Aziz Ibn Saud, King of the Nejd, caused Hussein's abdication, both as Caliph and King, on October 3 in favor of his son, Ali Ibn Hussein. The Hejaz forces under Ali were finally defeated in December, 1925, when Ibn Saud succeeded to the throne. Hussein lived in exile in Cyprus until 1930, when he was permitted to retire to Amman, the capital of his son, Abdullah, King of Trans-Jordan.

**HUTTERITES.** See SOUTH DAKOTA under *Political and Other Events*.

**HYDROELECTRIC DEVELOPMENTS.** See WATER POWER.

**HYDRO-ELECTRIC STATIONS.** See ELECTRIC LIGHT AND POWER INDUSTRY; DYNAMO ELECTRIC MACHINERY.

**HYDROMETALLURGY.** See METALLURGY.

**HYGIENE, CHILD.** See CHILD WELFARE.

**ICE CREAM.** See DAIRYING.

**ICE HOCKEY.** See HOCKEY.

**ICELAND.** An island state united with Denmark by the Act of Union of Nov. 30, 1918. Situated to the northwest of Great Britain (to which it is next in size of European islands), and with its northern coast touching the Arctic Circle, Iceland has an area of 39,709 square miles, and a population of 106,350 (1929). The capital, Reykjavik, had a population of 26,428 in 1929. In 1927-28, there were 229 elementary schools, with 8609 pupils; also continuation schools and a university at Reykjavik.

Fisheries are the chief support of the population, as only about one-fourth of 1 per cent of the land area is suitable for cultivation. Sheep and other livestock are raised. Hay, potatoes, and turnips are the chief farm products. The cod fisheries in 1930 reported a record catch of 70,000 metric tons (66,000 tons in 1929), but prices were

lower. Foreign trade values declined sharply in 1930, exports falling to 57,000,000 crowns (1 crown equals about \$0.22) from 70,000,000 crowns in 1929. Imports declined slightly to 66,000,000 crowns from 69,500,000 crowns in 1929. Fish products accounted for 52,300,000 crowns of the total 1930 exports. State revenues for 1930 were 17,250,000 crowns and expenditures were 17,170,000 crowns; in 1925 expenditures were only 11,000,000 crowns. The National debt on Jan. 1, 1931, amounted to 40,200,000 crowns (about \$8,840,000).

Executive power is vested in the King of Denmark who acts through a responsible ministry; and legislative power in the King and Althing or Parliament, which consists of 42 members, of whom six are elected for eight years by proportional representation for the whole country, and 36 for four years by universal suffrage. The Althing is divided into two Houses, of which the upper has 14 members and the lower, 28. The right to vote is possessed by both men and women over the age of 25. King in 1931, Christian X; President of the Council and Minister of Trade and Communications, Tryggvi Thorhallsson.

**HISTORY.** The agitation for severance of the connection with Denmark and for the establishment of a republic gained ground during 1931, partly as a result of the unexpected dissolution of the Althing April 15 by King Christian, acting upon the request of Premier Thorhallsson. The latter's Agrarian government was facing defeat in the Althing, due to the withdrawal of Socialist support. New elections were held June 12. In August, the Icelandic government entered the dispute between Denmark and Greenland over the northwestern coast of Greenland (see *GREENLAND* under *History*).

**IDAHO. POPULATION.** According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 445,032; in 1920, 431,866. The chief elements of the population as grouped by origin were: native whites, 407,108 (1930), 386,705 (1920); foreign-born whites, 30,454 (1930), 38,963 (1920, including Mexicans); Mexicans, 1278 (1930 when they were separately classed); Indians, 3638 (1930); Japanese, 1421 (1930); Negroes, 668 (1930); Chinese, 335 (1930). The rural population of 1930, numbering 315,525, greatly exceeded the urban population, living in communities of 2500 or more, which numbered 129,507. Out of the whole population, 162,223 in 1930 reported gainful occupations. Of these, 65,561 worked in agriculture, whether as farmers (40,199), managers, foremen or laborers. Manufacturing and mechanical industries included 21,420, among whom were 5125 in the building industry. Those engaged in trade numbered 18,947; in transportation, 14,034; in professional service, 12,127; in domestic and personal service, 10,132. The capital, Boise, had 5931 inhabitants (1930); 5429 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production and value of the principal crops in 1931 and 1930.

**MINERAL PRODUCTION.** Lead, zinc, silver, gold and copper, in the order of the value of the yearly product, contributed in 1930 all but a small residue of the State's mineral production. There were produced, in 1930, 268,115,963 pounds of lead, as against 297,389,488 in 1929. As the mine price was 20 per cent lower on the average for 1930, the latter year's total by value was notably reduced. Of zinc were produced 75,298,172 pounds

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ..	1931	1,052,000	2,151,000*	\$17,688,000
	1930	1,033,000	2,489,000*	20,908,000
Wheat .....	1931	1,059,000	19,641,000	9,064,000
	1930	1,245,000	80,691,000	15,980,000
Potatoes ...	1931	110,000	24,200,000	7,280,000
	1930	98,000	24,500,000	14,700,000
Dry beans ..	1931	178,000	2,088,000*	3,020,000
	1930	168,000	1,915,000*	5,745,000
Apples .....	1931	.....	5,000,000	2,500,000
	1930	.....	5,200,000	3,900,000
Barley .....	1931	158,000	4,108,000	1,561,000
	1930	148,000	5,238,000	2,184,000
Oats .....	1931	116,000	3,944,000	1,183,000
	1930	133,000	4,921,000	1,575,000
Sugar beets .	1931	84,000	299,000*	.....
	1930	44,000	446,000*	8,502,000
Corn .....	1931	42,000	1,428,000	757,000
	1930	35,000	1,330,000	931,000

\* Tons. \* 100-lb. bags.

in 1930 and 91,350,807 in 1929. The silver production was maintained as to quantity, being 9,420,639 fine ounces for 1930, as against 9,414,303 for 1929; but it was severely reduced as to value by a fall in the average price of silver to 38.5 cents for 1930, from 53.3 cents for 1929. The quantity of gold mined increased to 21,445 fine ounces for 1930, from 20,247 for 1929; total by value rose to about \$443,300 for 1930, from \$418,545 for 1929. The copper production dropped to 3,111,555 pounds for 1930, from 5,131,438 for 1929. The total value of the product of these five metals was \$21,494,867 for 1930; for 1929, \$31,104,246. No other mineral product was listed as attaining the value of \$500,000 for 1929. The total value of the State's mineral products was \$32,142,685 for 1929; for 1928, \$28,589,221.

The value of the gold, silver, copper, lead, and zinc produced from ore mined in Idaho in 1931, according to estimates of the U. S. Bureau of Mines, was about \$11,798,400, the smallest since detailed records were started in 1903; the total value of the five metals in 1930 was \$21,494,867. According to published reports, mining companies paid dividends amounting to approximately \$1,700,000, compared with \$3,700,000 paid in 1930.

The mine output of gold in 1931 was valued at about \$373,000 as compared with \$443,309 in 1930. The output of silver decreased from 9,420,639 ounces in 1930 to about 7,325,000 ounces in 1931. The value decreased from \$3,626,946 to about \$2,124,300, chiefly on account of an abnormal decrease in the average price of silver. Despite this decrease the State was again the second largest producer of silver in the United States, following Utah. Lead output fell from 268,115,963 pounds in 1930 to about 200,880,000 pounds in 1931, and the value from \$13,405,798 to about \$7,633,500, as a result of general curtailment of production caused by a sharp decline in the average prices of lead and zinc. The State, however, maintained its position as the second largest producer of lead in the United States, after Missouri. The zinc recovered from ore and concentrates decreased from 75,298,172 pounds in 1930 to about 41,000,000 pounds in 1931.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering 1929 represented the number of the State's manufacturing establishments as 564. These employed 15,656 wage earners, or 15.9 per cent more than had been employed in 1927. Wages paid these earners in 1929 totaled \$22,468,035. The materials, fuel and electricity (purchased) for manufacturing cost

\$52,131,077. The manufactured product was valued at \$96,082,764, which exceeded the total for 1927 by 12.1 per cent. The value added by manufacture was estimated at \$44,551,687.

**FINANCE.** State expenditures in the year ended Sept. 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$5,502,697 (of which \$5222 was for local education); for interest on debt, \$343,478; for permanent improvements, \$3,675,944; total, \$9,522,119 (of which \$4,760,923 was for highways, \$1,597,558 being for maintenance and \$3,163,305 for construction). Revenues were \$9,229,758. Of these, property and special taxes formed 23.6 per cent; departmental earnings and remuneration to the State for its officers' services, 6.9; sales of licenses, 36.9 (including taxes of \$2,532,725 on sales of gasoline). The State's funded debt outstanding on Sept. 30, 1930, was \$4,910,000. Net of sinking-fund assets, it was \$3,878,721. On property bearing an assessed valuation of \$482,790,645 were levied in the year State taxes of \$2,922,883.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 2965.21. Additions to this total in the course of the year preceding had totaled 26.27 miles, and only 0.4 mile had been abandoned. No building of new line or trackage in 1931 was reported.

**EDUCATION.** As reported for 1930, the number of the State's inhabitants of school age was 141,273. There were enrolled in the public schools 124,947 pupils. Of these, 93,775 were in common schools or elementary grades, and 27,172 were in high schools. The year's expenditures for public-school education totaled \$11,650,814.

**LEGISLATION.** The twenty-first Legislature held a regular session, which ended on March 5. This was followed by a special session, called by Governor Ross, and extending from March 6 to 13. The object of the special session was to complete necessary tax legislation. In accordance with the Governor's recommendation, the primary system of the State was revised. Each primary candidate, under the new system, was required to pay a fee of \$2 for the first \$300 in salary paid by the office for which he ran and an additional 1 per cent pro rata of further salary paid by such office. The law further regulated nominating petitions and limited candidates to specified items of personal expenditure in their campaigns.

A law providing easier divorce procedure was passed over the Governor's veto. It reduced the period of residence preliminary to divorce proceedings to 90 days. An income-tax measure was voted, imposing a graduated tax on both corporations and individuals, at rates as follows: on the first \$2000, 1 per cent; on the second \$2000, 2 per cent; on the third \$2000, 3 per cent; on all over \$6000, 4 per cent. Personal exemptions were allowed to the amounts of \$1000 of income for single persons, \$2500 for married persons and \$300 for each of the taxpayer's dependents. Electric power was subjected to a State duty levied by the kilowatt-hour. Provision was made for a system of old-age pensions. See OLD-AGE PENSIONS.

**POLITICAL AND OTHER EVENTS.** Martial law was proclaimed in three counties in the southern part of the State late in August. This proceeding was the result of an outbreak of suspected

incendiarism in the forests. Natural forest fires in periods of summer drought had brought employment to many of the population. On this occasion it was alleged that persons in Gem, Boise, and Valley counties had been starting fires in the forests in order to procure employment as fire fighters for themselves or their friends. To settle a boundary dispute between Idaho and Wyoming, President Hoover, in accordance with an act of Congress, appointed Robert Follansbee of the Geological Survey as a Federal representative to take part in negotiations of the two States.

**OFFICERS.** Governor, C. Ben Ross; Lieutenant-Governor, G. P. Mix; Secretary of State, Fred E. Lukens; Auditor, E. G. Gallet; State Treasurer, George J. Barrett; Attorney-General, Fred J. Babcock; Superintendent of Public Instruction, Myrtle R. Davis; Inspector of Mines, Stewart Campbell.

**JUDICIARY.** Supreme Court: Justices, T. Bailey Lee, Bertram S. Varian, W. F. McNaughton, Raymond L. Givens, Alfred Budge.

**IDAHO, UNIVERSITY OF.** A coeducational State institution of higher learning in Moscow, Idaho, founded in 1889, with a southern branch in Pocatello, established by Act of the State Legislature which converted the Idaho Technical Institute into a division of the State university; the change became effective in the autumn of 1927. The total enrollment at Moscow in the autumn of 1931 was 2113. Total enrollment at Pocatello was 700. The enrollment for the 1931 summer session was 446. The faculty numbered approximately 170. The physical plant at the university was valued at approximately \$2,140,000, and that at the southern branch at approximately \$765,000, making a total of about \$2,900,000. The productive funds of the university amounted to \$2,049,761, and the income for 1930-31 was approximately \$1,422,749. The library contained 92,000 volumes. The outstanding event of the year was the installation of the William Edgar Borah Foundation for the Outlawry of War, which was featured by addresses by Senator Borah and Dr. Manley O. Hudson, Bemis professor of international law at Harvard University. President, Mervin Gordon Neale, Ph.D.

**ILLINOIS. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 7,630,654; in 1920, 6,485,280. As grouped with regard to origin, its chief elements were: native white, 6,048,203 (1930), 5,092,382 (1920); foreign-born white, 1,218,158 (1930), 1,200,951 (1920); Negro, 328,972 (1930), 182,274 (1920); Mexicans, 28,906 (1930), when separately grouped, having been grouped among the foreign-born whites in 1920; Chinese, 3192 (1930); Filipinos, 2011 (1930). The urban population (residing in communities of 2500 or more), numbering 5,635,727 in 1930, greatly outnumbered the rural population, which was 1,994,927.

Those of the population reporting gainful occupations in 1930 numbered 3,184,875. Of these the greatest group, that in the manufacturing and mechanical industries, contained 1,098,069, of whom 193,893 were in the building industry; those in trade were 602,896; in the transportation industry, 344,221; in agriculture, 352,524; in professional service, 233,507; in domestic and personal service, 317,851; engaged in the extraction of minerals (chiefly coal mining), 66,910.

The chief city, Chicago, had 3,376,438 inhabit-

ants in 1930; 2,701,705 in 1920. Peoria, with 104,909 (1930), 76,121 (1920), was the only other city of over 100,000. Springfield, the capital, had 71,864 (1930); 59,183 (1920).

**AGRICULTURE.** The following table shows the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn ....	1931	9,185,000	839,845,000	\$101,954,000
	1930	8,832,000	229,632,000	142,372,000
Hay, tame .	1931	2,384,000	2,678,000*	20,582,000
	1930	2,485,000	2,453,000*	32,134,000
Oats ....	1931	4,182,000	142,188,000	28,438,000
	1930	4,267,000	142,944,000	41,454,000
Wheat ...	1931	1,935,000	45,076,000	20,285,000
	1930	1,921,000	35,086,000	24,102,000
Potatoes .	1931	55,000	4,675,000	3,039,000
	1930	50,000	3,900,000	4,875,000
Barley ...	1931	297,000	8,613,000	3,859,000
	1930	288,000	8,040,000	4,147,000

\* Tons.

**MINERAL PRODUCTION.** The State's important coal industry, supplying the greater part of its yearly total value of mineral products, was depressed during much of 1930. In consequence there were mined only 53,731,230 short tons of coal, as against 60,657,641 in 1929. The value of coal mined was, for 1930, \$93,484,000, and \$113,453,000 for 1929. Production of coke declined to 3,576,577 short tons, all from by-product ovens, for 1930, from 4,204,116 for 1929; in value, to \$21,379,784 for 1930, from \$26,036,197 for 1929. Much less pig iron was made, the shipments from blast furnaces falling to 3,050,743 long tons for 1930, from 4,316,096 for 1929; in value, to \$54,290,144 for 1930, from \$79,672,295 for 1929. The total value of the mineral production of 1930 was \$182,791,131; that of 1928 attained \$188,098,866.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 represented the number of the State's manufacturing establishments as 15,327, or about 4 per cent more than in 1927. Wage earners employed in 1929 numbered 687,917, or 10.3 per cent more than in 1927. The manufacturing wages paid in 1929 amounted to \$1,038,832,796, or 13.9 per cent more than had been paid in 1927. Materials for manufacture cost, in 1929, \$3,235,079,472; fuel and purchased electricity, \$166,515,890. The manufactured product was valued at \$6,232,438,498, which exceeded the corresponding total for 1927 by 15.7 per cent. Value added by manufacture was estimated for 1929 to total \$2,830,843,046. Chicago furnished the greater part of all these totals for 1929. Its 10,200 manufacturing establishments employed 404,072 wage earners, to whom was paid in wages the total of \$644,704,472, and its manufactured product totaled \$3,884,674,736.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$45,440,410 (of which \$3,759,914 was for local education); for interest on debt, \$8,146,777; for permanent improvements, \$40,594,891; total, \$94,205,318 (of which \$33,537,810 was for highways, \$3,562,930 being for maintenance and \$29,974,880 for construction). Revenues were \$90,179,249. Of these, property and special taxes formed 36.5 per cent; departmental earnings and remuneration to the State for officers' services, 4.0; sale of licenses, 54.4 (including gasoline sale taxes amounting to \$19,290,593). The State's

funded debt outstanding on June 30, 1930, was \$202,343,320. Of this amount, \$155,372,000 was for highways and waterways. Net of sinking-fund assets, debt was \$201,784,825. On a property valuation of \$8,332,765,328 were levied in the year taxes of \$32,497,784.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 12,499.60. This was slightly less than a year before, for, while additions of 32.09 miles of line had been made in the year, 43.33 miles of line had been abandoned. Reported additional construction in 1931 was limited to 2.58 miles of first track.

**EDUCATION.** For the academic year ended with June, 1930, the number of persons of school age in the State was reported as 2,039,310; those of ages from 6 to 21 were included. There were enrolled in the public schools 1,395,907 pupils. Of these, 1,094,788 were in common schools or elementary grades; in high schools, 301,119. The year's expenditures for public-school education were: current, \$123,582,993; capital outlay, \$26,411,745. Salaries of the teachers averaged \$1681 for the year. In spite of the State's fiscal difficulties, the legislative session of 1931 rejected efforts to reduce the State's grants for local education and, on the contrary, increased the appropriation for the distributive school fund by \$500,000.

**CHARITIES AND CORRECTIONS.** The central administrative authority for the care and custody of persons rested in 1931 in the Department of Public Welfare, as created by the Civil Administrative Code of 1917. It had as its head a director (Rodney H. Brandon); under him were a superintendent of charities, administering charitable institutions; a superintendent of prisons, with like authority over the penal institutions; and a supervisor of paroles, an alienist, a criminologist and other subordinates. A division of child welfare dealt with dependent children.

With populations of November 1, some of the State institutions under the direction of the Department follow: mental hospitals at Elgin, Chicago, Kankakee, Manteno, Peoria, Jacksonville, East Moline, Alton, Anna and Chester, 23,280; penitentiaries at Joliet and Menard, boys' reformatory at Pontiac, women's prison at Joliet, State farm (misdeemeanants) at Vandalia, and women's reformatory at Dwight, 10,322; institutions for the feeble-minded at Lincoln and Dixon, 5938; Illinois School for the Deaf, Jacksonville, 552; Illinois School for the Blind, Jacksonville, 238. The Department had under parole, on June 30, 4560 released from penal institutions and correctional schools.

**LEGISLATION.** The Legislative session of 1931, following the direction given by the advisory popular referendum on prohibition held in 1930, passed an act to repeal the State's system of prohibition enforcement and the law granting wide power of search and seizure. Governor Emmerson vetoed the repeal measure, which failed to be enacted over his veto. A State income tax measure, favored by the Downstate element, passed the Senate but was defeated in the House, chiefly by the vote of the Chicago contingent, who regarded it as designed to put on the city a greater part of the fiscal burden justly assignable to the rest of the State.

The antagonism between the Chicago and the Downstate elements was responsible also for a long and fruitless struggle over the proposal

to reapportion the State's Congress districts. An act was finally passed granting Chicago four additional districts. As Chicago taxpayers had widely refrained from paying taxes on the new protested assessments, and the city had accordingly failed by about \$16,000,000 of supplying the revenue expected of it by the State, an act was passed to legalize the State's sale of tax-anticipation warrants. The sale of machine guns to others than peace and military officers was rendered illegal.

Legislation reallotting proceeds of the State tax on gasoline and assigning the maintenance of State-constructed streets in cities was enacted, despite city opposition. The percentage of the total vote that a group must attain to rank under the law as a political party was raised to 5, from 2.

*Special Session.* In November a special session took under consideration measures for putting in order the tax system of the State and of Chicago. Chicago real-estate interests worked out a plan for the city's needs. In part, this plan included the issue of 20-year bonds with which to obtain the receipts that the deferred tax of 1930 was not expected to bring in. The intention was thus to fund the tax and to spread out its burden over a series of years to come.

**POLITICAL AND OTHER EVENTS.** The continued delay in the collection of taxes in Chicago made trouble during the year not only for the government of the city but for that of the State. Governor Emmerson at the outset of July named a committee of business, political, and civic leaders to seek a practical solution of revenue problems for the State as a whole. In spite of extensive measures for the relief of the unemployed, there was much destitution and dissatisfaction, which Communist organizers sought to enlist for their purposes, notably in a "hunger march" from Chicago to Springfield in June.

Discontent in State penal institutions broke out in rioting at the old Joliet penitentiary on March 14, at the new penitentiary, four miles away, on the 18th, and on May 24 at the Vandalia prison farm. At the new penitentiary the rioters set fire to buildings, causing a loss of \$500,000, and at the prison farm they set fire to the dormitories. The deepened Illinois River was opened for navigation as far as Peoria.

The efforts to put an end to organized crime and illicit traffic in Chicago and related communities made headway. Leo V. Brothers, a resident of St. Louis, was tried in Chicago for the murder of Alfred J. Lingle, Chicago *Tribune* reporter; he was convicted and sentenced to 14 years in the penitentiary. The conspiracy of others with this defendant to effect the murder, if such conspiracy existed, was not conclusively established. Alphonse Capone, the most conspicuous of the "public enemies" against whom public opinion had been stirred up, was prosecuted in Chicago before a Federal Judge. He was sentenced in February to a prison term of six months for contempt of court. Later the Federal authorities sought indictments against him on a number of counts of infraction of the Jones law. The Grand Jury, however, declined on September 10 to bring the desired indictments. A special Grand Jury made extended inquiries during the summer into the money transactions of members of the police force. Capone received heavy sentences for Federal income tax law violations in October, and it was reported

on November 1 that of the original list of "public enemies," 41 were in prison, dead or awaiting trial; six others were fugitives sought on felony charges.

The movement for civic reform in Chicago won a success in the mayoral election of April 7, Anton J. Cermak, Democratic candidate, favored by the reform group against Mayor William Hale Thompson, who ran for reelection, was elected by a plurality (unofficial) of 191,916. Cermak, a native of Bohemia (Czechoslovakia) and a self-made business man, declared himself for political and financial reforms. The election gave him a majority in the Board of Aldermen.

The financial condition of the city was complicated by what developed into a so-called taxpayers' strike. The quadrennial tax assessment for Cook County made in 1927 had been contested and declared illegal. Thereafter, 18 months passed before the making of a reassessment. In consequence no taxes were paid in 1929. The taxes that should have been paid in 1928 were made to come due on June 10, 1930, to a total of \$219,000,000. But adverse times interfered with payments in 1930, and nearly a year later, some \$50,000,000 of the 1928 levy remained unpaid, despite the sale of about 29,000 parcels of property for delinquent payments and the offering for sale of some 59,000 others, out of a total of 332,000 parcels. The deferred taxes of 1929, in turn, became payable on May 15, 1931, and thereafter were delinquent. The levy totaled \$274,000,000, of which about 60 per cent became delinquent. Many of such payments as were made were tendered under protest. Combined property-owners, alleging discrimination and confiscatory rates, brought suit for injunction to delay tax sales. Nevertheless the County Treasurer listed for tax sale, early in September, property to an estimated value of some \$3,000,000,000, as delinquent on taxes totaling \$69,229,943, due as of 1929.

Lacking adequate revenue for its expenses, Chicago was able until early in 1931 to continue the system adopted in 1930, of raising money among large banking institutions upon its tax-anticipation warrants. The limit of such accommodation was reached in June. Cook County at that time went into temporary default on principal and interest payments, on certain of its obligations, to the total of \$1,868,000. In July the city had resort to the issue of script certificates for the payment of arrears to teachers and others.

The Federal Treasury notified Cook County on November 30 that because of its defaults of June 1 its bonds had been stricken from the list of investments for postal savings. The taxing bodies of the Chicago area had nearly \$15,000,000 of maturing obligations to meet in December and on January 1. The Legislature in special session, as the year drew toward an end, had before it numerous plans of uncertain excellence to mend the finances of the State, impaired by the situation in Chicago, and at the same time to relieve Chicago's taxpayers. Difficulties were augmented by a court decision of December 31. County Judge E. K. Jarecki, in a suit brought by taxpayers, declared the Cook County tax levies of 1928 and 1929 invalid because "personalty aggregating approximately \$15,000,000,000 had been omitted from taxation." The decision tended to affect payments on the levy of 1930, which fell

due on the following day. There were at the end of the year, according to press report, \$163,900,000 of overdue and unpaid taxes, not counting some \$280,000,000 of tax bills about to mature.

Unusual banking conditions helped bring about in June the success of preliminaries for the consolidation of the Central Trust Company of Illinois and the National Bank of the Republic, under the name of the Central Republic Bank and Trust Company, with combined resources of some \$350,000,000. About the same time was announced the combination of the First National Bank with the Foreman-State National Bank and its affiliates.

Such criminal activities as bombings and gang terrorism persisted during the summer despite numerous raids of the police on places of illicit resort. Under pressure for more decisive action Mayor Cermak, on October 1, appointed Captain James P. Allman to be Commissioner of Police, with orders to suppress vice and gambling.

OFFICERS. Governor, Louis L. Emmerson; Lieutenant-Governor, Fred. E. Sterling; Secretary of State, William J. Stratton; Treasurer, Edward J. Barrett; Auditor of Public Accounts, Oscar Nelson; Attorney-General, Oscar E. Carlson; Supt., of Public Instruction, Francis G. Blair.

JUDICIARY. Supreme Court: Chief Justice, Clyde E. Stone; Associate Justices, Norman L. Jones, Oscar E. Heard, Frederic R. de Young, Warren W. Duncan, Warren H. Orr.

ILLINOIS, UNIVERSITY OF. A coeducational State institution of higher learning in Urbana-Champaign, Ill., founded in 1867. The enrollment in the autumn of 1931 was 12,152, of whom 9159 were men and 2993 were women. The summer-session enrollment was 3088, of whom 1906 were men and 1182 were women. The number of persons on the teaching staff above the rank of assistant was 808, in the grade of assistant or lower there were 426, and the administrative officers totaled 25. The income for the year 1930-31 was \$9,303,838, of which \$7,079,530 was from the State. The productive funds from Federal endowment totaled \$649,013 and from private gifts, \$350,591. During 1931 the chemistry annex, the first unit of the medical and dental laboratories (in Chicago), the woman's gymnasium, the filtration plant, the agronomy seed house, the cattle feeding plant, the ice skating rink, and power plant additions were completed. The library contained 877,884 volumes and 227,875 pamphlets. President, Harry Woodburn Chase, Ph.D., LL.D.

ILLINOIS WATERWAY. See CANALS.

ILLITERACY. See EDUCATION in THE UNITED STATES.

ILLUMINATION. See ELECTRIC LIGHTING.

IMAMATE OF YEMAN. See ARABIA.

IMBROS AND TENEDOS. See GREECE under History.

IMMIGRATION. The commonly expressed belief, on the part of students of immigration, that with the opening of the decade of the thirties the United States had finally abandoned its historic policy of maintaining an open door to the distressed and to the persecuted the world over, was completely substantiated when the Bureau of Immigration of the U. S. Department of Labor made public its immigration figures for the fiscal year 1930-1931. For the first time since the Civil War the annual immigration to the United States fell below 100,000. During the fiscal year 1930-1931, 97,139 immigrant aliens were admitted as compared with

241,700 in the preceding year and an immigration of more than 1,000,000 in 1914. Of the 97,139 immigrant aliens, 54,118 came in under the Immigration Act of 1924 as aliens charged to the quota of 150,000 set up by that law. In brief, only a little more than one-third of the aliens for whom provision had been made were admitted. The others were non-quota aliens, 21,139 coming from non-quota countries, principally Canada; 17,264 were husbands, wives, and unmarried children of United States citizens; and 4618 were ministers, teachers, women who had been American citizens, and other miscellaneous classes. Actually, when emigration is matched against immigration a loss in the additions made to the population was indicated, in view of the fact that 61,882 immigrant aliens departed the country in 1930-1931. One other significant tendency is worth recording and that was the increasing number of deportations taking place as a result of the more vigorous policy being pursued by the Bureau of Immigration. In the fiscal year ending June 1931, a total of 18,142 aliens were deported. The accompanying table indicates the countries of origin of the immigrant aliens admitted to the United States in the fiscal years 1924, and 1929 to 1931.

#### IMMIGRATION TO THE UNITED STATES

Countries	Immigrant aliens admitted during the fiscal year—			
	1924	1929	1930	1931
Germany .....	75,091	46,751	26,569	10,401
Great Britain ..	59,490	21,327	31,015	9,110
Ireland .....	17,111	19,921	23,445	7,305
Italy .....	56,246	18,008	22,327	18,399
Canada .....	200,690	64,440	68,502	21,687
Mexico .....	89,336	40,154	12,703	3,333
All other .....	208,932	69,077	62,139	31,904
Total .....	706,896	279,678	241,700	97,139

It will be observed that of the 97,139 immigrants admitted during the fiscal year 1930-31, 61,909 came from European countries, 21,687 came from Canada; 3333 came from Mexico. The principal nationalities contributing immigrant aliens during the fiscal year 1930-1931 were as follows: Italian, 13,399; German, 10,401; English, 9110; Irish, 10,814; Scotch, 7618; Jewish, 5692; French, 4908; and Scandinavian, 3942. Of every 100 immigrants entering the United States in 1931, 14 were Italian, 14 were German, 13 were English, 11 were Irish, 8 were Scotch, 6 were Jewish, 5 were French, and 4 were Scandinavian.

The almost complete raising of the bars against immigration of aliens, particularly from European lands, was effected as a result of the policy announced by President Hoover on Sept. 8, 1930, which was an order requiring American consuls in foreign ports to withhold visas to those aliens applying, unless they could show the possession of a very large sum of money, on the ground that they were liable to become public charges in the United States.

The tables on page 402 throw further light on the countries of origin and the racial characteristics of the new immigrants admitted into the country during the fiscal years ended June 30, 1930, and 1931.

MEXICAN IMMIGRATION. An interesting report published by a Fact Finding Committee appointed by the Governor of California threw light on the status of Mexican aliens in that State. The Committee estimated that between



**IMMIGRANT ALIENS ADMITTED AND EMIGRANT ALIENS DEPARTED DURING THE FISCAL YEARS ENDED JUNE 30, 1930, AND 1931, BY RACE OR PEOPLE, SEX, AGE, AND CONJUGAL CONDITION**

Race or people	Immigrant		Emigrant	
	Fiscal year 1930	Fiscal year 1931	Fiscal year 1930	Fiscal year 1931
Total .....	241,700	97,139	50,661	61,882
African (black) ....	1,808	884	776	737
Armenian .....	790	519	57	40
Bohemian and Moravian (Czech) ....	653	266	574	792
Chinese .....	970	748	3,404	3,333
Cuban .....	2,122	717	1,274	1,363
Dutch and Flemish ..	4,713	2,001	993	1,238
English .....	34,960	12,703	6,461	6,532
French .....	13,771	4,908	1,945	2,040
German .....	34,415	13,813	5,732	4,379
Greek .....	3,793	2,683	785	816
Hebrew .....	11,526	5,692	299	819
Irish .....	34,947	10,814	1,940	2,379
Italian .....	23,316	13,970	2,961	2,780
Japanese .....	796	626	1,004	696
Magyar .....	1,542	999	688	562
Mexican .....	11,915	2,627	6,296	14,406
Polish .....	4,924	2,008	1,924	2,101
Portuguese .....	780	626	336	307
Russian .....	1,634	967	472	532
Scandinavian (Norwegians, Danes, and Swedes) .....	8,478	3,947	2,775	3,761
Scotch .....	28,117	7,618	2,210	3,435
Slovak .....	3,214	1,474	758	576
Spanish .....	1,169	784	1,776	2,214
Spanish American ..	3,237	1,848	1,741	2,023
Welsh .....	2,043	550	180	257
All others .....	6,069	3,417	3,315	4,214
<i>Sex</i>				
Male .....	117,026	40,621	32,565	40,857
Female .....	124,674	56,518	18,096	21,025
<i>Age</i>				
Under 16 years .....	40,777	17,320	3,479	5,241
16 to 21 years .....	57,736	21,156	3,530	4,499
22 to 29 years .....	71,570	25,956	13,001	15,392
30 to 37 years .....	32,043	14,097	11,002	13,875
38 to 44 years .....	15,710	5,891	6,666	8,074
45 years and over ..	23,864	12,719	12,933	15,001
<i>Conjugal</i>				
Single .....	155,829	56,564	23,295	28,378
Married .....	77,560	35,700	25,242	30,960
Widowed .....	7,764	4,573	2,055	2,466
Divorced .....	547	302	69	78

1900 and 1920 approximately 200,000 Mexicans made their way into the United States by illegal means, most of whom came during the period of the World War as a result of great expansion of American agriculture and industry. During the three fiscal years in which the 3 per cent quota act of 1921 was operative, the number of Mexican immigrants coming into the United States rose from 13,246 in 1922 (5.9 per cent of the total immigration for the year) to 37,648 in 1924 (12.4 per cent of the total immigration for the year). In the next four fiscal years the immigration from Mexico rose from 32,378 in 1925 (11 per cent of the total immigration for the year) to 57,765 in 1928 (18.8 per cent of total immigration for the year). From 1928 on, Mexican immigration declined seriously, largely due to the fact that beginning with that year immigration authorities enforced more rigorous visa requirements and fixed a visa charge of \$10 per head. It is significant to note that fully 4 per cent of all alien immigrants declaring California as their intended permanent residence were Mexicans; in other words, California's alien population was being made up almost entirely of persons coming from the land south of the Rio Grande.

The Committee also pointed out that Mexican labor was an important element in the agricul-

**LAST PERMANENT RESIDENCE OF IMMIGRANT ALIENS ADMITTED AND INTENDED FUTURE PERMANENT RESIDENCE OF EMIGRANT ALIENS DEPARTED**

Countries	Immigrant		Emigrant	
	Fiscal year 1930	Fiscal year 1931	Fiscal year 1930	Fiscal year 1931
Europe, total ....	147,438	61,909	29,538	33,185
Austria .....	1,744	738	801	270
Belgium .....	909	551	489	625
Czechoslovakia .....	4,438	2,016	1,166	1,331
Denmark .....	1,161	555	805	513
France .....	3,713	1,830	1,978	1,978
Germany .....	26,569	10,401	4,639	3,369
Great Britain and Northern Ireland:				
England .....	12,884	4,825	4,055	4,588
Northern Ireland ..	6,474	1,184	321	552
Scotland .....	16,692	8,895	1,589	2,860
Wales .....	1,439	390	105	215
Greece .....	2,291	1,763	733	753
Hungary .....	1,265	887	550	512
Irish Free State .....	17,971	6,121	1,242	1,556
Ithaly .....	22,327	13,399	2,654	2,410
Lithuania .....	612	403	169	349
Netherlands .....	2,738	1,143	476	612
Norway .....	2,649	1,280	1,085	1,437
Poland .....	9,231	3,604	1,979	2,119
Portugal .....	687	542	255	204
Rumania .....	1,726	938	508	504
Russia .....	1,133	335	256	433
Spain .....	670	476	1,231	1,667
Sweden .....	3,109	1,298	1,113	1,583
Switzerland .....	1,689	864	465	411
Yugoslavia .....	1,737	859	1,302	1,317
Other Europe .....	2,630	1,617	572	967
Asia, total .....	4,535	3,345	4,792	4,405
China .....	1,589	1,150	3,471	3,375
Japan .....	837	653	1,035	699
Palestine .....	702	330	46	61
Syria .....	497	300	35	49
Other Asia .....	910	912	205	221
America, total ..	88,104	30,816	15,773	23,943
Canada .....	63,502	21,687	3,142	2,735
Newfoundland .....	1,752	496	87	160
Mexico .....	12,703	3,333	3,355	14,142
West Indies .....	5,225	2,496	3,577	3,742
Central America .....	1,618	1,107	869	854
South America .....	3,302	1,695	1,742	2,010
Other America .....	2	2	1	....
Others, total ....	1,623	1,069	558	899
Africa .....	572	417	180	160
Australia and New Zealand .....	1,026	616	358	223
Pacific Islands (not-specified) .....	25	86	20	16
All Countries ..	241,700	97,139	50,661	61,882

tural life of the State and that these persons constituted the chief source of agricultural labor. The Mexicans were willing to undertake work that white labor would not or could not do and toiled under excessive heat, dust, isolation, and the like. A large majority of the farm operators of California showed their preference for Mexicans as against Japanese, Filipinos, Porto Ricans, Chinese, Negroes, and East Indians. According to the Committee, Mexicans resident in the State comprised the largest group of unskilled low paid labor and were making no serious efforts to raise their economic and social status. Said one portion of the Committee's report:

They have had little or no schooling and are unfamiliar with English. Before they came to this country they lived on a meagre diet, paying little attention to sanitation and hygiene. Their infant mortality rate is high as is also the rate for tuberculosis and other communicable diseases. They have had feudal relation toward authority, making it difficult for them to adjust themselves to American traditions. . . . Mexicans in California have had a tendency to live in colonies both in urban and in rural districts, and this retards their assimilation with the native

population. The housing facilities available to most of the Mexicans are often poor and do not conform to proper sanitation standards. Sales agreements frequently prohibit these aliens from buying properties in any but Mexican districts. The existing ground-land system in certain sections results in overcrowding and unhygienic conditions.

Certain other significant demographic and social facts were to be found in the Committee's report. For instance, it was pointed out that in 1929, births among Mexicans in California constituted 17.7 per cent of all births in the State and that in certain cities near the border such births constituted 60 per cent to 70 per cent of all births. There was one Mexican among every 10 children receiving State aid in California. In 1928, the proportion of Mexican children in the orphanages of the State was 7.8 per cent, and in Los Angeles county more than 16 per cent of all the children in institutions were Mexican.

See also each of the larger countries under *Area and Population*; *BRITISH COLUMBIA* and *JAMAICA* under *History*.

**IMPORTS.** See articles on various countries; and especially articles *AGRICULTURE*; *CORN*; *IRON AND STEEL*, ETC.

**IMRO.** See *BULGARIA* under *History*.

**INCINERATORS.** See *GARBAGE AND REFUSE DISPOSAL*.

**INCOME TAX.** See *PUBLIC FINANCE*; *TAXATION*.

**INDEPENDENT METHODIST CHURCHES.** See *METHODISTS*.

**INDEX NUMBERS.** See *AGRICULTURE* under *Agricultural Situation*; *FINANCIAL REVIEW*; *FOOD AND NUTRITION*; *STATISTICS*.

**INDIA.** A dependency of the British Empire comprising all that part of the Indian peninsula which is directly governed by British officials or indirectly governed through the rulers of native States subject to the British Parliament. The dependency is divided into British India, or the territory subject to British law, and the Indian States, ruled by native princes. Capital, New Delhi.

**AREA AND POPULATION.** The total area, including the Indian States and Agencies which are in political relations with the Government, according to the census of 1931, was 1,819,000 square miles (1,805,332 square miles at the 1921 census), of which the British Provinces constituted 1,107,968 square miles and the Indian States 711,032 square miles. The population at the census of 1931 totaled 352,986,876, according to provisional returns. Compared with the 1921 population of 318,942,480, this represented an increase of 10.6 per cent. The British Provinces in 1931 had a population of 270,612,162 (247,003,293 in 1921) and the Native States and Agencies, 80,383,529 (71,939,187 in 1921). Of the total 1931 population, 181,921,914 were males and 171,064,962 were females. The area and population of the British Provinces and of the Native States and Agencies in 1931 are shown in the accompanying table.

Approximately 41 per cent of the total 1931 population resided in Bengal, Madras, and the United Provinces. In 1921, over 90 per cent of the population was classed as rural, only 9½ per cent living in towns of 5000 or more. The 1921 population included 115,606 persons born in Great Britain and 10,587 born in other European, American, or Australasian countries.

The population of the leading cities, according to preliminary returns of the census of Feb. 26,

# BRITISH PROVINCES AND INDIAN STATES: AREA AND POPULATION

<i>British Provinces</i>	<i>Area in sq. miles</i>	<i>Population, 1931</i>
Ajmer-Merwara .....	2,711	560,576
Andamans and Nicobars .....	8,143	29,463
Assam .....	58,015	8,784,943
Baluchistan .....	54,228	463,492
Bengal .....	76,843	49,997,376
Bihar and Orissa .....	83,161	87,590,356
Bihar .....	42,860	25,650,917
Orissa .....	13,736	5,300,898
Chota Nagpur .....	27,065	6,889,041
Bombay (Presidency) .....	123,821	21,102,126
Bombay .....	77,035	17,166,009
Sind .....	46,506	3,593,304
Aden .....	80	50,809
Burma .....	238,707	14,652,272
Central Provinces and Berar .....	99,876	15,472,628
Central Provinces .....	82,109	12,028,863
Berar .....	17,767	3,443,765
Coorg .....	1,582	163,089
Delhi .....	593	636,827
Madras .....	142,260	46,731,850
Northwest Frontier Province (Administrated Territories) .....	13,419	2,423,380
Punjab .....	99,846	23,580,520
United Provinces .....	106,295	48,423,264
Agra .....	82,137	35,628,184
Oudh .....	24,158	12,795,080
<b>Total Provinces .....</b>	<b>1,094,300</b>	<b>270,612,162</b>
<i>Indian States and Agencies</i>		
Assam State (Manipur) .....	8,456	446,084
Baluchistan States .....	80,410	403,719
Baroda State .....	8,135	2,442,924
Bengal States .....	5,423	972,291
Bihar and Orissa States .....	28,556	4,642,663
Bombay States .....	59,560	4,377,455
Central India Agency .....	52,317	6,615,204
Central Provinces States .....	32,081	2,478,519
Gwalior State .....	26,382	3,520,708
Hyderabad State .....	82,698	14,395,493
Kashmir State .....	89,807	3,645,339
Madras States Agency .....	10,644	6,748,107
Cochin .....	1,361	1,204,235
Travancore .....	7,594	5,090,462
Mysore State .....	29,460	6,554,573
Northwest Frontier Province (Agencies and Tribal areas) .....	25,500	2,259,305
Punjab States .....	30,742	4,909,537
Rajputana Agency .....	129,058	11,223,708
United Provinces States .....	2,218	1,205,608
Western India States Agency (Sikkim) .....	2,818	3,997,290
<b>Total States .....</b>	<b>711,032</b>	<b>80,838,527</b>
<b>Total Provinces .....</b>	<b>1,094,300</b>	<b>270,612,162</b>
<b>Total India .....</b>	<b>1,805,332</b>	<b>351,450,689</b>

1931, with comparative 1921 figures in parentheses, was: Calcutta, with suburbs, 1,383,898 (1,327,547); Calcutta proper, 1,161,410 (907,851); Bombay, 1,157,851 (1,175,914); Madras, 647,225 (526,911); Delhi, 439,736 (304,420); Lahore, 429,403 (281,781); Rangoon, 400,419 (341,962); Hyderabad, 377,006 (404,187); and Bangalore, 306,365 (237,496).

**RELIGION, ETC.** The religious division of the population in 1931 was: Hindus, 238,330,912 (216,734,586 in 1921); Moslems, 77,743,928 (68,735,233); Buddhists, not available (11,571,268 in 1921); Christians, 5,961,794 (4,754,064); Sikhs, 4,306,442 (3,238,803). The 1931 figures are preliminary. The Jains, Parsis, and Jews are minor religious sects. There were 2300 different castes, the largest, in the order named, being the Sheikh, Brahman, Chamiar, Rajput, Ahir, Burmese, Jat, and Maratha. The so-called "untouchables" comprised 30 per cent of the Hindu population. The principal languages in use are Hindu, Bengali, and Telugu. About 2,500,000 persons speak English.

**EDUCATION.** At the 1921 census, 87.4 per cent of the males and 98.1 per cent of the females over

six years of age were illiterate. Students in educational institutions in British India in 1928-29 numbered 12,165,839, including 2,137,753 females. Of this total, 9,013,591 students were in primary schools, 2,111,976 in secondary schools, and 94,257 in universities.

**PRODUCTION.** Agricultural production is the basic source of India's wealth, and supports over three-fourths of the population. Rice is the chief crop and the staple food of the masses. The cotton crop ranks second in size to that of the United States and is the leading raw material export. India is the largest cane-producing country in the world, although \$50,000,000 worth of sugar is imported annually, and it has a monopoly of the world's jute supply. The normal annual productivity of the country was estimated at \$10,000,000,000, or about 5 per cent of the world total. In 1928-29, there were 309,956,000 acres of arable land in British India and about 79,100,000 acres in the Indian States. The area and production of the chief crops for all India in the 1929-30 and 1930-31 crop seasons are shown in the accompanying table.

INDIAN CROPS: AREA AND YIELDS  
[Including Indian States]

Crop	Area (Thousands of acres)		Production *	
	1929-30	1930-31	1929-30	1930-31
Wheat . . . .	81,973	81,847	320,731	386,512
Barley . . . .	7,532 <sup>a</sup>	8,450	117,602	106,867
Rice, rough . .	80,479	81,986	2,386,394	2,421,886
Sugar . . . . .	2,515	2,777	2,761 <sup>b</sup>	8,178 <sup>b</sup>
Tea . . . . .	789	....	432,998 <sup>c</sup>	376,000 <sup>c</sup>
Rape and mustard . . . .	5,840	3,461	1,088 <sup>b</sup>	....
Sesamum . . . .	5,318	5,294	460 <sup>b</sup>	466 <sup>b</sup>
Linseed . . . .	2,801	2,299	374 <sup>b</sup>	....
Castor seed . .	1,285	1,457	116 <sup>b</sup>	120 <sup>b</sup>
Peanuts . . . .	5,748	6,240	2,668 <sup>b</sup>	2,988 <sup>b</sup>
Cotton . . . . .	25,692	23,531	2,472,200 <sup>c</sup>	2,272,920 <sup>c</sup>
Jute . . . . .	8,415	3,486	4,154,000 <sup>c</sup>	4,492,400 <sup>c</sup>
Indigo . . . . .	66 <sup>d</sup>	60 <sup>d</sup>	1,613 <sup>e</sup>	1,512 <sup>e</sup>

<sup>a</sup> Not including Indian States (area only).

<sup>b</sup> Unit, long ton.

<sup>c</sup> Unit, pound.

<sup>d</sup> 89 per cent of indigo area.

<sup>e</sup> Thousands of units—bushels except as indicated.

In the British Provinces in 1929 there were 120,506,000 cattle, 30,833,000 buffaloes, 23,336,000 sheep, 38,608,000 goats, 1,728,000 horses, 1,513,000 mules and asses, and 536,000 camels.

Mineral production in 1929 was valued at £22,421,000 (£22,037,000 in 1928). In order of value, the chief mineral products were coal, petroleum, lead, manganese, gold, salt, iron ore, tin ore, silver, mica, tungsten, and chromite. Coal production in 1930 totaled 22,578,000 long tons; petroleum, about 300,000,000 United States gallons (367,000,000 gallons in 1929). Industrially, India is one of the seven leading countries of the world, the value of manufacturing output being estimated at about two-fifths that of the agricultural production. Cotton and silk weaving, shawl and carpet weaving, wood-carving and metal-working are the principal industries. In 1928-29, there were 292 cotton mills, 95 jute mills, and 17 woolen mills. The cotton mills employed 523,515 persons, consumed 1,893,269,000 pounds of cotton, and produced 803,996,000 yards of piece goods. In 1930 and 1931, domestic business was crippled to a large extent by strikes, boycotts, and internal disorders centring about the movement for Indian autonomy (see *History*).

**COMMERCE.** India ranks among the seven leading trading countries of the world. For the fiscal

year ended Mar. 31, 1931, general imports were valued at \$586,800,000 (\$878,900,000 in 1929-30) and exports of British Indian products were valued at \$784,800,000 (\$1,134,400,000 in 1929-30). Rupee values for the same periods were: Imports, 1,648,300,000 (2,408,000,000 in 1929-30); exports, 2,204,600,000 (3,018,100,000). For the calendar year 1930, the United Kingdom supplied 40.2 per cent of all imports (47.2 per cent in 1927); Japan, 9.1 per cent; the United States, 8.2; and Germany, 7. Of the total exports, 22.2 per cent went to the United Kingdom (23.7 per cent in 1927); 10.5 per cent to Japan, 9.8 per cent to the United States, and 6.7 per cent to Germany. Cotton piece goods imported from Britain in 1930 decreased nearly 600,000,000 yards from the 1929 total, or 43.4 per cent. Expressed in values this represented a decline of about £12,000,000, or 47.4 per cent.

According to preliminary 1931 (calendar year) returns, imports totaled 1,357,100,000 rupees, or 490,700,000 rupees less than in 1930, and exports 1,645,400,000 rupees, or 872,700,000 rupees less. The favorable balance of trade was 288,300,000 rupees, compared with 670,300,000 rupees in 1930.

**FINANCE.** Budget operations for the fiscal year ended Mar. 31, 1930, returned a net surplus of 26,800,000 rupees (about £201,000). The political agitation of 1930 and 1931, combined with the world-wide economic depression, seriously impaired the financial position of the Central government. In his annual budget speech on Feb. 28, 1931, Finance Minister Schuster estimated that the fiscal year ending Mar. 31, 1931, would show a deficit of £10,170,000, instead of the anticipated surplus of over £500,000. In the budget estimates for 1930-31, revenues were calculated at 1,354,811,000 rupees (about £101,636,100) and expenditures at 1,347,811,000 rupees (about £101,111,100). On the basis of existing taxation, the Finance Minister forecast a deficit of 172,400,000 rupees (about £12,930,000 at par) for 1931-32. Accordingly, military and civil expenditures were reduced by 27,300,000 rupees (about £2,048,000) and new taxation aggregating 148,200,000 rupees (about £11,115,000) was imposed. With these changes, the 1931-32 budget was expected to produce a surplus of about £232,500. By September, 1931, it became evident that the year would end with a deficit estimated at 195,000,000 rupees. The budget was again revised, effective September 30, so as to reduce the prospective 1931-32 deficit to 100,000,000 rupees and to produce an estimated surplus of 52,500,000 rupees in 1932-33. The rupee equals \$0.365 at par and the average exchange rate for 1930 was \$0.3607.

Interest-bearing obligations of the Government of India on Mar. 31, 1931, were equivalent to \$4,235,000,000 (\$3,978,000,000 on Mar. 31, 1930), and were covered by total interest-yielding assets of \$3,421,000,000, a ratio of 80.8 per cent. Also see *History*.

**COMMUNICATIONS.** Railway lines on Mar. 31, 1930, extended 41,724 miles, of which 31,218 miles were Imperial State lines and 10,506 miles belonged to the Indian States and private companies. Gross receipts of the railways for the fiscal year ended Mar. 31, 1931, were 80,300,000 rupees less than for the preceding year and 104,300,000 less than for 1928-29. Highways in British India and the Punjab extended 225,280 miles. In 1930-31, a total of 6473 vessels, of 15,810,000 net tons, entered and cleared British Indian ports with cargo in the large foreign trade.

ARMY. See MILITARY PROGRESS.

GOVERNMENT. Executive and legislative power rests with the Government-General-in-Council. For the composition of the Council and Legislature, see 1930 YEAR BOOK.

Lord Irwin was succeeded as Viceroy and Governor-General of India on Apr. 18, 1931, by the Earl of Willingdon, former Governor-General of Canada. With the fall of the British Labor government Aug. 24, 1931, Capt. Wedgwood Benn was succeeded as Secretary of State for India by Sir Samuel Hoare (Conservative). The High Commissioner for India in the United Kingdom was Sir A. C. Chatterjee.

### HISTORY

Under Mohandas Karamchand Gandhi's mystical guidance, India moved hesitantly forward during 1931 toward the goal of a coequal status within the British Commonwealth of Nations. A draft constitution envisaging unexpectedly wide powers of autonomy was the fruit of the first Round-Table Conference, ended Jan. 19, 1931. On Mar. 4, 1931, Lord Irwin and Mr. Gandhi signed a truce which terminated for the most part the welter of riots, assassinations, sabotage, strikes, and boycotts accompanying the civil disobedience campaign of the previous year. At London, in the autumn, a second Round-Table Conference undertook the task of embodying in a constitutional document India's aspirations for "dominion status." But the conference was wrecked on the rock of Indian religious animosities. Civil disobedience was renewed by the All-India National Congress and the year came to an end with India seething with disorder and unrest.

THE DRAFT CONSTITUTION. The first Round-Table Conference had convened in London, Nov. 12, 1930 (see 1930 YEAR BOOK), under a cloud of discouragement. It was boycotted by Gandhi and his associates of the All-India National Congress, who repudiated the 76 moderate leaders appointed by Lord Irwin as spokesmen for India. Yet the delegates, with surprising unanimity, held out for a large extension of self-government to India. When the two months of negotiation ended, they carried home Great Britain's offer of governmental reforms so liberal as to win the tentative acceptance of Gandhi and all but the most extreme of his adherents.

The core of the draft constitution approved by the MacDonald government was the concession of the important principle that executives of both the federal and provincial governments should be responsible to the respective native legislatures. A Central government including both British India and the hitherto autonomous Indian States was agreed upon, with the approval of the native rulers. Certain transitional safeguards were incorporated concerning British control of defense, foreign affairs, and finance. The thorny problem of the status of the minorities (Moslems, Christians, Parsis, Eurasians, and the so-called "depressed classes") under the proposed constitution proved impossible of solution in the time at the disposal of the conference and was left open.

THE IRWIN-GANDHI TRUCE. The British offer came at a time when powerful influences on both sides were eager for compromise and the reforms proposed were too far-reaching to be ignored.

Two developments greatly facilitated compromise. Immediately following the close of the Round-Table Conference, the Government of In-

dia ordered the release from prison of Gandhi and his colleagues of the Congress executive committee. About the same time, former Premier Stanley Baldwin pledged the Conservative party to support the reforms for India worked out at the conference. On March 4 Gandhi signed a formal agreement with Lord Irwin bringing to a close the non-violent campaign against British rule initiated a year earlier when he violated the government salt monopoly at Dandi.

The truce provided for the discontinuance of the civil disobedience movement in return for the withdrawal of the Government's repressive ordinances and the release from prison of Nationalists sentenced for non-violent offenses. It was agreed that a second Round-Table Conference should be held to discuss "a future scheme for constitutional government in India." Essential provisions of the new constitutions were listed as: Federation, Indian responsibilities, reservations or safeguards in the interests of India covering defense, external affairs, the position of minorities, the financial credit of India, and the discharge of obligations. The economic boycott of British goods for purely political purposes was to be discontinued. Picketing intended to discourage the use of non-Indian goods, intoxicating liquor, and drugs was to be conducted without aggressive coercion. Lord Irwin, in turn, agreed to permit villagers, in regions where salt was readily accessible, to collect and make salt, but only for domestic consumption and sale. Uncollected fines were to be remitted to Nationalist prisoners upon their release and their property forfeited but not yet sold was to be returned. Where their posts remained vacant, Indians who resigned government positions in sympathy with Gandhi's campaign were to be reinstated.

The truce became effective immediately, amid wild demonstrations for Gandhi and tributes to Lord Irwin from his Congress opponents. Gandhi, however, extended the peaceful boycott of foreign cloth and of Indian machine-made cloth in favor of homespun. Moslem-Hindu hostility continued, reaching a climax in savage riots at Cawnpore during March. According to the official report, 340 persons were killed, 948 were injured, and many Moslem mosques, residences, and shops were attacked by enraged Hindus. On March 15, the All-India Moslem League reaffirmed the conditions precedent to Moslem approval of a federal constitution for India. They demanded one-third representation in the central legislature, majorities in Bengal and Punjab, and the special weighting of representation in the other Provinces.

The Indian princes, meeting with delegates from British India at New Delhi March 16, approved federation in principle, but withheld the right to withdraw at any time. Their apprehension had been aroused by Gandhi's declaration that autocracy and democracy could not blend except on terms dictated by the latter. By 28 votes to 23, the princes elected the Nawab of Bhopal, a member of the younger group favoring federation, as their Chancellor.

At Karachi, on March 25, Gandhi won one of the major political triumphs of his eventful career. The All-Indian National Congress endorsed the Irwin-Gandhi truce and gave the Mahatma virtually a free hand to negotiate for the party at the second Round-Table Conference. The resolution extending to Gandhi the mandate of the Congress stipulated that "the Congress goal of *purna swaraj* remained intact." It instructed the delega-

tion to hold out for complete Indian control of the proposed government, including the army, external affairs, and finance, and for an impartial examination of the financial transactions of the British government in India. The delegates, however, were left free "to accept such adjustments as may be demonstrably necessary in the interests of India." Further, the term *purna swaraj* was reinterpreted to mean "partnership at will" instead of complete independence.

THE SECOND ROUND-TABLE CONFERENCE. The interlude between the two Round-Table Conferences was marked by the intensification of the Hindu-Moslem dispute concerning communal representation, despite Gandhi's efforts toward an agreement, the increasing reluctance to enter an all-Indian legislature manifested by some of the Princes, and the revival of anti-British terrorism in various parts of the country.

Both the Government and the Congress leaders charged each other with breaking the Gandhi-Irwin truce and extended negotiations ensued. Gandhi and the Congress leaders finally modified their demands (August 27), immediately following the fall of the Labor government in Great Britain. In the meantime there occurred several attempts to assassinate Government officials, renewed Hindu-Moslem clashes, and the growth of no-rent and no-tax campaigns among the peasants. Such was the state of affairs, when after much vacillation Gandhi on August 28 suddenly decided to attend the Round Table Conference. He took with him two other delegates of the All-India National Congress—Pandit Malaviya and Mrs. Sarojini Naidu.

The Round-Table Conference continued from September 14, when plenary meetings of the important Federal Structure Committee commenced, until December 1. The attendance of Mr. Gandhi and the formation of a new National Government in Great Britain, with a strong Conservative element, were new factors which influenced the deliberations. From the start the delegates of both British India and the Native States agreed that India must have a federal government, with autonomous powers both at the centre and in the Provinces. On October 31, the Federal Structure Committee presented its draft of the federal constitution, which bore striking resemblance to the Constitution of the United States, and it met with general approval. Upon Moslem insistence, it had been agreed that no action would be taken upon the constitution until the thorny problem of minority representation had been settled. This issue proved impossible of solution. On this problem, principally, the conference ended in a stalemate, although other issues involving British reservation of some measure of control over finance, defense, foreign relations, and the protection of foreign businesses, remained to be settled.

When the conference adjourned, Prime Minister MacDonald reaffirmed the British government's desire to establish an All-India federation. Shortly afterward, he announced the appointment of three Anglo-Indian committees to study, respectively, the questions of the franchise for future voters in India, the relations between federal and provincial finance, and the financial problem arising in connection with the administration of the Indian States. At the same time the Prime Minister promised the immediate organization of the Northwest Frontier Province, a predominantly Moslem district, as a "Governor's Province," and

the eventual extension to it of complete self government. He also announced that Sind would be made a separate Province, giving the Moslem majority control there. The Moslems were thus partly appeased.

The smashing victory which Mr. MacDonald won for his policy of conciliation in India in the House of Commons December 3 served to relieve somewhat Indian disappointment at the outcome of the conference. A motion of censure on the Prime Minister's Indian policy, made by Winston Churchill, was defeated by 369 votes to 43. Nevertheless, Gandhi left London December 5 expressing great disappointment at the vagueness of Mr. MacDonald's promises and describing the conference as "a complete failure." While admitting that no satisfactory solution had been found for the minorities question, he declared that this did not dispose of India's national claim, and that it "must not be allowed to block the way to a full and comprehensive scheme of responsible government." He arrived at Bombay December 28 to find India on the verge of a new struggle with the British raj.

RENEWAL OF VIOLENCE IN INDIA. The new conflict had its inception in the development of a systematic campaign of terrorism in Bengal toward the end of October. The Government responded with a repressive ordinance on October 29 and on November 30 established a virtual state of martial law. The Bengal Provincial Congress retaliated with a commercial and social boycott. By the time Gandhi reached India a District Magistrate at Comilla had been assassinated by two young women, British soldiers at Peshawar had clashed with a group of "Red Shirts," a semi-communistic organization, killing eight of them, a no-rent campaign had been declared in several Provinces, and a number of Congress leaders, including Pandit Jawaharlal Nehru and Abdul Ghaffar Kahn, leader of the Red Shirts, had been arrested. While the All-India Moslem League voted at New Delhi on December 27 to oppose terrorism and the no-rent campaign, the working committee of the All-India National Congress officially authorized the resumption of civil disobedience. Aroused by Gandhi's failure to support their demands at London, "untouchables" in Bombay attacked the Mahatma's Nationalist adherents who gathered at the pier to welcome him.

OTHER DEVELOPMENTS. The weakening confidence in the financial stability of the Government of India was indicated by a steady decline in the exchange value of the rupee, from \$0.3607 in 1930 to \$0.2536 in December, 1931. A \$50,000,000 Indian loan offered in London in May, 1931, was only 38 per cent subscribed. In order to prevent the financial condition of the Indian government from complicating the constitutional task, Prime Minister MacDonald announced on June 26 that the British government would underwrite the credit of the Government of India. The Indian Legislature was incensed by the action of the Secretary of State for India in linking the rupee to sterling, after the abandonment of the gold standard by Great Britain, without consulting Indian opinion. On September 27, the Legislature censured the Government's financial policy, by a vote of 64 to 40. The Indian government accepted the British moratorium offer in June. The net relief (normal payments to Britain minus reparation receipts) was calculated at £246,000 in 1931 and £361,000 in 1932.

The new Indian capital at New Delhi, built



*Wide World Photos*

# INDIAN NATIONAL CONGRESS

A General View of the All-India National Congress at Karachi



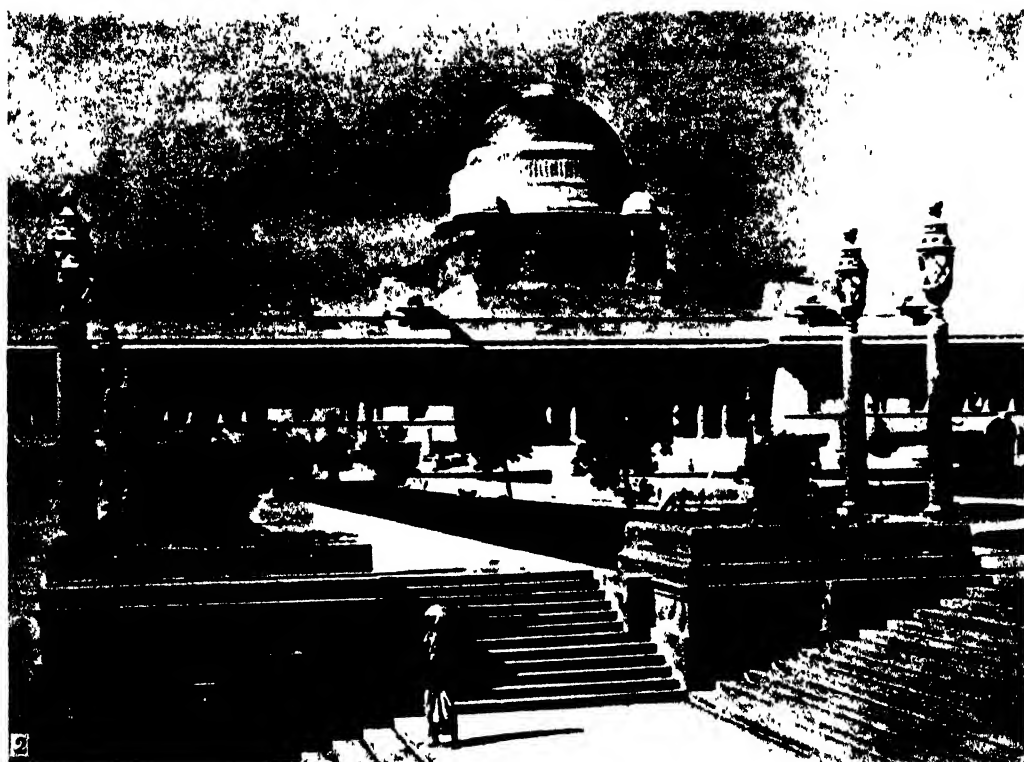
*Underwood & Underwood*

# THE INDIA ROUND-TABLE CONFERENCE

At St. James's Palace, London

Lord Sankey is in the Chair, and on his right are Mahatma Gandhi and Pandit Madan Mohan Malaviya; on the left are Sir Samuel Hoare and Lord Peel





1. The Legislative Assembly Chambers at New Delhi  
*Underwood & Underwood*

2. The New Indian Capital at New Delhi, India  
*Wide World Photos*

NEW DELHI, INDIA

during 20 years at a cost of £10,247,500, was formally opened during the year (see CITY AND REGIONAL PLANNING). The report of the Whitley Royal Commission on labor conditions in India was made public June 30, 1931.

**BIBLIOGRAPHY.** Consult Edward Thompson, *A Farewell to India* (London, 1931); Sir Harcourt Butler, *India Insistent* (London, 1931); K. M. Purkayastha, *The Burden of Swaraj* (Calcutta, 1931); T. A. Bisson, "An Autonomous India: The Administrative Issues," and "The Military Problem in India," *Foreign Policy Reports* for Sept. 30 and Oct. 14, 1931, respectively.

See PHILOLOGY, MODERN, under INDO-IRANIAN.

**INDIANA. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 3,238,503; in 1920, 2,930,390. The chief elements of the population were: native white, 2,981,002 (1930), 2,698,203 (1920); foreign-born white, 135,134 (1930), 150,868 (1920 including Mexicans); Negro, 111,982 (1930), 80,810 (1920); Mexicans, 9642 (1930); Indians, 285 (1930). The urban population (living in communities of 2500 inhabitants or over) which had slightly exceeded the rural population in 1920, rose to 1,795,892 (1930), from 1,482,855 (1920); while the rural population became distinctly a minority, diminishing to 1,442,611 (1930), from 1,447,535 (1920).

Of the 1,251,177 inhabitants reporting gainful occupation in 1930, the largest group, 440,515, were connected with the manufacturing and mechanical industries, 61,339 being in the building industry; in agriculture were 250,150, of whom 160,429 were farmers; 180,185 were in trade; 116,401 in the transportation industry; 84,419 in professional service; 98,876 in domestic and personal service; 24,034 in coal mining and other extractive mineral industries.

Indianapolis, the capital and greatest city, had 364,161 inhabitants (1930); 314,194 (1920). Evansville, 102,249 (1930), 85,264 (1920); Fort Wayne, 114,946 (1930), 86,549 (1920); Gary, 100,426 (1930), 55,378 (1920); South Bend, 104,193 (1930), 70,983 (1920).

**AGRICULTURE.** The following table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn . . .	1931	4,555,000	108,535,000	\$47,190,000
	1930	4,466,000	117,009,000	71,375,000
Hay, tame .	1931	1,749,000	2,017,000*	13,716,000
	1930	1,710,000	1,416,000*	20,674,000
Wheat . . .	1931	1,678,000	43,327,000	19,497,000
	1930	1,584,000	28,527,000	20,246,000
Oats . . .	1931	1,966,000	61,339,000	11,654,000
	1930	1,966,000	57,211,000	17,168,000
Potatoes . .	1931	58,000	4,930,000	2,712,000
	1930	51,000	4,539,000	5,220,000
Tobacco . . .	1931	17,400	16,060,000*	1,574,000
	1930	17,400	12,458,000*	1,184,000
Rye . . . . .	1931	126,000	1,827,000	621,000
	1930	87,000	1,088,000	598,000

\* Tons. \* Pounds.

**MINERAL PRODUCTION.** Not strictly a native industry, the production of pig iron from ores brought into the State formed the most important branch of the mineral activity of Indiana in 1930, as in other years. The blast furnaces shipped 3,195,517 long tons of pig iron in 1930, a decline of more than one-fourth from the 4,279,825 tons of 1929; in value the shipments fell to \$52,869,137, for 1930, from \$71,416,732. The quantity of coal produced declined for 1930 to 15,840,000 short tons (estimated), from 18,344,358

for the year 1929, in which year the value of coal produced was \$29,880,000. The State's by-product ovens yielded 4,984,620 short tons of coke in 1930, as against 6,455,378 in 1929; in value, \$12,160,488 in 1930 and \$41,208,876 in 1929. Indiana had an active quarrying industry, of which the production for 1929 amounted to 5,129,220 short tons and, in value, to \$22,191,883. The value of the State's mineral production was \$96,961,947 for 1929; for 1928, \$98,583,915.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the operations of 1929 gave the number of the State's manufacturing establishments as 5074. These employed 313,829 wage earners, or 11.8 per cent more than had been employed in 1927. Wages paid in 1929 totaled \$416,713,642, or 11 per cent more than for 1927. Materials for manufacture, together with fuel and purchased electricity, cost, in 1929, \$1,404,856,189, which was about 15 per cent above the corresponding figure for 1927. The manufactured product of 1929 was valued at \$2,534,716,550, and exceeded that of 1927 by 17.7 per cent. For 1929, the value added by manufacture was estimated at \$1,129,851,361.

**FINANCE.** State expenditures in the year ended Sept. 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$30,813,946 (of which \$4,709,332 was for local education); for interest on debt, \$125,016; for permanent improvements, \$20,870,085; total, \$51,809,047 (of which \$25,660,197 was for highways, \$9,085,234 being for maintenance and \$16,574,963 for construction). Revenues were \$52,632,093. The State's funded debt on Sept. 30, 1930, was \$2,654,000. Net of sinking fund assets, it was \$2,488,156. On property bearing an assessed valuation of \$5,161,009,113 were levied in the year State taxes of \$14,967,100.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 7106.54. The total had been slightly increased during the year preceding, by addition of 1.67 miles, while operation of only 0.14 mile had been given up. There were built, in 1931, 4.6 miles of additional first and 7.5 of second track.

**EDUCATION.** For the academic year 1930-31 the number of persons of school age was reported as 872,842, this number representing the total of unmarried individuals between the ages of 6 and 21 years. There were enrolled in the public schools of the State 675,352 pupils. Of these, 519,469 were in common schools or elementary grades; in high schools were 151,570. The year's expenditures for public-school education totaled \$72,387,197. Yearly salaries of teachers averaged \$1500.80 for elementary and \$1029.09 for high-school grades. Apart from the State's system of public schools, there was an enrollment, in parochial schools, of 59,676 pupils whereof 53,792 were in parochial elementary schools and 5859 in parochial high schools. Despite adverse times, the Legislature made in 1931 no reduction affecting the State appropriations for assistance to public schools and refused to alter the laws guaranteeing the teachers' conditions of tenure, retirement and pay.

**CHARITIES AND CORRECTIONS.** The non-partisan Board of State Charities, the central organization with regard to institutions of care and custody, had powers to examine into the condition and management of all such institutions.

The State maintained 20 charitable and cor-

rectional institutions. These were: Central State Hospital, Indianapolis; Logansport State Hospital, Logansport; Richmond State Hospital, Richmond; Evansville State Hospital, Evansville; Madison State Hospital, North Madison; School for Feeble-Minded Youth, Fort Wayne; Farm College for Feeble-Minded, Butlerville; Village for Epileptics, Newcastle; Soldiers' Home, Lafayette; Soldiers' and Sailors' Children's Home, Knightstown; State Sanatorium, Rockville; Indiana University Hospitals, Indianapolis; State School for the Deaf, Indianapolis; State School for the Blind, Indianapolis; State Prison, Michigan City; Reformatory, Pendleton; State Farm for Misdemeanants, Greencastle; Women's Prison; Indiana Girls' School, Indianapolis; Indiana Boys' School, Plainfield.

**LEGISLATION.** The Seventy-fourth General Assembly, in its regular session, amended the agricultural marketing act of 1925 so as to make it include benefits to agricultural production as well as marketing and to provide for the formation of cooperative societies with the broader purpose in view. An anti-lynching act was passed, providing that the Governor suspend any sheriff from whose custody lynchers had taken a prisoner, and decreeing prison sentences for those guilty of violence in lynching-mobs. For the election of Federal Representatives, the State was reapportioned by act into 12 districts, instead of 13.

A personal income tax law was passed, but Governor Leslie allowed it to die by pocket veto, as the bill was alleged to have been voted by the Senate subsequently to the constitutionally provided hour of adjournment and was therefore of doubtful validity. An emergency measure suspending penalties for the recovery of property sold for delinquent taxes and exempting taxes due in 1931 as charges on property in such sales was enacted, to run for one year only. Counties and other subdivisions were required by statute to keep their budgets for 1931 and 1932 within the 1930 amounts.

A statute was passed to eliminate the establishment of motorbus routes on the contract system. This statute was supposed also to assure to cities the right to route bus lines through their streets. But after the measure had been signed it was found that its engrossed form provided, as the lower house had sought, that final action in this field lie with the State public service commission, a feature contrary to the understanding and report of the Senate members of the conference committee. A banking statute was enacted, permitting branch banking, but only under separate charter for each branch. The law as to double liability for stockholders in banks was clarified and made to bear against those seeking to evade it through holding companies. The law against false financial statements was strengthened. Lending to a single borrower in excess of 20 per cent of a State bank's capital and surplus was prohibited, with specified exceptions.

**POLITICAL AND OTHER EVENTS.** The State act of 1929 imposing heavy fees on chain stores for licenses to do business was denied review and left in operation by the United States Supreme Court on May 18 and again in October. The Court took this course in both cases by a bare majority of five to four. The tax had been vigorously contested by chain-store interests, which sought to make the Indiana case a test and so

to set a precedent with regard to similar taxation elsewhere. The operation of the act, which had been delayed by litigation, began on June 13. Harry E. Rowbottom, U. S. Representative of the First Indiana District, was convicted in a Federal District Court on April 15 of having accepted bribes from office-seekers desiring post-office jobs. He was sentenced to a prison term of a year in Leavenworth Penitentiary and a fine of \$2000.

The 805-mile pipe line of the Panhandle Eastern Pipe Line Co., to convey natural gas from Texas, was completed to Rockville, Ind., in August. The initiation of extensive imports of natural gas from outside the State directly affected the prospects of the local utilities. The possibility of the introduction of imported natural gas into Indianapolis was particularly discussed, as that city had for 25 years been paying on the installment plan for the municipal acquisition of the Citizens' Gas Company property and stood to lose heavily by the entrance of a competitor. Suit against the "charitable trust agreement" of 1905 placing the Citizens' Gas Company under the control of the city's utility district was settled by the refusal of the U. S. Supreme Court, on May 18, to review the Seventh Circuit Court of Appeals' decision sustaining the city's demands that the company be turned over to the city.

**OFFICERS.** Governor, Harry G. Leslie; Lieutenant-Governor, Edgar D. Bush; Secretary of State, Frank Mayo, Jr.; Auditor, Floyd E. Williamson; Treasurer, William Storen; Superintendent of Public Instruction, George C. Cole.

**JUDICIARY.** Supreme Court: Judges, Julius C. Travis, David A. Myers, Clarence R. Martin, Curtis W. Roll, Walter E. Treanor.

**INDIAN ART.** See ART EXHIBITIONS.

**INDIANA UNIVERSITY.** A coeducational State institution of higher learning in Bloomington, Ind., founded in 1820. For the first semester of the academic year 1931-32 the registration aggregated 4272 students (2709 men and 1563 women). The faculty had 316 members. The endowment funds amounted to \$1,770,135, and the total income for the year, from State and private sources, was \$3,015,000. The library contained 234,000 volumes. President, William Lowe Bryan, Ph.D.

**INDIANS.** According to the annual report of the U. S. Commissioner of Indian Affairs, Charles J. Rhoads, for the fiscal year ended June 30, 1931, the total estimated and enumerated number of Indians reported by Federal agencies on Apr. 1, 1931, was 314,543. This number consisted of 225,544 Indians actually enumerated and 88,899 Indians enumerated in earlier and special censuses and in estimates based on records. The latter, excluding the population of the Five Civilized Tribes, represented an increase over the corresponding figure for 1930 of 2865, or 1.2 per cent. The Bureau of the Census, in a preliminary tabulation, reported 72,043 Indians of the Five Civilized Tribes in 1930. Of the 225,544 Indians actually enumerated, 114,778 were males, 110,753 females, and for 13 the sex was not reported.

It is significant that of the Indians enumerated 189,162, or 83.9 per cent, resided under Federal jurisdiction where enrolled, while only 4051, or 1.8 per cent, resided at another jurisdiction, and 32,331, or 14.3 per cent, resided elsewhere, that is, outside of any Federal jurisdiction. Of

the 32,447 Indians residing elsewhere on Apr. 1, 1930, 41 were living in the New England States, 208 in the Middle Atlantic, 3633 in the East North Central, 9234 in the West North Central, 437 in the South Atlantic, 93 in the East South Central, 2166 in the West South Central, 5120 in the Mountain States, and 6024 in the Pacific States, and for 5491 the residence was either not reported or unknown.

The Indian population of Oklahoma was greater than that of any other State, amounting to 93,785, or 29.8 per cent of the aggregate Indian population, if the Federal Census population of the Five Civilized Tribes be included. Arizona ranked next with 47,577, or 15.1 per cent, while only two other States, New Mexico and South Dakota, had an Indian population numbering more than 20,000. According to a tabulation of the tribes enumerated on Apr. 1, 1930, the most important numerically were the Navajo, Sioux, and Chippewa, numbering 40,862, 33,168, and 23,047, respectively.

**REORGANIZATION OF THE OFFICE OF INDIAN AFFAIRS.** In his annual report Dr. Ray Lyman Wilbur, Secretary of the Interior, reiterated the statement that solution of the Indian problem hinged on the principle of a removal of bureaucratic control in Washington. (See 1929 and 1930 YEAR BOOKS.) Commenting on this, he said:

For a hundred years we have been busy setting up islands in our civilization upon which we have maintained a native Indian population isolated in education, in industrial training, and in economic contacts from the rest of us. As a result we now have 300,000 men, women, and children who are citizens of the United States who live surrounded by white neighbors but who look to Washington, and not to themselves or their communities, for most of the normal relationships between the citizen and the State.

We have set a definite goal for the Indian Service—that it shall work itself out of a job in 25 years. We hope to accomplish in the next quarter century the breaking down of the cement which has been setting for four times that period. We hope to turn over to the States trained, alert, and active Indian citizens. Our degree of success will depend largely upon the willingness with which the States accept their part in the economic relationship. . . . Until the States develop proper protective laws for the Indians' property, Federal responsibility is inevitable, but there is no good reason for maintaining separate schools and health programmes for Indian boys and girls when the State already provides them. If the Indian ever is to succeed as a member of American society, he must have the same opportunity as do other children.

Announcement was made on Mar. 30, 1931, of the reorganization of the Office of Indian Affairs, so as to separate the activities relating to the guardianship of the Indian's person and the guardianship of his property. By this reorganization the field divisions of health, education, and agricultural extension and industry were grouped under an assistant to the Commissioner of Indian Affairs in charge of "human relations," while the divisions of forestry, irrigation, and lands were grouped under another assistant in charge of "property." The executives of these divisions continued to work toward a progressive and coöperative programme with the various States wherein the Indians were located.

**EDUCATION.** Of the 76,905 Indian children in school during the year ending June 30, 1931, some 43,652 were in public schools. The Federal Government had tuition arrangements with 2568 school districts involving 36,753 Indian children, an increase of 341 districts and 10,055 children over 1930. Three boarding schools at Mekuakey, Okla., Fort Bidwell, Calif., and Fort Mojave,

Ariz., were closed during the year, because it was felt they had ceased to fill any real need. In seven of the largest boarding schools, grades below the fourth were no longer carried. The appropriation for Indian education in 1931 was more than \$12,000,000, and represented 42 per cent of the entire Indian appropriation.

**HEALTH.** The total number of patients treated in hospitals and sanatoriums increased from 38,536 in 1930 to 39,995 in 1931, while the total number of days of hospital treatment was 866,507 in 1931 as compared with 168,160 in 1930. Tuberculosis, trachoma, and diseases of infancy and childhood were still major problems. Many of the general hospitals extended their facilities to make further provision for the care of Indians suffering from tuberculosis, and under a \$75,000 appropriation a survey of tuberculosis, trachoma, and venereal-disease conditions among the Indians was under way. The Committee on Indian Affairs of the State and Provincial Health Authorities of North America continued its coöperation toward the development of working with the various States.

**AGRICULTURAL EXTENSION AND INDUSTRY.** Organization of the division of agricultural extension and industry was effected during 1931. This division was attempting to interest the Indians in providing, through their own efforts, a more dependable and adequate food supply for themselves, a development of their industrial life, and improvement in their homes. Close coöperation is maintained with the State extension services, as well as other agencies. The work which has had the most ready response and produced more noticeable results has been the 4-H Club work. Enrolled in it were several hundred Indian boys and girls who were carrying on the same projects as the white boys and girls and competing with them.

**IRRIGATION.** One of the most important pieces of legislation passed during the year was the act of Mar. 4, 1931, canceling reimbursable irrigation charges against Indian lands for amounts expended prior to June 7, 1924, the date of the act authorizing the construction of the Coolidge Dam, on irrigation works on the Gila River Reservation in Arizona. These Indian lands were relieved of nearly \$1,400,000 that, prior to the enactment, was a lien against the lands. The construction of canals and laterals on the San Carlos project, the most recent enterprise of the Indian Irrigation Service in Arizona, were continued, the repayment contract covering it having been improved and confirmed by the Federal Court. This was a joint project, half white and half Pima Indian Reservation.

**FEDERAL APPROPRIATIONS.** For 1931 the total appropriations to the Office of Indian Affairs from the Federal Treasury aggregated \$21,723,199, including certain items carried in deficiency acts. This represented an increase of \$2,846,317 over the gross amount of \$18,876,811 available for 1930. Authorizations from tribal funds aggregated \$3,600,989. In 1931 there was transferred to the Indian Service education and medical care for the natives of Alaska, pursuant to authorization contained in the Second Deficiency Appropriation Act approved Mar. 4, 1931.

See ANTHROPOLOGY; ALASKA.

**INDO-CHINA,** also known as **FARTHER INDIA.** The southeastern peninsula of Asia including the following divisions: Burma, politically attached to British India; Siam, a self-governing

monarchy; French Indo-China, comprising Cambodia, Annam, Cochin-China, Laos, and Tongking; the Federated Malay States, a British protectorate; the Straits Settlements, a British colony; and the Non-Federated Malay States of Johore, Kedah, Kelantan, Perlis, and Trengganu, also under British protection. See the articles on BURMA, FRENCH INDO-CHINA, NON-FEDERATED MALAY STATES, SIAM, and the other principal states mentioned.

**INDO-IRANIAN STUDIES.** See PHILOLOGY, MODERN.

**INDUSTRIAL ACCIDENTS.** See WORKMEN'S COMPENSATION.

**INDUSTRIAL ALCOHOL.** See PROHIBITION.

**INDUSTRIAL CHEMISTRY.** See CHEMISTRY, INDUSTRIAL.

**INDY, AN'DÉ, PAUL MARIE THÉODORE VINCENT D'.** A French composer and pianist, died Dec. 2, 1931, in Paris where he was born Mar. 27, 1851. He studied under Diémer, Lavignac, and Marmontel, and after serving in the Franco-Prussian War resumed his studies under César Franck. In 1885 he became manager of the Société Nationale de Musique, of which César Franck was president, and after Franck's death in 1890 was elected president. He founded, with Charles Bordes and A. Guilmant, in 1896 the Schola Cantorum. Originally intended as a training school for liturgical music, it soon expanded into a regular conservatory, espousing the cause of ultra-modern French music. D'Indy was its director from its foundation, developing it into one of the most famous music schools in the world. In 1906 he made the first of several successful tours of the United States.

D'Indy ranked with Berlioz and Franck as the most preéminent of instrumental masters of modern France. He shared, with Berlioz, a predilection for the classical forms, filling them with individual and very modern content. His work, in the whole, bespoke an architectural conception based on rich chromatic harmony, rhythmic design, and beauty and clarity in execution. His principal works are: the operas, *Fervaal* (1897), *L'Etranger* (1903), and *La légende de saint Christophe* (1920); two symphonies, in G and B flat; the symphonic poems, *Wallenstein* (a trilogy after Schiller), *Jean Hunyadi*, *La forêt enchantée*, and *Souvenir*; two orchestral suites, *Tableaux de voyage* and *Jours d'été à la montagne*; symphonic variations, *Istar*; the dramatic legend, *Le chant de la cloche*, which in 1884 won the grand prize awarded by the city of Paris; a scene for baritone, chorus, and orchestra, *La chevauchée du Cid*; and considerable chamber music, choruses, and works for the piano and organ. He published biographies of César Franck (1906) and Beethoven (1910) and, in collaboration with A. Sérieyx, a *Cours de composition musicale* (3 vols., 1902-12).

**INFANT FEEDING.** See FOOD AND NUTRITION.

**INFANTILE PARALYSIS.** See MEDICINE, PROGRESS OF.

**INFANT MORTALITY.** See CHILD WELFARE.

**INFANTRY.** See MILITARY PROGRESS.

**INFLUENZA.** See MEDICINE, PROGRESS OF.

**INGERSOLL, REAR ADMIRAL ROYAL RODNEY, U. S. N., RET.** An American naval officer, died in La Porte, Ind., Apr. 21, 1931. He was born in Niles, Mich., Dec. 4, 1847. After being graduated

from the U. S. Naval Academy in 1868, he served in various parts of the world, being in command of the *Supply* during the Spanish-American War and of the battleship *Maryland* in 1905. He was also chief of staff of the Atlantic fleet during its voyage from Hampton Roads to the Pacific in 1904, and later served on the general board of the Navy. He became rear admiral in 1908 and was retired the following year. During the World War he acted as president of the special board on naval ordnance. He wrote *Text-Book of Ordnance and Gunnery* (1887); *Exterior Ballistics* (1891); and *Elastic Strength of Guns* (1891).

**INGRIA.** See FINLAND under *History*.

**INHERITANCE TAXES.** See TAXATION.

**INJUNCTIONS IN LABOR DISPUTES.** See LABOR; TRADE UNIONS.

**INLAND WATERWAYS.** See CANALS.

**INNER MONGOLIA.** See MONGOLIA.

**INSECTS.** See ENTOMOLOGY, ECONOMIC; ZOÖLOGY; AGRICULTURE under *Droughts and Pests*.

**INSTITUTE FOR RESEARCH IN SOCIAL SCIENCE.** See NORTH CAROLINA, THE UNIVERSITY OF.

**INSTITUTE OF AGRICULTURE, INTERNATIONAL.** See AGRICULTURE.

**INSTITUTE OF INTERNATIONAL RELATIONS.** See CALIFORNIA, UNIVERSITY OF.

**INSTITUTE OF PACIFIC RELATIONS.** See PACIFIC RELATIONS, INSTITUTE OF.

**INSTITUTE OF POLITICS.** See POLITICS, INSTITUTE OF.

**INSTITUTE OF PUBLIC AFFAIRS.** See PUBLIC AFFAIRS, INSTITUTE OF.

**INSURANCE.** Deflation of an over-expanded business and examination of practices which had been accepted with but little question in normal times were features of the insurance business in 1931. The previous year had witnessed an almost total cessation of launching new companies, but, as the depression continued and prices of securities went lower and surpluses of companies shrank, the situation became too severe for many of them and they were obliged to seek relief. Some reduced capital in order to create surplus. The number of companies merged was much larger than usual, and almost invariably capital was reduced in the merging process. A few companies saw no prospects of success under the adverse conditions and went into voluntary liquidation. A small number were found to be insolvent and were thrown into liquidation.

The general conditions affected insurance companies of different classes in very different ways. Fire insurance companies with few exceptions suffered severely from the drop in prices of securities owned by them. The casualty and surety companies, in addition to heavy losses from depreciation, also suffered very severe insurance losses. The life insurance companies, whose securities consist mostly of bonds and preferred and guaranteed stocks, were less affected by stock market conditions, but defaults in payment of interest and principal on mortgage loans were excessive and foreclosures threw upon the hands of life insurance companies much real estate which could neither be sold without serious loss nor be made to produce a profitable income. Life insurance companies did not experience excessive mortality, but production of new business was below that of 1929 and 1930, lapses were heavy and demand for policy loans was very large.

The railroad situation affected companies of all classes as nearly all of them have large investments in railroad securities.

So seriously were the insurance companies affected by the low prices of securities that the National Convention of Insurance Commissioners, recognizing an emergency which threatened the solvency of many companies, decided to permit the use of market prices on June 30 as the values of securities listed in the companies' assets as of Dec. 31, 1931, the June 30 prices being an approximate average of those at the ends of five quarters from Sept. 30, 1930, to Sept. 30, 1931, inclusive.

Altogether the States did not treat insurance companies badly. Many harmful bills were introduced in the legislatures but few of them became laws. One or two States increased the tax on insurance premiums. The Insurance Commissioners, as a rule, assumed a very helpful attitude, permitting some necessary rate increases and aiding where possible to curb detrimental practices in which some companies engaged in efforts to keep up their premium income.

**LIFE INSURANCE.** Notwithstanding their extremely conservative investment policies, life insurance companies suffered considerable depreciation on bonds and preferred and guaranteed stocks. The low interest rates which prevailed, especially in the earlier part of the year, narrowed the range of available securities which would yield a satisfactory income. However, the companies had less than the usual amount for investment in securities because of the heavy demand for loans on policies. As investments these loans are gilt-edged, yet companies regret to make them as they induce lapse of the policies. As the result of necessary foreclosures of mortgages real estate investments of life insurance companies increased over \$100,000,000 during the year.

According to careful estimates made by the Association of Life Insurance Presidents in November, the production of new life insurance during the year amounted to \$16,400,000,000. This was 13.8 per cent less than the amount in 1930 but 9.5 per cent above the average annual production for the decade 1921-1930. At the end of the year the insurance in force was \$109,000,000,000 in addition to contracts for payment of annuities. The gain in insurance in force for the year was \$1,052,000,000. The total assets of the legal reserve life companies on December 31 were approximately \$20,200,000,000, an increase of \$1,320,389,000 during the year. Of this amount approximately \$425,000,000 was loaned to policyholders on their policies. Of the assets of the companies 38.4 per cent was invested in mortgages, 38.1 per cent in railroad securities and 15.9 per cent in policy loans and premium notes. During the year the companies paid \$950,000,000 to beneficiaries of deceased policyholders, \$800,000,000 to living policyholders for matured endowments, annuities, dividends, and disability benefits, and \$850,000,000 for surrendered policies. These payments, totaling \$2,600,000,000 exceeded those in 1930 by \$353,000,000.

The liberalizing of policy contracts in past years produced some results which necessitated changes. The period in which companies were exempt from liability in the event of suicide of the policyholder had generally been reduced to one year. Many companies raised this period to two years in view of the large number of claims

under policies from one to two years in force whose holders had committed suicide. Many of the companies, convinced that they could not safely sell the disability income provision for a premium that would make it attractive to the public, discontinued the sale of it. Others restricted it and increased the rate charged. Many companies also restricted the waiver of premium provision and charged a higher rate for it in policies to be issued in future.

**FIRE INSURANCE.** The most serious troubles of the fire insurance companies were of a financial rather than an underwriting nature. From an underwriting standpoint 1931 was not a bad year. The aggregate premium income of the companies was reduced probably 10 to 15 per cent; exact figures were not available at the end of the year. Fire losses were also reduced, the estimate for the year being more than \$11,000,000 less than for 1930. See **FIRE PROTECTION.**

The premium income from fire and theft insurance on automobiles fell off somewhat and losses were higher than in the previous year. Few companies made a profit on this class. Owing to poor crop prospects in the territory where most of the hail insurance is written, farmers bought much less of this class of cover than in the recent past. Losses were light and companies generally made a good profit on the reduced volume of business transacted. Tornado losses also were light and this class was profitable.

The difficulties of the companies tended to increase their willingness to cooperate. While they were enjoying excessive prosperity, many objected to any curbing of their activities in the interest of the entire business, but when they became companions in trouble they wanted each other's aid. The presidents and managers of many of the leading companies formed the Insurance Executives' Association. While its plans had not yet fully developed, it promised to exert a powerful influence in matters of nationwide scope.

Plans for a national organization to adjust losses for most of the companies, which were adopted in 1930, were partially put into effect during 1931 and the new organization at the end of the year was handling losses in the South and on the Pacific Coast.

**CASUALTY INSURANCE AND SURETYSHIP.** Casualty and surety companies generally experienced high loss ratios on those classes which constitute the main volume of their business. This misfortune, added to heavy losses from depreciation, necessitated many changes in capital structure.

Workmen's compensation insurance, usually an unprofitable class, fared worse than usual. Heavy underwriting losses threatened impairment of the capital of some of the companies, and the National Convention of Insurance Commissioners urged State officials controlling rates to permit material increases. Notwithstanding an increase averaging 7 per cent in the early part of the year, the emergency increases, made effective at various dates in the fall, averaged 11 per cent for the entire country, with the prospect of an additional 1 per cent if applications for advances pending in various States at the close of the year were approved. The increased loss ratios were attributed largely to inadequate rates, to malingering by injured employees, to increased liberality to claimants by industrial commissions and courts and to the



constantly mounting medical cost, which had become a serious matter. See UNEMPLOYMENT.

Automobile public liability and property damage insurance had its worst year since this class became an important one. The loss ratio was as high as in 1930 and possibly higher. This was attributed largely to the effect of "merit rating" under which a reduction of 10 per cent was allowed to owners of private passenger cars who had had no accidents within two years, to increased power and speed of popular light cars, to the larger percentage of closed cars, making driving in winter comfortable, and to the much higher judgments for personal injuries awarded by juries in many localities. The premium income from this class was about the same as in 1930, but the transfer of a large amount of collision insurance from casualty to fire companies reduced the casualty companies' premium income on their entire automobile business about 5 per cent. Higher rates were promulgated in some States during the year and on Jan. 18, 1932, new rates were to be promulgated in 14 States, generally increasing rates and also abrogating the merit rating.

Personal accident insurance companies took steps to restore business to a profitable basis. Leading companies adopted standard provisions for policies. Each may include in its policies such of these provisions as it sees fit and a bureau will fix the minimum premium to be charged for each form of policy, based upon the loss cost for each provision as shown by combined experience. The new plan was made effective not later than March, 1932, for all companies in the agreement.

The fidelity and surety companies had their worst experience in many years, due largely to the closing of over 2000 banks during 1931. Many of these banks were depositories of public funds protected by surety company bonds, and the companies were obliged to pay promptly very large sums. They were likely to make some recoveries as the banks were liquidated or reorganized. An increase in depository bond rates came too late in the year to afford much relief. So heavy were the losses that companies almost ceased writing depository bonds except for the strongest banks. The closing of the banks also tied up the cash of many contractors, and surety companies which had bonded them were obliged to advance funds to prevent their defaulting on their contracts and leaving the sureties to complete them. Losses on fidelity, court, and some other classes of bonds, and especially upon mortgage guarantees, were also heavy. The income of the surety companies was adversely affected by decrease in construction contracts except those for Government undertakings, by failures and mergers of business concerns, by reductions in personnel and by the necessary curtailment of writing bonds carrying a depository liability.

The outstanding event of the year in the field of burglary and robbery insurance was the introduction of a "storekeepers'" policy in which five different coverages are combined, suited to the needs of small merchants. It proved popular and the experience of a few months indicated that the rate charged was adequate. Underwriting results in burglary and robbery were generally unfavorable. The volume of premiums was off. Losses increased appreciably over those of the previous year.

Bank burglary and robbery insurance was very unprofitable, and rates were materially increased, especially on banks in small communities. Resi-

dence burglary and theft insurance, which has generally been profitable, was unprofitable in the large cities. The volume of this class is suffering from the competition of "all risks" floater policies issued by inland marine insurance companies, covering jewelry, works of art, furs, and other valuables. Claims under mercantile burglary and robbery policies for losses by inside hold-ups increased but those for burglaries by forcible entry did not.

**INTELLECTUAL COÖPERATION, COMMITTEE OF.** See LEAGUE OF NATIONS.

**INTERNAL COMBUSTION ENGINES.** In the stationary power plant field the oil engine predominated over the gas engine, although the year witnessed a stimulation of gas engine business for gas line pumping, in addition to which some large gas engines were built for steel mill service. A total capacity of about 300,000 horse power in Diesel engines was built in the United States during 1931 which represented a decrease of about 25 per cent from that of 1930, due largely to the business depression. During the year a number of municipal plants placed orders or installed Diesels. Outstanding among these was an order for five 7000-horse power Diesels for the new municipal station at Vernon, Calif., which will have the distinction when completed of being the largest Diesel plant in the United States.

In Europe the record in Diesel engine capacity will be held by a 23,000-horse power unit of eight cylinders under construction by Burmeister & Wain of Copenhagen. Large Diesels found favor in Europe as peak load units and to supplement hydro plants during periods of low water.

There was a trend during the year in Diesel practice toward higher speeds and wider use of trunk piston design in large engines up to 3000 horse power. The two-cycle solid-injection engine continues to lead as the most popular type. Supercharging to attain overload capacity was favored in Europe although not as yet generally adopted in the United States. Welding of the engine frames was also being employed by several European firms as a means of reducing weight. Another important development was the automatic Diesel plant which reduces the labor item to the minimum. An outstanding American example was the installation in the Chelsea Hotel in New York.

The Diesel for automotive service had been much further developed in Europe than in the United States where it had not much more than passed the experimental stage. The reason for this was the low price of gasoline, hence little incentive for the employment of the heavy oil engine. Considerable advance had been made in the application of Diesels to locomotives and rail cars, and many railroads both in America and Europe were employing units of this type for switching and branch line service.

**INTERNAL REVENUE TAXES.** See PUBLIC FINANCE; TAXATION; TOBACCO.

**INTERNATIONAL AGRICULTURAL MORTGAGE CREDIT COMPANY.** See LEAGUE OF NATIONS.

**INTERNATIONAL ARBITRATION.** See ARBITRATION, INTERNATIONAL.

**INTERNATIONAL ASSOCIATION FOR SOCIAL PROGRESS.** See SOCIAL PROGRESS, INTERNATIONAL ASSOCIATION FOR.

**INTERNATIONAL BANK.** See **REPARATIONS AND WAR DEBTS.**

**INTERNATIONAL BANKING.** See **FINANCIAL REVIEW, REPARATIONS, WAR DEBTS; FRANCE, GREAT BRITAIN, GERMANY, AUSTRIA, ETC.,** under *History.*

**INTERNATIONAL CHAMBER OF COMMERCE.** See **INTERNATIONALISM.**

**INTERNATIONAL CONFERENCE OF AGRICULTURE.** See **AGRICULTURE.**

**INTERNATIONAL EXPOSITIONS.** See **EXPOSITIONS.**

**INTERNATIONAL FEDERATION OF TRADE UNIONS.** See **TRADE UNIONS.**

**INTERNATIONAL INSTITUTE OF AGRICULTURE.** See **AGRICULTURE.**

**INTERNATIONALISM.** THE INTERNATIONAL CONFERENCE OF THE WORLD ALLIANCE. The first triennial meeting of the World Alliance for International Friendship through the Churches ever held in England met at Cambridge University, Sept. 1-5, 1931. Nearly 400 delegates from 33 nations were present representing all the churches (except the Roman Catholic, which was invited but declined). One Roman Catholic priest was present as an "observer." The discussion included such questions as disarmament, national security, the rights of minorities, national and international loyalties, and the whole question of the Christian attitude toward world peace.

The Rt. Hon. Lord Dickinson, K.B.E., honorary secretary, was elected president of the World Alliance to fill the vacancy caused by the death of Archbishop L. O. J. Söderblom, of Sweden. With regard to the Disarmament Conference scheduled for February, 1932, the conference adopted a resolution urging: (1) a substantial reduction of armaments in every form, (2) the fixing of a scale for the armed forces of the nations which shall be equitable to all and consistent with the fact that all have renounced war and have undertaken that disputes which may arise among them shall never be settled except by pacific means, and (3) security for all nations against aggression. The resolution concluded as follows:

The International Committee holds that in the world of today the churches can countenance no other methods of settling international disputes than conciliation, arbitration, or judicial decision, and that the true way to the abandonment of all instruments of war lies in the development of a system of international justice, the growth of mutual respect and confidence and the willingness to make national sacrifices for the common good.

The International Committee appeals to the Christian churches in all lands to assure their national governments that they will actively support them in this task of reducing armaments to the lowest point, and urges all members of the Christian communities to give themselves to private and public prayer that the forthcoming Disarmament Conference may under the Divine guidance achieve all desired results.

Forty experts on international problems addressed the 16th annual meeting of the World Alliance for International Friendship through the Churches, held in Chicago, Nov. 10-12, 1931. The major subjects presented dealt with disarmament and other phases of the peace movement. Among the speakers were: Herr Friedrich Wilhelm von Prittwitz and Gaffron, German Ambassador to the United States; Maj.-Gen. John F. O'Ryan, commander 27th Division, American Expeditionary Forces in France, 1917-1918; Hon. Thomas J. Walsh, U. S. Senator; Canon T. Guy Rogers, of Birmingham, England,

and chaplain to the King; Robert M. Hutchins, President of the University of Chicago; Dr. S. Parkes Cadman; Robert R. Moton, Tuskegee Institute of Alabama; Justice Florence E. Allen, Supreme Court of Ohio; Dr. Henry A. Atkinson, general secretary, World Alliance. On Armistice Day at 11 o'clock, Glenn Frank, President of the University of Wisconsin, gave an address on Lessons of Armistice Day.

**WORLD CONFERENCE FOR INTERNATIONAL PEACE THROUGH RELIGION.** The Executive Committee of this Conference met in Geneva, Switzerland, Aug. 12-14, 1931, with 60 members present. The Executive Committee voted that the conference in Washington scheduled to be held in 1932 should be a regional conference sponsored by the American Committee, instead of a world conference, as previously planned.

It was agreed that a meeting should be held in Geneva on the eve of the convening of the Disarmament Conference, at which addresses would be given by representatives of all the religions, and which would focus attention of the religious mind of the world upon the importance of this great undertaking.

**INTERNATIONAL CHAMBER OF COMMERCE.** The International Chamber of Commerce held its annual sessions at Washington May 4-9. A determined effort was apparently set on foot before the sessions by the American government to exclude mention of three controversial topics: Russia, war debts, and the American tariff. Several foreign delegates had previously gone on record as intending to bring up the question of debts. Also as the sessions proceeded it became increasingly doubtful if any measures could be adopted without taking Russia into consideration.

President Hoover made a speech at the opening session, which, to the surprise of all present, was entirely devoted to land disarmament, in his opinion the principal means to be taken to overcome the depression. It was quickly seen that this was merely another way of informing foreign nations that no debt reduction will be considered until they show their good faith by reducing expenditures on arms. The following day, Secretary of the Treasury Mellon made a speech, the main theme of which was a plea to preserve the high standard of living and even to raise it in many parts of the world. Georges Theunis of Belgium, retiring President of the Chamber, attacked American and other tariffs as a bar to progress, while American delegates demanded the right of controlling the American market, at the same time advocating free trade for European countries among themselves.

The general resolution, adopted by the Chamber on May 9, contained the following paragraphs:

The International Chamber has repeatedly emphasized the fact that war is the greatest barrier to social and economic progress, and the establishment of higher living standards is dependent primarily on the maintenance of peace. The Chamber commends the efforts being made by the governments of the world to reduce armaments to the lowest possible limit, and urges not only that there should be no relaxation of this effort, but rather that it should be redoubled. The attainment of this objective would relieve the peoples of all nations of heavy burdens of taxation.

International obligations have been made definite in amount and in terms as between nations. The integrity of such obligations is always fundamental to the maintenance of international credit and to the expansion of commerce and industry. The observance of this essential principle, however, is not inconsistent with an impartial examination of the effects of these obligations on inter-

national trade, if warranted by changed economic conditions, such examination to be based on the principles laid down by the International Chamber of Commerce at its congresses.

National and international trade should be encouraged by the removal of every obstacle possible. Tariffs should not discriminate unfairly between nations. Embargoes should be exercised only against dumping or other unfair practices. The machinery provided by some countries for the adjustment of tariff inequalities should be utilized without delay, and all nations should unite in an effort to remove all unjustifiable restrictions.

**PAGE SCHOOL OF INTERNATIONAL RELATIONS.** The primary purpose of the school, which was established in 1930 at Johns Hopkins University, Baltimore, Md., is to create a research laboratory for the study of the motivating causes of the conduct of nations in relation to one another. The school in 1931 was proceeding experimentally with investigations in the historical, legal, and economic fields, upon topics which seemed likely to disclose the fundamental nature of the motives upon which peoples and governments customarily act in their relations with each other. The investigations undertaken included the following:

Professor John H. Latané was studying the various causes leading to the development and prevalence among the American people of the doctrine of political isolation. In regard to the economic aspects of this problem he was assisted by Dr. Lazare Teper, research assistant. Professor Gilbert Chinard was tracing, in contemporary periodical literature, the changes and fluctuations in American popular sentiment towards France. In this work he was assisted by Miss Mary Francis. Dr. Albert K. Weinberg, appointed in December, 1931, a Fellow in the school, was making a study of the several occasions on which the plea of "manifest destiny" has been associated with some foreign policy of the United States. Col. Samuel C. Vestal was working on an analysis of the various systems of peace which have been projected since the time of Sully's "Grand Design." Dr. Frederick Sherwood Dunn is engaged upon a study of the legal control of international relations, based primarily upon a consideration of the theory and practice of diplomatic protection abroad, with particular reference to Mexico.

The Shaw Lectures, under the auspices of the Page School, were given by Charles C. Tansill, Professor of American History at the American University, on the subject of "Some Aspects of American Policy in the Caribbean: the United States and the Danish West Indies."

**OTHER INTERNATIONAL ACTIVITIES.** Professor Alfred Zimmern held his eighth School of International Studies at Geneva. From July 13 to September 4, international questions were dealt with by experts, and from September 7 to the close of the League Assembly a daily commentary on its work was given by the Director in English. The Post Graduate School of International Studies at Geneva continued its investigation of international problems.

Dr. William Warner Bishop, an official American Library Association delegate at the meeting of the International Committee of the International Federation of Library Associations at Cheltenham, England, Aug. 20 to 31, 1931, was elected president of the committee and of the Federation. The subject of international loans between libraries was discussed.

The World Federation of Education Associations (headquarters, 1201 Sixteenth Street,

Washington) held its fourth biennial conference at Denver, Colo., July 27-Aug. 1, 1931. About 4000 attended, including the presidents of practically all of the great national organizations throughout the world. The rounding out of the Herman-Jordan Plan and the reorganizing of the Federation to accommodate the increased amount of work were among the achievements.

The Federation, together with the American National Council for Prevention of War, arranged for an interchange of telephone conversations between boys and girls in many countries to circle the world on Goodwill Day, May 18.

Morris Leviloff, 17-year-old student of the junior class in the Bulkeley High School of New London, Conn., wrote the best 500-word paper in a contest for high-school students in the United States on "What 'Pacific Means' Should Be Developed to Make the Paris Peace Pact Effective?" The committee of judges consisted of William John Cooper, U. S. Commissioner of Education; Senator Arthur Capper of Kansas; and Gideon A. Lyon, associate editor of the *Washington Star*.

The countrywide essay contest was an optional feature of a programme for the study of the Paris Pact in American high schools formulated and encouraged by a national committee of about 300 leading educators, headed by Dr. P. P. Claxton, former U. S. Commissioner of Education, constituting the National Student Forum, of which Arthur Charles Watkins of Washington was director. Mr. Watkins stated that 200,000 students engaged in the study of the Paris Pact in over 2600 high schools in the United States, Alaska, Hawaii, the Philippine Islands, Porto Rico, the Virgin Islands, and the Canal Zone.

An average of 70 international conferences and exhibitions a month were held in Europe during 1931, according to the *Advocate of Peace*.

**INTERNATIONAL JUSTICE.** See LEAGUE OF NATIONS; WORLD COURT.

**INTERNATIONAL LANGUAGES.** See PHILOLOGY, MODERN.

**INTERNATIONAL LAW.** At the Twelfth Assembly of the League of Nations, on Sept. 25, 1931, it was recalled that the Resolution of Sept. 22, 1924, emphasized the progressive character of the codification of international law which should be undertaken, and, in view of the recommendations of the First Conference for the Codification of International Law held at the Hague in 1930, it decided to continue the work of codification with the object of drawing up conventions which will place the relations of states on a legal and secure basis without jeopardizing the customary international law which should result progressively from the practice of states and the development of international jurisprudence.

The Assembly decided to establish the following procedure for the future, except in so far as, in particular cases, special resolutions provide to the contrary.

1. Any State or group of States, whether Members of the League or not, may propose to the Assembly a subject or subjects with respect to which codification by international conventions should be undertaken. Such proposals, together with a memorandum containing the necessary explanatory matter, should be sent, before March 1st, to the Secretary-General, in order that he may communicate them to Governments and insert them in the agenda of the Assembly.

2. Any such proposals will be considered by the Assembly, which will decide whether the subjects proposed appear *prima facie* suitable for codification.

8. If the investigation of a proposed subject is approved by the Assembly and if no existing organ of the League is competent to deal with it, the Assembly will request the Council to set up a committee of experts, which will be asked with the assistance of the Secretary-General of the League of Nations to make the necessary enquiries and to prepare a draft convention on the subject, to be reported to the Council with an explanatory statement.

4. The Council will transmit such report to the Assembly, which will then decide whether the subject is provisionally to be retained as a subject for codification. If this is decided affirmatively, the Assembly will ask the Secretary-General to transmit the said report to the Governments of the Members of the League and non-member States for their comments.

5. The committee of experts, if it considers it desirable to do so, will revise the draft in the light of the comments made by the Governments.

If the committee of experts revises the draft, the revised draft will be submitted to the governments for their comments and, together with the comments received, will be transmitted to the Assembly, which will then decide finally whether any further action should be taken and, if so, if the draft should be submitted to the codification conference.

If the committee does not see any reason to revise the draft, it will be transmitted, together with the comments of the governments, to the Assembly, which will then decide finally whether any further action should be taken and, if so, if the draft should be submitted to a codification conference.

The assembly recommended:

(1) That, in relation with the further work in connection with the codification of international law, the international and national scientific institutes should collaborate in the work undertaken by the League of Nations;

(2) That the work of codification undertaken by the League of Nations should be carried on in concert with the conferences of the American States.

In commenting on the progressive Codification of International Law the American Government under date of June 23, 1931, declared that:

The Government of the United States considers that the steps looking to the codification of International Law, initiated by the Assembly of the League on September 22nd, 1924, and resulting in the Conference held at The Hague in March and April of last year, should be continued, and that it is important that very careful preparation on the subjects deemed to be ripe for codification should be made well in advance of the calling of an international conference. On the basis of the experience at the Hague Conference in 1930, the Secretary of State would suggest that any conference called in the future should be limited to the codification of one or not more than two subjects. It is also felt that greater progress would be made toward codification if subjects were chosen for the first few conferences which are less controversial than some of the more complicated subjects.

As to the mode of procedure to be followed, it is believed that the procedure suggested in the recommendations made by the Hague Conference would be likely to attain satisfactory results. It is suggested, however, that, after observations have been received from the various Governments on the draft Conventions referred to in paragraph 8 of those recommendations, a revised draft or drafts might be prepared and circulated with the comments of the Governments on the first draft, and that these new drafts, together with the comments by the Governments, should be communicated to the various Governments sufficiently well in advance of the conference as to enable the Governments to study the drafts and comments and to formulate their views thereon.

It is noted from the draft resolutions submitted by certain delegations, incorporated in the report of the First Committee (document A. 82, 1930 V), that distinctions are drawn between customary international law and new rules designed to govern relations between States, and that the view has been expressed that the term "codification" as applied to the work for the development of international law undertaken by the League of Nations should be understood as relating to the latter. It is believed that conventions adopted should be declaratory of existing customary law on the subjects dealt

with, supplemented by such enlargements as are demanded by modern conditions.

The Secretary of State takes pleasure in recognising the value of the work done at the Hague Conference of 1930. The Government of the United States signed, on December 31st, 1930, the Protocol relating to Military Obligations in Certain Cases of Double Nationality. It is regretted that, because of the unsatisfactory provisions on two important points—expatriation and the nationality of married women—the Government of the United States was unable to sign the Convention on Nationality, the principal agreement concluded at that Conference.

**AMERICAN CODIFICATION.** At the Sixth International Conference of American States (held in Havana in 1928) codification of certain subjects in public international law was adopted. In addition, the Conference provided for the appointment of three permanent committees: One at Rio de Janeiro for the codification of public international law; one at Montevideo for further work dealing with private international law; and another at Havana for the study of comparative legislation and uniformity of legislation. Conventions on public International Law were signed at the Sixth International Conference of American States held at Havana in 1928, and action was taken by the respective governments as follows: Convention on Status of Aliens was ratified by: Brazil, Nicaragua, Panama, United States; Convention on Asylum was ratified by: Brazil, Mexico, Nicaragua, and Panama; Convention on Rights and Duties of States in the Event of Civil Strife was ratified by: Brazil, Mexico, Nicaragua, Panama, and United States; Convention on Consular Agents was ratified by: Brazil, Mexico, Nicaragua, Panama; Convention on Diplomatic Officers was ratified by: Brazil, Mexico, Nicaragua, and Panama; Convention on Private International Law was ratified by: Brazil, Costa Rica, Cuba, the Dominican Republic, Guatemala, Haiti, Honduras, Nicaragua, Panama, and Peru; Convention on Treaties was ratified by Brazil and Panama.

The American Society of International Law celebrated its twenty-fifth anniversary in Washington, April 23-25. The one who conceived and organized the Society and nurtured it during the critical years of its infancy was president of the society, Dr. James Brown Scott having succeeded the Hon. Elihu Root, who served as President for seventeen years, and the Hon. Charles Evans Hughes, who occupied the position for five years. The formal opening of the meeting took place, April 23, and Dr. Scott's presidential address was devoted to the progress of international law during the last twenty-five years.

Other sessions were devoted to subjects connected with the Permanent Court of International Justice, including the obligatory jurisdiction of the court, the accession of the United States, and the independence of the court, the recognition of new governments during the past twenty-five years, and the legal position of war and neutrality during the last twenty-five years.

As a result of a written report submitted by the Committee on Codification of International Law, the Society adopted the following resolution, which was presented to the Secretary of State by a committee on May 9.

*Be it resolved that,* The American Society of International Law expresses the hope that the Government of the United States will, in its reply to the letter of the Secretary General of the League of Nations of February 27, 1931, give the largest possible encouragement to the

continuation of the work of codifying international law as far as many had hoped for; the Society is nevertheless of the opinion that the work of codification cannot be completed by any one conference, or, indeed, by any one generation, and it urges the general realization of the wisdom and necessity of continuing this effort.

The tenth annual meeting of the American Branch of the International Law Association was held in New York City, May 22, at which time Oscar R. Houston, of New York, was elected President, succeeding the Hon. John W. Davis. Paul H. Laques was elected Secretary.

**GROTIUS MEMORIAL.** Hon. Frank B. Kellogg, representing the American Bar, unveiled the Grotius Memorial Window at the Nieuwe Kerk at Delft, Holland, Aug. 25, 1931. The window was presented by the Netherlands-America Foundation to commemorate the three hundredth anniversary of the publication of Grotius' great work *De Jure Belli ac Pacis*.

See also LAW, PROGRESS AND DEVELOPMENTS. **INTERNATIONAL TRADE.** See FINANCIAL REVIEW.

**INTER-PARLIAMENTARY UNION.** The Twenty-seventh Inter-Parliamentary Conference was held in Bucharest, Rumania, in October. Together with the Government, the Parliament and the National group, the Rumanian nation, showed deep interest and warm fellow-feeling for its guests.

Twenty parliaments, represented by 145 members, replied to the invitation of the Rumanian group. They were: America (United States), Belgium, Bulgaria, Canada, Czechoslovakia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Japan, Norway, Poland, Rumania, Sweden, Switzerland, Turkey. The number of members was thus somewhat limited, the Union being composed of no less than thirty-eight national groups. The serious economic and political crisis prevailing in a great many countries prevented politicians from leaving their posts.

The resolution adopted by the Inter-Parliamentary Council, on April 13, on the preparation for the General Disarmament Conference, was presented for adoption to the Bucharest Conference. From the beginning, it was clear that this resolution, although unanimously adopted in principle, was incomplete in the opinion of a great number of delegates, but for different motives. This divergency of opinion provoked, in the plenary meeting, within the Inter-Parliamentary Council and in the lobbies, debates of the greatest interest.

At the opening of the discussion two amendments were first presented by the German delegation, in favor of inserting in the first paragraph of resolution I the words in italics in the following paragraph:

The Inter-Parliamentary Council, making use of the right granted by it under Art. 14, Sect. 14 of the Statutes of the Union, reminds the Groups of the Union and their individual members of the urgent duty incumbent on them to do everything in their power in order that the General Disarmament Conference, which has been summoned by the League of Nations to meet on February 2, 1932, shall result in an International Convention, on a basis inspired by the equality of the rights and duties of all nations and instituting a radical reduction of the present armaments and eliminating every possibility of an armaments race, which would inevitably lead to fresh wars.

The second amendment was presented by Count Carton de Wiart and M. La Fontaine (Belgium) and by M. Fernand Merlin in the name of the French delegation, and consisted

in adding the following paragraph to the list of provisions which the Council esteemed should figure in the Disarmament Convention:

Organization of a strictly defensive international force at the disposal of the League of Nations.

The German proposal was referred to a small drafting Committee of six members whose draft, after discussion, was referred to the Council, which presented to the Conference a fresh text for the first paragraph, that was unanimously accepted. The complete text of that paragraph is as follows:

The XXVIIth Inter-Parliamentary Conference, in adopting the resolution of the Inter-Parliamentary Council of April 13, 1931, reminds the Groups of the Union and their individual members of the urgent duty incumbent on them to do everything in their power in order that the General Disarmament Conference, led by the principle of the equality of the rights and duties of States, and taking into account Article 8, Sects. 1 and 2 of the League of Nations Covenant, shall result in an International Convention instituting a drastic reduction of the present armaments, and eliminating every possibility of an armaments race, which would inevitably lead to fresh wars.

The amendment introduced by Count Carton de Wiart, in favor of the organization of an international force, was not so fortunate. Presented in forcible speeches by MM. La Fontaine and Merlin as a logical consequence of disarmament, it was at first well received by the assembly. Herr Sollmann even declared that the German delegation would accept it. Burton L. French declared that the American delegation was opposed to it and M. Moltesen (Denmark) asked the authors of the proposal to withdraw it. Finally the Conference decided to refer this amendment to the Drafting Committee which was to deal also with the German proposal. After numerous motions and references the Council, after discussion, decided to recommend the adoption by the Conference of the resolution concerning the mandate of the Security Committee, while, by 10 votes against nine, it invited the Conference not to take into consideration the amendment in favor of the creation of an international force.

At its last meeting but one, the Conference was called upon to give a final vote. Before the vote was taken, some delegates desired to explain their attitude. M. La Fontaine insisted on the unique mission of the international force to maintain international order; while Count di San Martino (Italy) and Herr Lobe (Germany) declared that their respective delegations were not opposed to the principle of an international force, but that it seemed to them that such a vast problem required detailed study before being submitted to a Conference of the Union. Finally the voting by ballot took place, after which the President declared the results. Votes made: 189. Two-thirds majority: 126. In favor of taking the question into consideration: 96. Against: 93. The President therefore declared that the taking into consideration of this question was rejected.

The Conference unanimously adopted a fresh resolution stating that the idea of an armament truce, put forward by the Inter-Parliamentary Council, had been taken up by the League of Nations Assembly, and inviting the national groups to take action with their respective governments in order that this truce be accepted before November 1, the date fixed by the Assembly.



October 5 was devoted to the discussion of the draft resolutions concerning the Protection of Mothers and Children. In the absence of one of the *rapporteurs*, Frau Olga Rudel-Zeynek (Austria), detained in her country by the presidential elections, Frau Luise Schroeder (Germany) took on the heavy task of presenting to the Conference two series of draft resolutions, the first on the protection of mothers and children during and after childbirth, including the first year of the child, the second on the situation and protection, in the different countries, of illegitimate and of destitute children. The discussion was terminated by a vote in favor of the development of the system of family allowances and social services in favor of large families, and another in favor of the creation, under the auspices of the International Labor Office, of a Consultative Committee for the regulation of the work of women.

Most of the last day of the Conference, Wednesday, October 7, was devoted to the debate on the subject of "European Federal Union." The discussion closed with a speech by the head of the American delegation, Andrew J. Montague, who declared that he and his colleagues were not sufficiently versed in the problem of the federal organization of Europe to give an opinion. They followed with interest, however, the work of the European groups in view of improved collaboration and organization. The resolution was then voted with applause and with no modifications. The Council reelected as its President M. Fernand Bouisson, President of the French Chamber of Deputies, for the period from the Twenty-seventh to the Twenty-eighth Inter-Parliamentary Conference. In this way, M. Bouisson retains the functions of President of the Executive Committee. The Duke of Sutherland (British) was elected to the Executive Committee.

The American group held its annual meeting on February 24. The greater part of the meeting was taken up by an animated discussion on the proper means of increasing the membership of the group and of making the work of the Union more widely known in parliamentary circles. President Montague was to take the first opportunity of making known by a speech in the House of Representatives the organization and work of the Union. Those present were greatly interested in the work of the Union relating to the agricultural crisis. A special committee was requested to study this question and to take part in the work in this field.

The following were reelected members of the Executive Committee: Representative Andrew J. Montague, (Virginia), President; Senators Simeon D. Fess (Ohio) and Alben W. Barkley, (Kentucky), Representative Henry W. Temple (Pennsylvania), Vice Presidents; Representative Sol Bloom (New York), Treasurer; Representative Burton L. French (Idaho), Secretary; Senators Tom Connally (Texas), Joseph T. Robinson (Arkansas), Claude A. Swanson (Virginia), Arthur H. Vandenberg (Michigan), Representatives Fred A. Britten (Illinois), Carl R. Chindblom (Illinois), J. Charles Linthicum (Maryland), A. Piatt Andrew (Massachusetts), Thomas O. Cochran (Pennsylvania), Members; Arthur Deerin Call, Executive Secretary. The group in 1931 was composed of 226 members of the House of Representatives out of a total of 435, and 33 Senators out of a total of 96.

**INTERSTATE COMMERCE COMMISSION.** See RAILWAYS; and UNITED STATES under *Administration*.

**INTERSTATE LITIGATION.** See LAW, PROGRESS AND DEVELOPMENTS.

**INTERVENTION.** For developments in intervention policies of the United States in Latin America, see NICARAGUA, HONDURAS, PANAMA, GUATEMALA, HAITI, and CUBA under *History*.

**INVESTMENTS.** See FINANCIAL REVIEW.

**IOWA.** POPULATION. According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 2,470,939; in 1920, 2,404,021. The native white element made a moderate gain in number, to 2,282,047 (1930), from 2,158,534 (1920). The other two chief elements by origin declined: the foreign born white to 165,735 (1930), from 225,647 (1920); the Negroes, to 17,380 (1930), from 19,005 (1920). Des Moines, the capital, had a population of 142,559 (1930); 126,468 (1920). Cedar Rapids, 56,097 (1930); 45,566 (1920). Davenport, 60,751 (1930); 56,727 (1920). Sioux City, 70,183 (1930); 71,227 (1920).

**AGRICULTURE.** The following table shows the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn ....	1931	11,640,000	389,840,000	\$136,479,000
	1930	11,335,000	385,390,000	223,526,000
Oats ...	1931	6,026,000	186,806,000	89,229,000
	1930	6,303,000	233,211,000	65,299,000
Hay, tame	1931	2,910,000	3,312,000*	27,821,000
	1930	3,099,000	4,214,000*	48,461,000
Potatoes ..	1931	81,000	4,455,000	2,673,000
	1930	70,000	4,900,000	6,370,000
Barley ..	1931	521,000	13,546,000	4,606,000
	1930	548,000	16,166,000	6,628,000
Wheat ..	1931	881,000	7,594,000	3,438,000
	1930	432,000	8,869,000	5,750,000

\* Tons.

**MINERAL PRODUCTION.** The State's production of coal in 1930, 3,065,000 tons (estimated), was about at the level of the total for 1928, but fell below the quantity mined in 1929, which was 4,241,069 tons. By value the yearly production was \$11,948,000 for 1929. There were shipped from cement mills, in 1930, 7,035,252 barrels of Portland cement, a considerable increase over the total of 6,586,111 barrels shipped in 1929. By value, the shipments of 1930 totaled \$10,647,584 for 1930 and \$9,781,159 for 1929. The total of minerals produced was \$35,904,895 for 1929; for 1928, \$35,498,669.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 stated the number of the State's manufacturing establishments as 3317. These employed 82,615 wage earners, or 12.1 per cent more than had been employed in 1927. The wages paid in 1929 to these earners totaled \$103,532,117, or 13.3 per cent more than had been paid in 1927. Materials used for manufacture, plus fuel and purchased electricity, cost \$579,991,440 in 1929, or 10.7 per cent more than the cost for 1927. The manufactured product was valued, for 1929, at \$907,929,170, which was 18 per cent above the corresponding total for 1927. Sioux City had, in 1929, 154 establishments, employing 6168 wage earners; wage payments totaled \$8,499,305; manufactured product, \$133,576,118.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and



operation of governmental departments, \$24,844,799 (of which \$838,540 was for local education); for interest on debt, \$785,887; for permanent improvements, \$20,361,585; total, \$44,992,271 (of which \$22,450,345 was for highways, \$3,738,445 being for maintenance and \$18,717,900 for construction). Revenues totaled \$44,313,396. The State's funded debt outstanding on June 30, 1930, was \$15,801,000. Net of sinking fund assets, it was \$14,189,194. On property bearing an assessed valuation of \$1,471,109,295 were levied in the year State taxes of \$11,752,546.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 9697.71. Additions to this total in the course of the year preceding had totaled 7.25 miles, while 18.56 miles had been given up. No building of additional line or trackage in 1931 was reported.

**EDUCATION.** For the academic year 1920-30, the number of persons of school age in the State was reported as 716,865. There were enrolled in the public schools in that year 554,655 pupils. Of these, 437,426 were in common schools or elementary grades and 117,229 were in high schools. The expenditures for public-school education totaled about \$57,000,000. Salaries of teachers averaged \$730 a year in rural elementary schools, \$1058 in city elementary schools, and \$1452 in high schools. A research division, according to State Superintendent Samuelson in the *Journal of the National Education Association*, was made by law a part of the State educational organization. The Legislature did not adopt proposals, prompted by adverse times, looking to the reduction of teachers' pay.

**CHARITIES AND CORRECTIONS.** The Board of Control of State Institutions, holding authority under a statute of 1898, controlled and governed in 1931 the State institutions for the care and custody of persons. The Board was composed of three members, each serving six years, terms ending in rotation, one every two years. It appointed the officers governing the several institutions and fixed the number and compensation of their subordinates. It acted as the agent for institutional purchases and maintained institutional industries.

The State institutions, with their populations of Dec. 1, 1931, were: State Hospitals for the Insane at Cherokee (1432), Clarinda (1491), Independence (1474), and Mount Pleasant (1490); Men's Reformatory, Anamosa, 1440; State Penitentiary, Fort Madison, 1410; Women's Reformatory, Rockwell City, 103; Training School for Boys, Eldora, 568; Training School for Girls, Mitchellville, 194; State Sanatorium for Tuberculosis, Oakdale, 330; Soldiers' Home, Marshalltown, 466; Soldiers' Orphans' Home, Davenport, 650; Juvenile Home, Toledo, 297; Institution for the Feeble-minded, Glenwood, 1664; Hospital for Epileptics and School for Feeble-minded, Woodward, 1003. The total institutional population was 14,018.

**LEGISLATION.** An income-tax bill, the main feature of a programme to improve the fiscal system of the State, failed of enactment in the regular session of the Legislature. A measure to establish the office of county assessor was defeated in the lower house. A bill, supplementary to the proposed constitutional amendment to provide primary roads, was passed to authorize the issue of \$100,000,000 in bonds for that purpose, subject to popular ratification. The act to authorize this issue was vetoed by Governor

Turner on the decision of the State Supreme Court (May 6) that it was itself unconstitutional.

The Legislature provided for the formation of an expert commission to study the State's conservation problems and recommend a policy with regard to them. As a means to protect the producers of lard, it placed a tax of 5 cents a pound on vegetable substitutes, despite a threat of retaliatory measures from Alabama.

Perhaps the most unusual measure enacted by the session was one designed to lessen the tax burden by placing a mandatory requirement on all State subdivisions to reduce their taxes by 5 per cent. This measure applied to counties, cities, and school districts alike. It was passed in response to a popular complaint that the burdens of direct taxation had become severely onerous. The law left it to the subdivisions themselves, in each case, to work out the problem of reducing expenditure and of fixing the tax rates that would assure the required reduction of receipts. Expenditures that were mandatory by statute and likewise expenditures for the service of debt were not to be reduced.

**POLITICAL AND OTHER EVENTS.** An attempt to enforce the State law for the application of a compulsory test for tuberculosis in cattle was forcibly resisted in March. The farmers of Scott, Muscatine, and Cedar counties had sent an appeal to the Legislature to repeal the law. State agents proceeding to Tipton to make the legal tests found the road occupied by a band of farmers reported as numbering about 1000. Two companies of the National Guard were put under arms early in April, and Governor Turner, with this display of force, succeeded in negotiating with the objectors for a compromise, under which they should permit the tests to proceed, under veterinarians of their own selection. Further trouble, however, occurred in September.

**OFFICERS.** Governor, Dan W. Turner; Lieutenant-Governor, Arch W. McFarlane; Secretary of State, G. C. Greenwalt; Treasurer, R. E. Johnson; Auditor, J. W. Long; Attorney-General, John Fletcher; Superintendent of Public Instruction, Agnes Samuelson; Secretary of Agriculture, Mark G. Thornburg.

**JUDICIARY.** Supreme Court Justices: Frederick F. Faville, Lawrence DeGraff, William D. Evans, Truman S. Stevens, Henry W. Wagner, E. A. Morling, James W. Kindig, John M. Grimm, E. G. Albert.

**IOWA, THE STATE UNIVERSITY OF.** A co-educational State institution of higher learning in Iowa City, founded in 1847. The enrollment for 1930-31 was 9901. For the autumn of 1931 the enrollment was 6697, including 1225 correspondence students not also registered in residence. The summer session registration totaled 4926. There were approximately 600 members on the faculty in the autumn of 1931. The income for 1930-31 was \$5,251,124. The libraries contained 388,349 volumes. President, Walter Albert Jessup, Ph.D., LL.D.

**IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS.** A State institution for the higher education of men and women in Ames, Iowa, founded in 1868. The enrollment for the autumn term of 1931 was 3984. The registration for the first half of the 1931 summer session was 1503 and for the second half, 757. The faculty numbered 503 members. The endowment funds amounted to \$695,000, and the income for the year was \$3,480,000. The library

contained approximately 190,000 volumes. President, Raymond Mollyneux Hughes, LL.D.

**IRAQ (IRAK) or MESOPOTAMIA.** A territory in southwestern Asia, occupying the basin of the Tigris and Euphrates rivers between Persia and northern Arabia. It comprises the former Turkish vilayets of Bagdad, Basra, and Mosul, which were conquered by British and Indian troops during the World War and later recognized as an independent state under a mandate assigned to Great Britain. Capital, Bagdad; ruler in 1931, King Feisal.

**AREA AND POPULATION.** The area is about 143,250 square miles and the population, at the census of 1920, was 2,849,282; estimated in 1928 at 3,300,000. Besides 87,488 Jews and 78,792 Christians, the inhabitants in 1920 were mainly Mohammedans of the Sunnite and Shiite sects. The chief cities are Bagdad, with about 300,000 inhabitants; Mosul, 60,000; and Basra, the chief seaport, 50,000.

**PRODUCTION.** Primarily dependent upon agriculture. Iraq is capable of great development by irrigation. Dates constitute the chief export crop. Wheat, barley, cotton, oats, linseed, flax, and fruits are other leading farm products; wool and sheep casings are also produced. Petroleum production in 1930 totaled 750,000 barrels (798,000 barrels in 1929). There is some manufacturing.

**COMMERCE.** For the calendar year 1930, general imports were equivalent to \$27,582,000 (\$36,573,000 in 1929) and total exports were valued at \$15,234,000 (\$20,649,000 in 1929). Goods in transit were valued at \$13,257,000 (\$19,660,000 in 1929). The United Kingdom was the chief source of imports, followed by India, Persia, Belgium, and Germany. Iraq's exports went principally to India, the United Kingdom, United States, and Persia.

**FINANCE.** Actual budget returns for the fiscal year ended Mar. 31, 1930, showed revenues of 57,461,000 Indian rupees and expenditures of 56,412,000 rupees, leaving a surplus of 1,050,000 rupees (1 rupee equals \$0.3650 at par). Revised estimates for 1930-31 placed revenues at 50,500,000 rupees and expenditures at 53,500,000 rupees. The Indian rupee was accepted as legal tender in Iraq.

**COMMUNICATIONS.** In 1931, there were about 750 miles of railway line (excluding 180 miles of sidings) and about 4800 miles of highways, including 50 miles of macadam, 316 miles of graded or drained dirt roads, and 4434 miles of unimproved roads. Owned by the British government, the railways are administered by the Government of Iraq. Bagdad and Basra are links in the London-Karachi air line.

**GOVERNMENT.** The organic law passed by the constituent assembly in June, 1924, provided for a limited monarchy and a responsible government. The legislative body consists of the Senate of 20 nominated "Elder Statesmen" and the Lower House of 88 elected deputies. Premier and Foreign Minister in 1931, Gen. Nuri Pasha as Said (appointed Mar. 23, 1930).

**HISTORY.** By a convention signed by representatives of the Iraqi government and the Iraq Petroleum Company on Mar. 24, 1931, and ratified almost unanimously by the Iraq Chamber of Deputies late in May, the long-drawn negotiations involving the exploitation of the rich Mosul oil fields east of the Tigris River were successfully concluded. The convention granted the Iraq Petroleum Company the sole right of development

east of the Tigris, in return for which the company agreed to pay the Government £400,000 annually in advance royalties and rentals and to complete before 1935 construction of a pipe line from Kirkuk in the Mosul district to two ports on the Mediterranean—Tripolis in Syria and Haifa in Palestine. The pipe line from Kirkuk was to branch at Haditha on the Euphrates, in order to satisfy both the French interests in the company, who demanded an outlet under French control, and the British interests and the Iraqi government, who favored a port under British control. The cost of laying some 1200 miles of pipe line was estimated at £10,000,000. Separate agreements for pipe-line construction were made with Syria, Greater Lebanon, Palestine, and Trans-Jordan. The Iraq Petroleum Company was composed of the Royal-Dutch Shell group, the Anglo-Persian Oil Company, a French company, and an American group dominated by the Standard Oil Companies of New York and New Jersey, each of the four groups controlling 23¾ per cent interest.

With the royalties from the oil fields, said to be among the richest in the world, the Iraqi government and people anticipated greater economic development and financial stability, such as seemed essential to early fulfillment of their desire for independence. Early in 1931 the Permanent Mandates Commission of the League appeared unconvinced that Iraq was ready to assume the responsibilities of independent government provided for under the Anglo-Iraqi treaty of 1930 (see 1930 YEAR BOOK). On September 4, however, the League Council approved with minor modifications the general conditions which the Mandates Commission had laid down for any mandated territory to obtain statehood. The Council requested the commission to inform it at the January, 1932, session whether Iraq had fulfilled these conditions.

On October 19, Gen. Nuri Pasha as Said resigned as Premier, following friction in the Cabinet. He formed a new Ministry, composed mostly of holdovers, except for the portfolios of Foreign Affairs and Interior. High taxation led to a general strike of merchants and others in Bagdad in July, which caused much suffering among the poor. On December 4, the Chamber of Deputies voted to link the new Iraqi currency, to be placed in circulation in 1932, to the pound sterling instead of to gold. In October, 1931, Iraq suffered the worst cholera epidemic on record, 1203 persons dying out of 1906 cases. Repeated outbreaks of the rebellious Kurds in Northern Iraq were reported during the year. The Kurdish leader, Sheikh Mamud, was forced to surrender to Iraqi troops, with whom Royal Air Force units co-operated. See KURDISTAN.

In the field of foreign relations, the chief developments of the year were the reference of the Iraq-Syria boundary question to the Council of the League of Nations, a three-day visit of King Feisal to the Turkish capital at Ankara in July, and reports of strained relations between Persia and Iraq. See ARABIA under History.

**IRAQ PETROLEUM COMPANY.** See IRAQ under History.

**IRELAND.** The smaller of the two main British Isles, with an area of 32,686 square miles; politically divided into Northern and Southern Ireland, the former consisting of the parliamentary counties of Antrim, Armagh, Down, Fermanagh, Londonderry, and Tyrone, and the par-

liamentary boroughs of Londonderry and Belfast; and the latter of the remaining 26 counties. Northern Ireland is under a separate Parliament and executive by the Government of Ireland Act of 1920 (see IRELAND, NORTHERN). The southern counties constitute an autonomous unit under the treaty of Dec. 6, 1921, known as the Irish Free State, with a status similar to that of the self-governing British dominions. (See IRISH FREE STATE.) The total population of the island June 13, 1921, was estimated at 4,485,000, as compared with 4,390,218 at the census of 1911.

**IRELAND, NORTHERN.** A constituent part of the United Kingdom, comprising the parliamentary counties of Antrim, Armagh, Down, Fermanagh, Londonderry, and Tyrone, and the two parliamentary boroughs of Belfast and Londonderry. Capital, Belfast.

**AREA, POPULATION, ETC.** The area of Northern Ireland, exclusive of water, is 3,351,444 statute acres (also given as 5238 square miles). At the census of 1920, the population was 1,250,501, as compared with 1,250,531 in 1911. The estimated population, as of June 30, 1930, was 1,244,000. In 1929 births totaled 25,410; deaths, 19,822; marriages, 7441. Roman Catholics constituted one-third of the population. The population of Belfast was 415,007 in 1926. For the academic year 1930-31, there were 1893 public elementary schools, with 201,071 pupils; 73 secondary schools, with 12,094 pupils; and 123 technical schools, with 23,941 students. The Queen's University in Belfast had 1427 students.

**PRODUCTION.** Agriculture is the main occupation, although important linen and shipbuilding industries centre in Belfast. Cereals, potatoes, flax, fruit, and hay are the leading crops. In 1931, 75,000 persons were employed in linen manufacturing. Shipyards in 1930 employed 13,000 persons and the output exceeded 168,000 tons. Rope, twine, tobacco products, and soap are other products. Commerce statistics are included in those given for Great Britain.

**FINANCE.** About 30 per cent of the annual expenditure represents the cost of Imperial defense and of Northern Irish services reserved to the Imperial Parliament. Excluding these items, budget estimates for the fiscal year ending Mar. 31, 1932, balanced at £8,582,373, as compared with estimated receipts and expenditures of £9,219,995 in 1930-31. Including Imperial contributions, the total 1930-31 expenditure was estimated at £12,229,000.

**COMMUNICATIONS.** In addition to 766 miles of railway lines (1930), the country is served by various inland waterways, supplemented by 180 miles of canals. There were 12,992 miles of highway in 1931. Belfast and Londonderry are the principal seaports.

**GOVERNMENT.** The country forms an integral part of the United Kingdom and is represented in the House of Commons by 13 members. The local Parliament elected in May, 1929, included 37 Unionists, 11 Nationalists, 3 Independent Unionists, and 1 Laborite. The Governor in 1931 was the Duke of Abercorn. The ministry was as follows: Prime Minister, Viscount Craigavon; Finance, H. M. Pollock; Home Affairs, Sir R. Dawson Bates; Labor, J. M. Andrews; Education, Viscount Charlemont; Agriculture, Sir E. M. Archdale; Commerce, J. M. Barbour.

**HISTORY.** Northern Ireland's industry and agriculture were severely depressed during 1930 and 1931 as a result of reduced demand. In the 1931-

32 budget, a saving of £637,622 was effected through a 15 per cent reduction in salaries of all members of the Government and of the Senate and House of Commons. The new Parliament House at Stormont, Belfast, was nearing completion toward the end of 1931. For religious disorders near the Ulster-Free State boundary during 1931, see IRISH FREE STATE under *History*. On December 2, Cardinal MacRory, Roman Catholic primate of all Ireland, issued a Christmas appeal to the Government of Northern Ireland in behalf of the Catholic minority, which, he said, was "cruelly aggrieved and wronged." See GREAT BRITAIN.

**IRISH FREE STATE.** A self-governing Dominion of the British Commonwealth of Nations, constituted under the Irish Free State Government Act of Dec. 5, 1922, which embodies the terms of the Anglo-Irish Treaty of Dec. 6, 1921. Capital, Dublin.

**AREA AND POPULATION.** Comprising about five-sixths of Ireland, the Irish Free State has an area of 26,601 square miles. The population in 1930 was estimated at 2,945,000, as compared with 2,949,000 in 1928 and 2,971,922 at the census of 1926. The steady decrease of population since 1871 was due primarily to emigration. In 1931, however, emigration was offset by immigration. Less than 2000 emigrants left Ireland during the year, as against 15,966 in 1930 and 20,802 in 1929. For the period 1926 to 1930, births averaged 58,192 annually and deaths 42,374, the rates per 1000 of population being 19.7 and 14.3, respectively. The population of the chief cities in 1926 was: Dublin proper, 316,693 (410,900 in 1930); Cork, 78,490; Limerick, 39,448; and Waterford, 26,647. Of the total population in 1926, 2,751,269 were Roman Catholics and 220,653 were Protestants.

**EDUCATION.** Primary education is free and compulsory for children under 14 years. Study of the Irish language was a required part of the curriculum in all national schools. In 1929-30, there were 504,427 pupils in national elementary schools, 27,645 in secondary schools, which are mostly conducted by religious orders, and 3953 students in the University of Dublin and the National University.

**PRODUCTION.** Primarily an agricultural country, the Irish Free State had 3,848,000 acres under crops in 1929, or about 22.6 per cent of the total land area. Agriculture has been marked by the contraction of tillage (grain acreage declined from 2,377,000 in 1851 to 825,000 in 1926) and the expansion of the livestock industry; grazing land in 1929 aggregated 8,431,000 acres. In 1930, there were 4,038,000 cattle, 3,515,000 sheep, 1,052,000 swine, and 448,000 horses. The chief crops—wheat, rye, barley, oats, potatoes, turnips, mangels, hay, and flax—all showed decreased yields in 1930, as compared with 1929; the sugar beet yield increased to 158,000 long tons (141,000 in 1929). Large quantities of cereals are imported annually. The fish catch in 1930 totaled 22,688,000 pounds, valued at \$790,000 (43,510,000 pounds, valued at \$1,137,000, in 1929). Butter, cheese, margarine, milled grain, and liquors were the leading manufactured products. The number of registered unemployed on July 1, 1931, was 21,427, as compared with 19,141 on the same date of 1930. The Shannon hydroelectric plant began distribution of power over the entire Free State during 1930. See AGRICULTURE under *World Agriculture*.

**COMMERCE.** General imports during 1930 were

valued at \$276,123,000 (\$298,325,000 in 1929) and exports of Free State products at \$216,820,000 (\$227,772,000 in 1929). Great Britain in 1930 took 81.7 per cent of all exports; Northern Ireland, 10.5 per cent; and the United States, 2.6 per cent. Of the total imports, Great Britain supplied 69.9 per cent; Northern Ireland, 10 per cent; and the United States, 6.8 per cent. The leading 1930 imports, in order of value, were coal, machinery, wheat flour, wheat, tea, and corn. The chief exports, in the same order, were: Cattle, \$71,413,000; porter, beer, and ale, \$25,624,000; butter, \$15,046,000; swine, fresh eggs, and horses.

**FINANCE.** For the fiscal year ended Mar. 31, 1931, actual ordinary budget receipts were £24,365,000 and actual ordinary expenditures £25,266,000. This compared with actual receipts of £24,173,000 and expenditures of £25,050,000 in 1929-30 and with estimated receipts of £25,411,000 and expenditures of £27,115,000 in 1931-32. On Nov. 6, 1931, a supplementary budget was presented to eliminate a threatened deficit of £1,350,000 for 1931-32; additional taxes estimated to yield £450,000 during the balance of the year were imposed and expenditures were reduced by £900,000. According to the Minister of Finance, the public debt on Mar. 31, 1931, totaled £29,381,000, against which there were assets of £14,106,000, leaving a net debt equivalent to \$25.30 per capita.

**COMMUNICATIONS.** All railways in 1929 had 3029 miles of line, the principal system being the Great Southern Railways, with 2188 miles. An electric storage battery, said to give all the advantages of third-rail electrification without the costs of such installation, was successfully tried out on the Great Southern Railways in December, 1931. Highways in 1930 extended 46,462 miles, of which 45,722 miles were macadam. There were 650 miles of inland navigation. In 1929, 13,663 vessels, of 9,287,000 net registered tons, entered Irish Free State ports. The telegraph and telephone systems are government owned. In 1930 there were 7008 miles of telegraph line and 90,618 miles of telephone line; receipts of the telegraph system were £229,000.

**GOVERNMENT.** The Irish Free State has a written constitution which provides that her status shall be similar to that of the Dominion of Canada. Parliament (Oireachtas) consists of the Chamber of Deputies (Dáil Eireann), and the Senate (Seanad Eireann). Deputies are elected by proportional representation for five years and Senators by members of both Chambers "voting together on principles of proportional representation" for nine years. The Executive Council is responsible to the Dáil Eireann. The Governor-General in 1931 was James McNeill, appointed Dec. 16, 1927. The Executive Council as organized in October, 1930, was as follows: President, William T. Cosgrave; Vice President, Finance, Posts and Telegraphs, Ernest Blythe; Defense, Desmond FitzGerald; Industry and Commerce and External Affairs, Patrick McGilligan; Education, J. Marcus O'Sullivan; Justice, James FitzGerald-Kenny; Agriculture, Patrick Hogan; Local Government and Public Health, Gen. Richard Mulcahy; Lands and Fisheries, Finian Lynch. The distribution of parties in the Dáil Eireann in 1931 was as follows: Cumann na nGaedheal (Government party), 63; Fianna Fail (de Valera Republicans), 56; Labor, 13; Independents, 11; Farmers, 6; National League, 2; others, 2; total, 153.

**HISTORY.** The Government of the Irish Free State during 1931 was confronted with the gravest internal crisis since the civil war of 1923. Outrages by armed revolutionary bands reached proportions which constituted a direct challenge to the Government. President Cosgrave met the challenge by introducing in the Dáil Eireann October 14 one of the most drastic public safety bills in modern political history. It was adopted by a vote of 83 to 65 on October 16, after three days of bitter debate. The bill, which took the form of a constitutional amendment, authorized the establishment of military tribunals to try political offenders, with power to impose capital punishment. Membership in the Irish Republican Army and allied organizations was made an offense against the state. In introducing the measure, President Cosgrave described the conditions it was intended to correct as follows:

The existence of serious opposition to the State has grown in the past two years, especially in the last nine months. The opposition today is much more serious than when the murder of Kevin O'Higgins occurred. The danger in this is that violence is preached with a direct and continual incitement to crime, which has no parallel in any state in the world. There is evidence of an organized conspiracy to overthrow by force the Constitution, and the conspiracy's supporters are ready to murder for that end.

One crime after another is added. Intimidation is freely used, young men are forced to join the Irish Republican Army and employers are made to dismiss men in their employment who have refused to join. Killing is common all over the country and the law courts are rendered useless for the trial of political crimes by the murder or terrorizing of jurors and witnesses.

During the last few months the Irish Republican Army became allied with a new organization called the Saor Eire, seeking to establish a state on the lines of the Russian Soviet Republic. The Church and the State are bulwarks against force, and the present movement is aimed against both. The leaders of these illegal organizations have visited Russia to receive training in the methods of the Communists.

The measure was stubbornly opposed by the Fianna Fail and Labor parties, but the Independents, Farmers, and two members of the Labor party voted with the Government. Threats of violence against supporters of the measure failed to deter them. On October 18, the Catholic hierarchy in a pastoral letter declared that both the Irish Republican Army and the Saor Eire (Free Ireland) were "sinful and irreligious and no Catholic can lawfully be a member of them." On October 20 the military tribunal prescribed under the act was appointed and 12 organizations were declared unlawful, including the women's branch of the Republican Army known as the Cummann na Mham, the Friends of Soviet Russia, the Irish Labor Assembly, the Workers' Revolutionary party, the Irish Working Farmers' Committee, and the Women's Dissent League. The republican newspaper, *The Irish World*, was suppressed by the tribunal November 6 for publishing seditious articles and during the remainder of the year Republican suspects were rounded up throughout the country. Most of them were released after being interrogated by the police, but several caught in possession of arms were sentenced to long prison terms.

In August occurred a series of clashes between Hibernian and Orange organizations along the Ulster border, which led to numerous broken heads but no bloodshed. With a general election approaching, Eamon de Valera, Fianna Fail leader, commenced publication on September 5 of a new Republican newspaper, *The Irish Press*, funds for which had been partly raised in the United States. Of the 23 Senatorial vacancies

filled on Dec. 4, 1931, the Government party won ten, Fianna Fail eight, and the Labor party two, the others being scattered. In the opening speech of the electoral campaign for the Dáil Éireann on December 23, Mr. de Valera indicated that he would ask for a mandate for the removal of the oath of allegiance to the King from the Constitution and the retention in Ireland of the land annuities.

The Cosgrave government's position in the general election was greatly strengthened during the year by its land act of May 1, the extension of financial relief to agriculture under the 1931-32 budget, and the passage of the Statute of Westminster by the British House of Commons on December 10 (see GREAT BRITAIN under *History*). The land act vested full ownership of their holdings in some 150,000 tenant farmers. The Government purchased the land from the owners at a cost estimated at \$50,000,000. Land bonds were deposited to the credit of the former landlords in the National City Bank of Dublin, from which they were to draw dividends. The Statute of Westminster, vesting complete sovereignty in the Free State Parliament and empowering the Government to abolish the right of appeal to the Privy Council in Great Britain, seemed to invalidate the Republican argument that the Free State was still subservient to the British government. See AGRICULTURE, under *World Agriculture*.

#### IRISH LANGUAGE AND LITERATURE.

See PHILOLOGY, MODERN.

**IRON AND STEEL.** The world output of pig iron and steel emphasized the wide extent of the general economic depression, and was marked by a decline to levels which while not as low as those for 1921 were less, however, than the totals of the pre-war year, 1913. According to *The Iron Age*, New York, which in its annual review assembled careful estimates of the output of the iron and steel industry in 1931, the pig iron production for that year approximated to 55,730,000 gross tons which was a decrease of 30 per cent from the 1930 output of 79,400,000 tons. Compared with 1921, the year of the previous major depression when the production was 37,680,000 tons, the 1931 output was larger by nearly 50 per cent. Likewise, the 1931 steel output was estimated at 69,150,000 tons or a decline of 28 per cent from the 1930 total of 93,330,000 tons, but was an increase of about 59 per cent over 1921 when the production was 43,510,000 tons.

The American pig iron total in 1931 was about 33 per cent of the world total as compared with 40 per cent in 1930. Likewise, the American proportion of steel in 1931 was about 37 per cent of the world's production as compared with 43 per cent in 1930. In 1929, the United States was responsible for 43.8 per cent of the world's pig iron and 47.8 per cent of the world's steel. The year 1931 was marked by the large production of Russia which was, roughly, 4,300,000 tons of pig iron as compared with 4,900,000 tons in 1930 and 5,000,000 tons of steel as compared with 5,460,000 tons in 1930. These figures were interesting as exceeding the 1913 record which was not the case for the other nations with large production. The five leading iron and steel producing nations showed a marked decline in their exports in 1931 estimated in the aggregate at 11,750,000 tons as compared with 17,110,000 tons in 1930, while likewise their imports showed a

TABLE OF WORLD PRODUCTION OF STEEL  
INGOTS AND CASTINGS  
[In millions of gross tons]

(From <i>The Iron Age</i> , New York)				
Country	1913	1929	1930	1931*
United Kingdom . . . . .	7.66	9.64	7.33	5.27
Germany . . . . .	11.99	15.99	11.86	8.48
France . . . . .	8.86	9.55	9.30	8.00
Belgium . . . . .	2.43	4.07	3.42	3.16
Luxemburg . . . . .	1.81	2.66	2.24	2.04
Saar . . . . .	2.05	2.17	1.91	1.56
Russia . . . . .	4.75	4.76	5.46	5.00
Poland . . . . .	1.03	1.86	1.22	1.15
Sweden . . . . .	0.58	0.68	0.60	0.50
Spain . . . . .	0.30	0.97	0.86	0.75
Austria . . . . .	2.58	0.62	0.53	0.46
Hungary . . . . .		0.50	0.36	0.30
Czechoslovakia . . . . .		2.11	1.81	1.50
Italy . . . . .		0.92	2.11	1.75
United States . . . . .	81.30	56.43	40.70	26.70
Canada . . . . .	1.04	1.89	1.01	0.75
Australia . . . . .	0.01	0.46	0.42	0.36
India . . . . .	0.06	0.58	0.62	0.61
Japan . . . . .	0.24	2.05	2.26	2.00
China and other countries . . . . .	0.04	0.33	0.17	0.14
Total . . . . .	75.15	118.43	93.33	69.15

\* Partly estimated.

Data revised for some years from those previously published.

TABLE OF WORLD PRODUCTION OF PIG IRON  
[In millions of gross tons]

(From <i>The Iron Age</i> , New York)				
Country	1913	1929	1930	1931*
United Kingdom . . . . .	10.26	7.59	6.19	3.75
Germany . . . . .	10.73	13.19	9.54	6.18
France . . . . .	8.93	10.20	9.88	8.35
Belgium . . . . .	2.45	4.03	3.35	3.14
Luxemburg . . . . .	2.51	2.86	2.43	2.03
Saar . . . . .	1.35	2.07	1.88	1.52
Russia . . . . .	4.55	4.24	4.90	4.30
Poland . . . . .	0.60	0.69	0.47	0.38
Norway . . . . .	...	0.14	0.12	0.10
Sweden . . . . .	0.72	0.52	0.49	0.40
Italy . . . . .	0.42	0.71	0.57	0.50
Austria . . . . .	2.31	0.45	0.29	0.20
Hungary . . . . .		0.28	0.25	0.20
Czechoslovakia . . . . .		1.62	1.42	1.20
Spain . . . . .		0.42	0.74	0.59
Rumania . . . . .	...	0.10	0.10	0.10
Holland . . . . .	...	0.25	0.27	0.26
United States . . . . .	80.97	42.61	31.75	18.50
Canada . . . . .	1.02	1.16	0.81	0.55
Australia . . . . .	0.05	0.42	0.45	0.38
India . . . . .	0.21	1.35	1.18	1.15
Japan . . . . .	0.24	1.55	1.63	1.45
China and other countries . . . . .	0.16	0.46	0.84	0.59
Total . . . . .	77.90	97.23	79.40	55.73

\* Partly estimated.

Data revised for some years from those previously published.

TABLE OF STEEL EXPORTS AND IMPORTS OF  
LEADING COUNTRIES  
[In millions of gross tons]

(From <i>The Iron Age</i> , New York)				
Exports	1913	1929	1930	1931*
United States . . . . .	2.89	2.48	1.63	0.75
Great Britain . . . . .	4.97	4.39	3.16	1.75
Germany . . . . .	6.20	5.48	4.47	8.25
France . . . . .	1.58	4.21	4.00	3.00
Belgium . . . . .	0.55	4.52	3.85	3.00
Total . . . . .	16.19	21.08	17.11	11.75
Imports	1913	1929	1930	1931*
United States . . . . .	0.25	0.65	0.51	0.35
Great Britain . . . . .	2.23	2.82	2.91	2.20
Germany . . . . .	0.30	1.44	1.12	0.75
France . . . . .	0.17	0.25	0.47	0.25
Belgium . . . . .	0.87	0.98	0.67	0.40
Total . . . . .	3.82	6.14	5.68	3.95
Export excess . . . . .	12.37	14.94	11.43	7.80

\* Partly estimated. Luxemburg included in Belgian total. Scrap not included in these data.

decline from 5,660,000 tons in 1930 to 3,950,000 tons in 1931.

**IRON ORE.** The iron ore mined in the United States in 1931, exclusive of ore that contained 5 per cent or more of manganese in the natural state, was estimated by the U. S. Bureau of Mines, at 31,068,000 gross tons, a decrease of 47 per cent as compared with that mined in 1930. The ore shipped from the mines in 1931 was estimated at 28,517,000 gross tons, valued at \$74,579,000, a decrease of 48 per cent in quantity and of 49 per cent in total value as compared with the figures for 1930. The average value of the ore per gross ton at the mines in 1931 was estimated at \$2.62; in 1930 it was \$2.64. The stocks of iron ore at the mines, mainly in Michigan and Minnesota, apparently increased from 10,383,152 gross tons in 1930 to 12,972,000 tons in 1931, or 25 per cent. The Bureau of Mines estimates in the accompanying table were based on preliminary figures furnished by producers

the Lake Superior Iron Ore Association, amounted to 23,467,786 gross tons, a decrease of 50 per cent as compared with these shipments in 1930. The average value of the ore at the mines in the Lake Superior district in 1931 was \$2.74 a ton; in 1930 it was \$2.70.

The southeastern States, in which the Birmingham district is the largest iron-ore producing area, mined approximately 3,706,000 gross tons of iron ore in 1931, a decrease of 38 per cent as compared with 1930. The shipments of iron ore from mines in these States in 1931 amounted to 3,721,000 gross tons, valued at \$6,678,000, decreases of 37 and 43 per cent, respectively, in quantity and value as compared with 1930. The average value of the ore produced in these States in 1931 per gross ton was \$1.79; in 1930 it was \$2.01. The stocks of iron ore at the mines in this group of States, mainly in the Birmingham district, decreased from 913,171 gross tons in 1930 to 898,000 gross tons in 1931.

ESTIMATES OF IRON ORE MINED AND SHIPPED IN THE UNITED STATES IN 1931 AND ACTUAL OUTPUT IN 1930  
[U. S. Bureau of Mines]

District	Ore mined		Ore shipped			
	1930 Gross tons	1931 Gross tons	1930 Gross tons	Value	1931 Gross tons	Value
Lake Superior:						
Michigan .....	18,544,277	7,558,000	11,154,773	\$ 31,515,996	5,556,000	\$15,997,000
Minnesota .....	34,517,748	17,485,000	34,165,777	90,835,451	17,120,000	46,288,000
Wisconsin .....	1,821,360	880,000	1,148,277	3,179,175	630,000	1,659,000
Total .....	49,383,385	25,873,000	46,468,827	125,530,622	23,306,000	63,919,000
Southeastern States:						
Alabama .....	5,738,478	3,650,000	5,637,678	11,015,336	3,665,000	6,510,000
Georgia .....	52,221	21,000	52,221	147,964	21,000	59,000
Missouri .....	132,749	26,000	132,749	508,854	26,000	73,000
North Carolina ..	100	.....	.....	.....	.....	.....
Tennessee .....	27,710	9,000	27,384	76,089	9,000	36,000
Virginia .....	19,596	.....	36,178	65,528	.....	.....
Total .....	5,970,854	3,706,000	5,886,210	11,818,271	3,721,000	6,678,000
Northeastern States:						
New Jersey .....	394,639	293,000	391,528	1,632,827	240,000	979,000
New York .....	889,405	279,000	755,074	3,663,155	258,000	1,161,000
Pennsylvania .....	964,638	370,000	894,039	1,850,661	445,000	890,000
Total ..	2,248,682	942,000	2,040,641	7,146,643	943,000	3,030,000
Western States .....	805,743	547,000	805,548	1,128,523	547,000	952,000
Grand total .....	58,408,664	31,068,000	55,201,221	\$145,619,059	28,517,000	\$74,579,000

who in 1930 mined about 99 per cent of the total iron ore. They show the totals for the principal iron-ore producing States, and, by grouping together certain States, the totals for the Lake Superior district and for groups of southeastern, northeastern, and western States.

About 82 per cent of the iron ore shipped in 1931 came from the Lake Superior district, in which approximately 25,873,000 gross tons were mined and 23,306,000 tons were shipped, decreases of 48 and 50 per cent, respectively, as compared with the quantities mined and shipped in 1930. The ore shipped in 1931 was valued at the mines at \$63,919,000, a decrease of 49 per cent. These totals include the ore shipped by rail as well as by water from all mines, but exclude manganese ores amounting to approximately 248,400 gross tons in 1931 and 698,244 tons in 1930 that contained 5 per cent or more of manganese in the natural state. The stocks of iron ore in this district apparently increased from 9,129,040 gross tons in 1930 to 11,749,000 tons in 1931, or 29 per cent. The shipments of iron ore by water from the Lake Superior district in 1931 (including manganese iron ores), according to

**UNITED STATES PIG IRON PRODUCTION.** Pig iron production in the United States in 1931 fell to 18,275,164 gross tons from 31,399,105 in 1930 with an average daily output in December of 31,625 tons marking the minimum monthly production not only of the year but in the period since August, 1921, when 30,780 was the record. The production by months in comparison with earlier years is shown in the following table:

THE MONTHLY PIG IRON OUTPUT IN THE UNITED STATES, 1929-1931

	1931	1930	1929
January .....	1,714,266	2,827,464	3,442,770
February .....	1,706,621	2,838,920	3,206,185
March .....	2,032,248	3,246,171	3,714,478
April .....	2,019,529	3,181,868	3,662,625
May .....	1,994,082	2,832,760	3,898,082
June .....	1,638,627	2,934,900	3,715,104
July .....	1,463,220	2,639,537	3,782,511
August .....	1,280,526	2,523,921	3,755,680
September .....	1,168,915	2,276,770	3,466,611
October .....	1,173,283	2,164,768	3,588,118
November .....	1,103,472	1,867,107	3,181,411
December .....	980,376	1,665,690	2,836,916
Total .....	18,275,164	31,399,105	42,258,769



On Jan. 1, 1931 there were 95 furnaces in blast, a number which declined to 67 on Dec. 1, 1931, with a maximum of 116 on April 1 when the operating rate was 67,880 tons, from which figure there was a steady decline to 35,810 tons a day on December 1.

The American steel industry operated at a rate of about 30 per cent of capacity during the entire year, that figure being 66,069,570 tons of open-hearth and Bessemer steel at the end of 1930 to which was added during 1931, 4,075,000 tons of new capacity. During the latter six months of 1931 the average rate was less than 30 per cent. In fact the steel output for the year was estimated at about 25,000,000 tons, including electric steel ingots as well as those of open-hearth and Bessemer steel, and was below that for any year since 1921, and, with the exception of 1914, any year since 1911. On the basis of 25,000,000 tons of steel ingots, finished steel output was about 18,500,000 tons, while the capacity figures for 1931 are interesting in view of the fact that in 1926 the industry operated at 81½ per cent; in 1927 at 75 per cent; in 1928 at 83 per cent; in 1929 at 87½ per cent; and in 1930 at 61 per cent.

In Great Britain the production of steel and iron in 1931 was only half that of 1929. The year's total production of pig iron was 3,758,100 tons, as against 6,192,400 in 1930; of steel, 5,175,600 tons, against 7,325,700. The monthly average output was 855,000 tons of pig iron and 638,600 tons of steel. At the end of December, 1931, 70 furnaces were in blast and the monthly production was 330,600 tons of pig iron and 422,400 tons of steel ingots and castings. The monthly average in 1930 was 516,000 tons of pig iron and 610,500 tons of steel. The following tabulation compares British production of iron and steel for a series of years in tons:

	Steel	Iron
1931 .....	5,175,600	3,758,100
1930 .....	7,325,700	6,192,400
1929 .....	9,636,200	7,589,800
1928 .....	8,519,700	6,610,100
1927 .....	9,097,100	7,292,900
1926 .....	3,596,100	2,458,200
1925 .....	7,385,400	6,261,700
1924 .....	8,201,200	7,307,400
1923 .....	8,481,800	7,440,500

In Germany pig iron production for 1931 was reported as 6,063,048 tons, comparing with 9,694,509 in 1930. Production of steel was 8,291,250 tons, against 11,638,624. Production of iron and steel in Germany for a series of years, in metric tons, was as follows:

	Steel	Iron
1931 .....	8,291,250	6,063,048
1930 .....	11,538,624	9,694,509
1929 .....	16,246,078	13,400,767
1928 .....	14,517,013	11,804,330
1927 .....	16,310,682	13,102,528
1926 .....	12,841,636	9,648,519
1925 .....	12,194,501	10,088,761
1924 .....	9,835,255	7,832,554
1923 .....	6,305,250	4,940,505

See METALLURGY.

IRRIGATION. See RECLAMATION.

ISAYE, EUGÈNE. See YSAYE, EUGÈNE.

ISOTOPES. See PHYSICS.

ISTANBUL. See TURKEY.

ITALIAN ARCHÆOLOGY. See ARCHÆOLOGY.

ITALIAN LITERATURE. The 1931 season witnessed the passing of Fausto Maria Martini. His death in April came but a few months after that of Umberto Fracchia and Antonio Beltramelli. The loss of three major writers in short order was indeed regrettable for Italy, especially on account of the prematurity of their disappearance—Martini and Fracchia were in their early forties, Beltramelli was fifty. For obituary on Martini, see under NECROLOGY.

For a bibliography of the principal works of Martini see *The Romantic Review*, vol. xxii, No. 3, p. 256.

Relative to our recent discussion on the theatrical crisis (NEW INTERNATIONAL YEAR BOOK, 1929) it was pointed out that the crisis, if in nothing else, had brought the Italian dramatist vis-à-vis of the fact that the psychology of the theatre public had to be taken into greater consideration, and that both theme and technique had to undergo some revision and readjustment. Italian dramatists of recent date, be it recalled, made fare of originality, "cerebration," philosophy. In short, the theatre in Italy was essentially one of the intellectual aristocracy. Apropos is the exhaustive and reasonable exposition of the situation made by a benevolent and keen critic, Silvio D'Amico, in his article, "La crisi del Teatro," which appeared in the January issue of *Pègaso*.

Turning now to the novel, Nino Savaresi injected material of polemical nature in his lecture on this genre delivered in Messina on February 21. The note of dissension arises as to methods and structure. The contemporary novel trends towards an architectonic structure based, let us say, on research in cultural, philosophical, moral, and scientific principles. In Italy Mr. Savaresi would discard this methodical formula and couch the principal values of the novel in pure art. The future Italian novel will either mature on an artistic background or else fail to yield fruit. Either it will be a creation in the poetic vein, or else fail to be a work characteristically Italian.

Alberto Moravia, famed for his novel *Gli indifferenti*, takes objection to the general outlines propounded by Mr. Savaresi and finds, to the contrary, that methodic and æsthetic structures are not detachable from "art," "pure art." In this respect, Mr. Moravia remarks with equanimity that the great novels of any literature, couched in an atmosphere of "pure art," do not necessarily preclude architectonic structure based on research. Mr. Savaresi's and Mr. Moravia's views are to be found in detail in the first and second March issues, respectively, of *L'Italia Letteraria*.

FICTION. At the head of the list of the season's publications stood Giovanni Papini's *Gog*. Replete with material of explosive nature it was subject of much comment. The book was, in the main, meant to be an invective against our civilization. As such it aroused suspicion, conjecture, objection, approval. Papini's sympathizers saw in him again the roaring lion of a decade and more ago—the Papini of the days of *La Voce* and *Lacerba*. What is the thunder in his latest book? Who was this mighty monster, Gog, giant king of Magog, emblem of destruction to the chosen people of God? He was Satan himself at the head of the monstrous races of Scythians. Here, Gog, short for Goggins, is represented as a half-savage who, after acquiring illimited

wealth in America, goes in search of excesses. To what abnormal and abstruse ends go wealth and power in the hands of an uneducated and restless beast, a seeker of strange situations, and of the spectacular? Seventy topics are discussed in the philosophic vein, with Gog now playing the spectator, now the performer. Withal, Papini disapproves of the trend to modernity toward which contemporary civilization is pointed.

*Beati misericordes* (Turin), a novel of sound composition, was put out by Giuseppe Marpurgo. Excellently narrated, the novel's chief merits lie in spiritual and human values. It might be called a study in morality and humanity. Four beings are throttled in episodes where destiny plays at once the tempter, the soother, the crucifier. Its plot is spun on a four-cornered affair, with a poetic mother, an uncultured husband, and a sympathetic and tender lover to make up the triangle. About this triangle an illegitimate son plays a principal rôle.

Two books of Delfino Cinelli, *The Career of Riccardo Bonòmini* (Milan) and *Five Thousand Lire* (ib.), may be discussed. *The Career of Riccardo Bonòmini* is couched in an atmosphere of cosmopolitanism. It was composed, on the whole, in the form of philosophical dialogues,—or call them, if you will, literary quibblings. Its style, with a slight tendency to prolixity, did not prevent the book, as a whole, from being chatty, learned, amusing. On the other hand, when we consider *Five Thousand Lire* (*Cinquemila lire*; Milan), Cinelli's last book, we find a novel couched in realism on a provincial background.

A historico-regional novel was contributed in Commandè's *Don Giovanni Malizia* (Palermo). Here Sicily of 1840 or thereabouts is depicted; Sicily after the Bourbonic Restoration when (be it or be it not the germ of the Mafia) law and command passed by tacit understanding into the jurisdiction of powerful personalities, let us say, of the Francesco Crispi type, or the Giovanni Malizia type as portrayed in the present volume.

Among the most important prizes awarded, the "Bagutta" went to Gino Rocca for his *Gli ultimi furono i primi* (*The Last Were First*; Milan), a novel dedicated to "Venice, the Immortal City." It deals with the Venice of some distant future epoch. The story centres about a man whose nostalgia for the poetic and the beautiful makes him live outside the world of reality. His world is in the realms of the arbitrary; it is one of beauty, though permeated with an atmosphere of melancholy. The novel, fragmentarily composed, is difficult to follow, as is also its style, which shows imprints of forcefulness and artistry.

The Società Editrice Internazionale awarded Milly Dandolo a prize of 10,000 lire for her book, *Cuori in Cammino*, a novel for youths. It is a work along simple lines, as is to be expected, not excluding, however, moments of life, poignant and inspiring. It tells the story of a brother, who, fired with an undefinable thirst for adventure, sets out with his sister in quest of their father, lost, missing or killed in the World War.

The Mondadori Academy prize went to Fernando Palazzi for his novel, *Storia amorosa di Rosetta e del Cavalier di Nérac*. Couched in an eighteenth-century setting it offers a dazzling and intriguing picture of a "yesteryear" with its adventures and colorful romance. Written in a straight-forward style, plus comic motives, it offers pleasant reading. Bruno Barilli's prize

book might be inserted, though its content does not fall strictly under fiction. *Il paese del melodrama*, the book in question, was composed by the author on a scrapbook while he attended opera performances at a large metropolitan theatre.

**SHORT STORIES.** Luigi Tonelli who devotes most of his time to studies in literature assembled a book of short stories in *Felicità perdute* (Lanciano). The themes, in cursory style, are varied and flexibly handled. In spite of an apparent note of pleasantness the undercurrent borders on the seriousness of life, and, sometimes, on its futility. The publishing house of Alberto Stock of Rome launched a series of "Romanzi Brevi," long-short stories gotten up in attractive jackets. Among the first batch we had Massimo Bontempelli's *Mia vita morte e miracoli*, in which the author sets aside his paradoxical mood and jots down in story form a few phases of his own life. In this series we had also Lucio D'Ambra's *Storia di "Monsieur le Vent,"* a story with a cosmopolitan setting.

Under this heading it is opportune to include several books of delectable memoirs in the story mood. The first, *Cose viste* (Milan), by the eminent critic, Ugo Ojetti, reflects, perforce, the eclectic personality of the author,—a personality whose refinement and taste account for the aesthetic values of the whole book. *Cose viste*, (*Things Seen*), comprises some twenty varied topics dating from 1928 to 1930. The chapter on Toscanini, a study of the maestro's wonderful hands, is as artistic as it is fascinating. This volume made up the fifth in Ojetti's series of *cose viste*.

The second volume we wish to discuss in this connection was assembled by Marino Moretti,—*Via Laura* (Milan). When contrasted with the foregoing book it discloses its difference in that it is chiefly in the subjective mood.

**THEATRE.** In view of the paucity of plays, published or staged, the theatrical season was rather quiet. In fact, it was disappointing when we consider the liveliness of the previous season,—a season crowned with three Pirandellion successes. Sabatino Lopez, in conjunction with Eligio Possenti, staged *Fuorimoda* (*Out of Date*), a vehicle which furnished the stellar actor, Ermete Zacconi, a character sketch of some importance. Sabatino Lopez, too, assembled a group of one-act plays in *Le bianche e le nere*,—six plays, thin in literary value but strong in technical conception. Sem Benelli furnished two plays contained in one volume, *Eroi* and *Madre Regina*. *Eroi*, a war drama, sketches the fortitude of the private, Bonacchi, representative of thousands of others from all lands and all creeds. This play is to be added to the already swelling list of war dramas of which Sherriff's *Journey's End* topped the list. *Madre Regina* is a play depicting a revolution (Russia) and glorifying the inviolability of mother love.

Giannino Antona Traversi-Grismondi's *Le sale di Augia* (*Augean Drawing Rooms*) is a dramatic satire on present day society. The play calls for a prologue by the director as a sort of warning that there is to be portrayed some prevalent social conditions which need as much cleansing as the Augean stables. The adjective he applies to these immoral, or amoral, social conducts is "putrid," or nothing short of it. Certainly the play is handled in a novel way; it is worthy of being staged in spite of its huge list of *dramatis personæ*, impracticable from the

point of view of modern stage craft. Attention may be called to Samuel Putnam's English translation of Pirandello's *Come tu mi vuoi* (*As You Desire Me*), which is considered far superior to the New York stage production of recent date. For a discussion of this and other plays of Pirandello see *The Romanic Review*, xxii, 1, Jan.-Mar., 1931.

**POETRY.** Two books of verse stood out among the rest. These were contributed by Ada Negri and Francesco Pastonchi, both poets of long standing. In Italy, Ada Negri occupies a place in poetry comparable with that occupied by Grazia Deledda in prose. Ada Negri's verses collected in *Vespertina* might be called prayers at eventide, for their spirituality, reflection, and resignation. The same sense of sincerity and loftiness characterized the authoress's early poems in *Fatalità*.

... La bontà di Dio  
discenderà sul mio morire. Calmo  
sarà il mio trapasso: pari a un calmo sonno.  
Mi sveglierò senza il mio corpo, in una  
strada del cielo, incoronata d'astri.  
E non più sofferenze e non memoria  
né desiderio più. Pace soltanto.

The other volume of poems, Pastonchi's *I versetti*, derives its title from a Catullian motive, "scribens versiculos . . ." It consists of varied verse, intimate or descriptive, with here and there an ever so light a note of sarcasm. Women viewed from various aspects make up the bulk of content matter as well as furnish the book its leitmotif:

Una donna  
Incontrarti è un bene,  
Scampi tu dallo scempio  
di queste aride superfici  
striate d'artificial  
miseri. . . .

Two small but decorous volumes of poetry issued from Giulio Preda's *Collection of Poetry*. The first was Riccardo Balsamo Crivelli's *Cammin lungo*, poems in a versatile vein. In addition to poems in satire and burlesque, there are several sketches, one, *The Poem of Jesus*, and the other, *The Fable of Calugino*. Giuseppe Ungaretti's *L'Allegria* offers a more difficult task to fathom the author's ideas. Mostly in blank verse, the poems are terse and emotional. Two or three words constitute a line for meaning.

**CRITICISM AND VARIA.** Among other studies, the first was a contribution of Benedetto Croce, a booklet of 90 pages, *Introduction to a History of Europe in the Nineteenth Century*. This study is a second draft of a recent limited edition of the author's lecture delivered in February before the *Accademia di Scienze morali e politiche della Società Reale di Napoli*. Then there was a series launched by the publishing house of Sandron of Palermo, under the editorship of Egisto Roggero. They are studies in the form of booklets, under title of *Collezione Scientifica del Novecento*. The outlines on hand are Manfredi Gravina's *Italian Problems Beyond the Alps and Beyond the Seas*, Eugenio Giovannetti's *The Cinema and Mechanical Arts*, and Clemente Prepositi's *La guerra nel cielo*.

There was a veritable avalanche of biographical writing on D'Annunzio. It is hard to justify so much biography on the poet at the present moment. The remunerative reason can be of slight import, except perhaps in the event of the famous poet's death. Further conjecture would be beside the point. Angelo Sodini's *Ariel Armato* (Milan) is valuable for its factual and enter-

taining information. It was awarded the Enrico Garda prize of 50,000 lire. A disciple and admirer of D'Annunzio, Sodini has fallen into the inevitable by portraying the poet more or less at his best. Otherwise the material issues from firsthand sources. The other biography is in English, *Gabriel the Archangel, A Life of Gabriele D'Annunzio*, under the joint authorship of Federico Nardelli and Arthur Livingston. In this biography D'Annunzio is treated at his best and at his worst—he has his praise and his flaying. The composition is set off in cursive style; the episodes appetizingly told. The biography in question has some new "slants" on the poet.

A few works falling under no special category may be mentioned: First,—Adriano Tilgher's *Work* (New York), translated masterfully from the Italian (*Homo Faber*, Rome, 1929) by Dorothy Canfield Fisher. It is an historical interpretation of work throughout the ages, defined from the point of view of the Greeks, Hebrews, Romans, Christianity, Fascism, Sovietism, among others. For a résumé of Italian publications and literary activities during 1930 there were the year-books *L'Arco Libro* (Milan, 1931). Both year-books are attractively gotten up with numerous illustrations, caricatures, facsimiles, and other features. The work of the splendid *Enciclopedia Italiana*, started several seasons before by the Istituto Treccani, proceeded regularly with the issuance of a volume quarterly. The set was to be completed by 1937. The editorship was under Giovanni Gentile and Tuminelli. Lastly, but certainly not in importance, Joan Redfern's translation of Francesco De Sanctis's monumental *History of Italian Literature* (New York) containing an introduction by Benedetto Croce must be mentioned. Long indispensable to the Italian scholar, this translation was destined to render adequate service to the English speaking public.

**ITALIAN SOMALILAND**, so-mä'le-länd. An Italian colony extending along the east coast of Africa from British Somaliland on the northeast to Kenya on the southwest, and bounded on the north by Ethiopia. Area, approximately 190,000 square miles; population at the census of 1929, 900,000, including, at the end of 1930, 1856 Europeans. Mogadiscio, with a population of about 28,000, is the capital.

**ITALY.** A constitutional monarchy of southern Europe, comprising, besides Italy proper, the islands of Sardinia, Sicily, Elba, and some 70 other small islands, together with the territory on the eastern shore of the Adriatic acquired as a result of the Treaty of St. Germain, and arrangement with Yugoslavia in 1920. Capital, Rome. Reigning King in 1931, Victor Emmanuel III.

**AREA AND POPULATION.** On Jan. 1, 1915, Italy had an area of 110,632 square miles and a population of 36,120,118. According to a census and survey of 1921, the area had increased to 119,710 square miles, 9078 square miles having been acquired as a result of the World War, and the population was approximately 38,710,576. The census of Apr. 21, 1931, showed a total population of 42,118,435, or a gain of 3,407,859 in the preceding decade, making Italy third in population rank among the nations of Europe. In the ten-year period the population had increased 6.1 per cent, as compared with a 6.8 per cent increase between 1911 and 1921 and 6.5 per cent between 1901 and 1911. Alone among the Great Powers of Western Europe, Italy registered

no marked decrease in the birth rate after the World War. The birth rate in 1930 was 26 per 1000 of population, as against 25.1 in 1929 and an average of 26.7 for the five years 1925 to 1929. Deaths averaged 13.7 per 1000 in 1930, 16 in 1929, and an average of 16.2 for the period 1925-29. The average annual natural increase in population was 422,475 between 1925 and 1929. In 1930, however, the natural increase was estimated at 1,365,000. The net annual population increase in Italy was aided by the restriction of emigration. The net loss of population through emigration previous to the World War was from 300,000 to 400,000 annually. In 1930 emigrants numbered 280,097 and the number of Italians returning from other lands was 129,022, making a net loss of 151,075.

The population of the 12 leading Italian cities at the 1931 census, with figures for 1921 in parentheses, was: Rome, 1,004,028 (691,314); Milan, 993,496 (718,304); Naples, 843,073 (780,220); Genoa, 607,650 (553,999); Turin, 596,566 (502,274); Padua, 126,505 (112,021); Palermo, 389,933 (400,348); Florence, 316,193 (253,565); Venice, 256,144 (171,665); Trieste, 249,495 (238,655); Bologna, 245,647 (210,969); Catania, 226,800 (255,394). Of the total 1931 population, 7,152,875, or 17.37 per cent, were concentrated in the 22 cities of more than 100,000 population; 2,224,631, or 5.4 per cent, lived in 34 cities of between 50,000 and 100,000; and 1,171,419, or 2.85 per cent, inhabited cities of less than 50,000. The 92 cities of every description contained 10,548,925 inhabitants, or 25.61 per cent of the entire population. All 1931 census figures are provisional.

**EDUCATION.** About 27 per cent of the Italian population was illiterate in 1921, as compared with 38 per cent in 1911. Under the Fascist régime, illiteracy has been sharply reduced. Of the 4,800,000 children of school age in 1929-30, more than 4,000,000 were in public primary schools and about 300,000 in private schools, leaving approximately 500,000 not receiving instruction. In 1928-29 there were 239,991 enrolled in secondary schools and 26,932 in the 21 state and four free universities.

**PRODUCTION.** More than 50 per cent of the population was directly dependent upon agriculture in 1930, although industry was of increasing importance in the national economy. Arable land comprised about 32,249,000 acres, or 42 per cent of the total area. Farm production in 1929 was valued at 25,000,000,000 lire (about \$1,315,000,000). The area and production of the principal crops in 1929 and 1930 are shown in the accompanying table from the *Commerce Year-book* for 1931.

Although its population is about the same as that of Great Britain and France, Italy is industrially much weaker because of the lack of the natural resources necessary to industry. In 1929, Italy imported 11,300,000 metric tons of coal, coke, and briquets valued at \$81,320,000. The rapid expansion of hydro-electric power production, however, had displaced a coal consumption of 9,000,000 metric tons annually by 1930. In that year, new units completed added 640,000,000 kilowatt-hours to the combined capacity of hydro-electric plants, and new units with a total of 1,540,000,000 kilowatt-hours capacity were under construction for completion in 1931 and 1932. The total generating capacity of all Italian electric power plants on Nov. 30,

## ITALIAN CROPS: AREA AND PRODUCTION

Crop	Area (thousands of acres)		Production †	
	1929	1930	1929	1930
Wheat .....	11,794	11,910	260,123	210,815
Rye .....	808	801	6,909	6,121
Barley .....	579	582	12,071	11,165
Oats .....	1,293	1,263	48,261	36,844
Corn .....	8,719	8,787	99,624	118,001
Rice .....	389	360	33,005	31,925
Potatoes .....	867	868	78,770	71,472
Sugar beets ..	287	272	2,924*	3,021*
Beet sugar ‡			485*	412*
Olive orchards ‡	5,579	5,578	88,871*	85,618*
Grapevines ...	10,611	10,523	1,084,418*	959,411*
Citrus fruits ...	145	144	837*	.....
Tobacco .....	95	104	97,048*	108,774*

\* Unit, metric ton.

† Seasons ended following year.

‡ Unit, gallon of oil.

§ Unit, gallon of wine.

\* Unit, pound.

† Thousands of units—bushels except as indicated.

1930, was 4,133,000 kilowatts, or 10 per cent more than on the same date of 1929.

Iron resources are limited also. The production of pig iron in 1930 was 534,293 metric tons, compared with 678,492 tons in 1929 and 507,611 in 1928. Crude steel output was 1,774,094 tons, as against 2,148,567 tons in 1929 and 1,962,632 in 1928. Imports of iron and steel products in the same year totaled 1,275,875 metric tons, while exports were only 9351 tons. Output of Sicilian and Italian sulphur during 1930 totaled 372,250 metric tons, or about 26,920 tons more than the 1929 output. Production of other leading minerals in metric tons in 1930, with 1929 figures in parentheses, was as follows: Iron ore, 716,590 (715,171); lead ore, 50,056 (53,496); zinc ore, 185,897 (223,907); iron pyrites, 713,500 (664,543); lignite, 559,500 (782,045); marine salt, 540,900 (562,586); metallic mercury, 1925 (1998); aluminum, 9000 (7373); lead, 24,500 (22,650); ferro-alloys, 43,707 (55,378); coke (metallurgical), 800,085 (791,607).

Along with the rest of the world, Italy suffered severely from the effects of the economic depression in 1930 and 1931. Despite its economic vulnerability, however, it was not as hard hit as Great Britain and Germany. Both wholesale prices and the export trade fell off about 20 per cent during 1930, but the volume of domestic production held up fairly well. Textile factories were operated at 15 to 18 per cent below capacity. Rayon production (1930) was 66,307,000 pounds (71,060,000 pounds in 1929); automobiles, 36,532 (54,100 in 1929); raw silk, 12,170,000 pounds (10,648,000); cotton yarn, 391,000,000 pounds (469,579,000); cotton cloth, 875,000,000 (1,093,600,000); wool textiles, 65,000,000 (76,575,000).

**COMMERCE.** During 1930, Italian imports for consumption and exports of Italian products each declined by 20 per cent, but the unfavorable trade balance for the year was only \$274,000,000, as against \$339,000,000 for 1929. Imports for consumption were valued at 17,325,000,000 lire (about \$911,000,000) and exports of domestic products at 12,115,000,000 lire (about \$637,000,000). Comparative figures for 1929 were: Imports, 21,665,000,000 lire (about \$1,140,000,000); exports, 15,236,000,000 lire (about \$801,000,000). In 1931, according to preliminary returns, imports for consumption totaled \$610,000,000 and exports \$530,000,000, representing declines of 33 and 17 per cent, respectively, from the imports and exports figures of the year 1930.

The United States in 1930 remained the largest supplier of Italian imports, but furnished only 14.6 per cent of the total, as against 16.7 per cent in 1929 and 18.3 per cent in 1928. Germany occupied second place, with 12.6 per cent in both 1930 and 1929, followed by the United Kingdom, with 9.6 per cent (8.1 in 1929), and France, with 8.7 per cent (9.6 in 1929). Germany took 12.8 per cent of all exports (11.9 in 1929); the United States, 10.9 per cent (11.5); France, 10.2 (8.8); and the United Kingdom, 9.8 (9.8). Wheat, raw cotton; coal, coke, and briquets; iron and steel, machinery, wood, and chemicals were leading imports, in the order named. Cotton fabrics, raw silk, silk and rayon fabrics, fruits and nuts, raw or dyed rayon, and wool fabrics, were the chief exports, in order of value.

**FINANCE.** The budget and supplementary budget estimates for the fiscal year ended June 30, 1931, placed total receipts at 21,524,354,792 lire and total expenditures at 21,198,332,440 lire. Closed accounts showed actual receipts of 20,083,633,979 lire and actual expenditures of 20,979,522,312 lire, leaving a deficit for the year of 895,888,333 lire, as compared with an estimated surplus of 326,022,352 lire. In the previous year, there was a surplus of 150,059,232 lire, the receipts totaling 19,896,938,440 and expenditures 19,746,279,208 lire. The 1930-31 receipts were 1,440,720,813 lire less than anticipated, while expenditures were 218,810,128 lire more. The above figures exclude capital account. Capital receipts for the year, including a new internal loan of 5,350,174,070 lire, totaled 5,920,263,081 lire and capital expenditure was 4,984,248,997 lire. The lira is equivalent to \$0.0526 at par and exchanged at \$0.0524 in 1930.

The budget for 1931-32 estimated receipts at 23,695,000,000 lire and expenditure at 24,271,000,000 lire. On June 30, 1931, the internal debt totaled 91,288,000,000 lire, of which 5,339,000,000 lire represented the floating debt. This compared with a total internal debt of 88,102,000,000 lire on June 30, 1930. The foreign debt on June 30, 1931, stood at 1,736,104,100 lire (about \$91,373,900), with interest amounting to 121,527,287 lire (about \$6,396,173).

**COMMUNICATIONS.** At the beginning of 1930, there were 10,407 miles of state-owned and 3134 miles of privately owned railway lines. Work on a new direct electric line between Florence and Bologna was approaching completion in 1931; the cost of the entire project was estimated at \$60,840,000. The double-tracking of the main line between Turin and Rome neared completion also. Receipts from the operation of the state railways in the fiscal year 1929-30 totaled 4,839,000,000 lire; expenditures, 4,747,000,000 lire. National highways in June, 1930, extended 125,626 miles, of which about 14,430 miles were macadam.

The mercantile marine at the beginning of 1930 consisted of 1396 steamers of 3,212,302 gross tons (including 152 motor vessels of 439,682 gross tons and 2692 sailing vessels of 168,202 gross tons). In 1930, a total of 14,931 vessels, of 21,203,000 net registered tons, cleared Italian ports in the foreign trade, and 15,486 vessels, of 21,807,000 tons entered.

**ARMY AND NAVY.** See **MILITARY PROGRESS**; **NAVAL PROGRESS**.

**GOVERNMENT.** The Italian Constitution vests executive power in the King, acting through a

responsible ministry, and legislative power rests conjointly in the King and a parliament of two chambers. The Grand Council of Fascism is the supreme body which "controls all the activities of the régime," under a law promulgated in December, 1928. It "designates" the deputies for the lower chamber and "must give its opinion on all bills dealing with constitutional issues." For governmental system, see 1930 YEAR BOOK.

The Cabinet in 1931 was composed as follows: Prime Minister, Chief of the Government, and Minister of Interior, Benito Mussolini; Foreign Affairs, Dino Grandi; War, Pietro Gazzera; Navy, Giuseppe Sirianni; Air, Italo Balbo; Public Works, Araldo Di Crollanza; Corporations, Giuseppe Bottai; Education, Balbino Giuliano; Agriculture and Forests, Giacomo Acerbo; Colonies, Emilio de Bono; Finance, Antonio Mosconi; Justice, Alfredo Rocco; Communications, Constanzio Ciano. On Aug. 18, 1931, Premier Mussolini announced that the Council of State, which examines bills preliminary to their submission to Parliament, would thereafter be directed by him.

### HISTORY

**FOREIGN RELATIONS.** The bellicose note which pervaded Fascist diplomacy during 1930 largely disappeared in the following year and Italy emerged as a leading proponent of armament limitation and European peace. No such tendency was indicated at the beginning of 1931, however. On January 20, the Franco-Italian naval truce was ended and amid mutual recriminations the two rivals prepared to resume their naval building programmes (see FRANCE under *History*; **NAVAL PROGRESS**).

Times, however, were unpropitious for a continuation of the aggressive foreign policy upon which Mussolini embarked in 1930. He then deliberately challenged France's hegemony in Europe by assuming leadership of the agitation in Germany and other ex-enemy countries for the revision of the Treaty of Versailles. But France in 1931 occupied an unassailable position. Her gold resources and financial strength forced Mussolini's prospective allies—Germany, Austria, and Hungary—to turn to her for aid in the financial crisis of the spring and summer. France's hold on her allies of the Little Entente was cemented even more tightly by generous loans.

Meanwhile Italy was struggling to balance her budget, while carrying forward a great unemployment relief programme of public works. She had no money to spare for a costly armament race. Moreover, the Fascist régime became fully occupied at home in a serious dispute with the Vatican. A recrudescence of anti-Fascist activities indicated that all might not go well if Italy became engaged in a foreign war. And finally, the Austro-German Customs Union proposal aroused Italian fear that a revision of the Versailles boundary agreements along the lines desired by Germany and Austria would be more disadvantageous than advantageous to Italy's future. The Fascist Government joined with France in contesting the legality of the Customs Union project, which would have made the southern boundary of a greater Germany coterminous with that of Italy (see GERMANY under *History*).

Although Italy stressed the necessity of peace through the reduction of armaments, reparations, and war-debt payments, she did not fail to pre-

pare for eventualities. A bill introduced into the Chamber of Deputies Feb. 17, 1931, provided for the establishment of military zones on the French and Yugoslav frontiers. At the same time a proposed increase of \$5,905,000 in military expenditures for the year was announced. The Fascist press during March and April continually attacked French "militarism," particularly the extension of credits for armaments to Poland, Yugoslavia, and Czechoslovakia and the alleged development, with French aid, of the great Skoda iron and steel factories in Czechoslovakia as a source of armament supply for the Little Entente. Nevertheless, Italy slackened her authorized naval construction shortly before the visit to Rome on July 8 of the American Secretary of State, Henry L. Stimson, and gave him assurances of Italy's full coöperation in steps toward the limitation of armaments at the Disarmament Conference scheduled for February, 1932, at Geneva. Italy had previously accepted and put into effect immediately President Hoover's moratorium proposal (see REPARATIONS AND WAR DEBTS).

Statements of Premier Mussolini during the summer were strikingly peaceful, compared with his militant remarks of the previous year. Speaking at the opening of the great Ravenna aqueduct on August 1, he said the Italian people wanted peace "not because we fear the risks of war and the uncertainties of battle, but because we are engaged in a great work, and wish as soon as possible to relieve the Italian people of the hardships of the present." In an article published in the *Boersen-Courier* of Berlin August 7, Mussolini said:

The moment has come when we must find some means of putting our houses in order or collapse under the burdens of military expenditures. . . . The thirteen years (since the World War) have brought nothing but empty peace phrases and the nations have gone on constructing battle-ships, strengthening their military forces, and organizing air fleets. The European policy of balance of power must be done away with if peace is to come. For the first time a different view is noticeable now which should inaugurate an epoch of real peace.

About the same time (the first week in August), Chancellor Brüning and Foreign Minister Curtius of Germany made an official visit to Rome, where they were received by Mussolini and the Pope. Foreign Minister Grandi returned the visit on October 25. His conversations in Berlin were directed toward a preliminary understanding between Italy and Germany on the questions of disarmament, and the cancellation of reparation and war debts. In several speeches during the year Mussolini stressed the necessity for revision of the Versailles Treaty, particularly the boundary settlements.

Addressing the Assembly of the League of Nations on September 8, the Italian Foreign Minister proposed an immediate general agreement for the suspension of further work on armament programmes to last at least until the end of the 1932 Disarmament Conference. At the same time he announced Italy's ratification of the optional clause of the World Court statute and adherence to the general act for compulsory arbitration (see LEAGUE OF NATIONS; WORLD COURT; DISARMAMENT).

In preparation for the Disarmament Conference, the Italian Foreign Minister held conversations with representatives of the other European Foreign Offices during the summer and fall of 1931. He visited the United States from

November 17 to 27, discussing disarmament and other related problems with President Hoover and Secretary of State Stimson.

Italy found herself in disagreement with France also with regard to methods of economic collaboration in the rehabilitation of Europe's agriculture, industry, and trade. The Italian plan was presented by Signor Grandi before the Commission of Enquiry for European Union on May 16, 1931 (see UNITED STATES OF EUROPE). In contrast to the French plan, which sought to secure preferential treatment for agricultural products by means of a multi-lateral agreement among the European states, Italy favored a system of bilateral preferential agreements between industrial and agricultural states. A few days previously (May 11) Italy concluded commercial agreements of this nature with Austria and Hungary. The Italian Government contracted to purchase specified quantities of Austrian timber and Hungarian farm products in return for the purchase by the two countries of specified quantities of Italian fruit, silks, hats, automobiles and motor tractors. There was to be no tariff reductions on goods thus exchanged, but the duties collected were to be utilized as credits for the stimulation of mutual trade. Reductions in railway freight charges and other transportation facilities were provided.

Another important development in the field of commercial relations was the conclusion of a new trade agreement with the Soviet Union on Apr. 27, 1931. This took the place of an agreement signed Aug. 2, 1930, according to which Russia agreed to buy Italian products to the value of 200,000,000 lire (about \$10,480,000) during the year ended July 31, 1931. By the new pact, Russia undertook to purchase additional Italian products to the value of 350,000,000 lire (about \$18,340,000), the original credit having been exhausted in five months. Credit periods ranging up to 52 months in the 1930 agreement were reported to have been extended by the 1931 agreement. The Italian Government guaranteed payment of 75 per cent of the total value of exports to Russia. Automatic annual renewal of the pact was provided for, unless three months' termination notice was given.

The Italian Ambassador at Washington sent an official protest to the Department of State in January after Maj. Gen. Smedley D. Butler of the U. S. Marine Corps in an address at Philadelphia January 19 charged Mussolini with running over a child during an automobile trip in Italy and with refusing to stop his car. The American Government submitted a formal apology after Mussolini had publicly denied the charge. A scheduled court-martial of General Butler was canceled at the request of the Italian Ambassador and the incident was closed.

Italy displayed her continued interest in Albania by agreeing in June to lend that country without interest 10,000,000 gold francs annually for 10 years, the money to be repaid whenever the Albanian budget permitted of it (see ALBANIA).

DISPUTE WITH THE VATICAN. A serious controversy between the Fascist Government and the Vatican broke out in April of 1931 and continued until September 3, when settlement of the dispute was officially announced. The immediate issue was the conflict over the jurisdiction which both the Church and the State claimed to exercise in the sphere of education. But behind this was the determination of both



parties to mold the Italian people in accordance with their respective ideals.

About the middle of February, the Pope in an address to Lenten preachers, censured the Italian Government for encouraging "profanation of the Sabbath by taking young men out of the churches into athletic or recreational activities." He deplored the government's action in permitting immoral newspapers and shows and in allowing Protestants to carry on propaganda in Italy, asserting that in so doing it was violating the Lateran Accord of 1929. Government officials denied that any violation of the Lateran Accord was involved. The charges and countercharges which followed gradually assumed a more serious tone. During April Deputy Giovanni Giuriati, secretary of the Fascist party and after Mussolini the most influential member of the government, in a speech at Milan accused the Catholic Action societies of political activities intolerable to the Fascist State. Some of the Catholic Action leaders, he said, were members of other anti-Fascist organizations.

The Pope responded (April 27) in a public letter to Cardinal Schuster, Archbishop of Milan, in which he attacked Fascist practices as "inspiring hate and irreverence" in youth and "rendering almost impossible the practice of religious duties."

A month later (May 26), the Fascist daily *Lavoro Fascista* charged Catholic Action leaders with flagrantly violating Article 43 of the Lateran Accord, which bound the church organizations not to engage in political activity. The newspaper described an alleged private meeting of Catholic Action in Rome in April, at which Dr. Rossi, vice president of the organization, was said to have referred to Fascism as "the enemy." Dr. Rossi and Mgr. Pizzardo, Papal Under-Secretary of State and Assistant Secretary-General of Catholic Action, were quoted as urging Catholic Action to be prepared to repress anti-Catholic manifestations and, if necessary, to seize power. Publication of these charges was the signal for violent clashes between Fascists and members of Catholic organizations throughout Italy. Troops were called out on May 27 to repress anti-Catholic demonstrations by young Fascists, who stoned the headquarters of the Catholic Action societies and trampled upon a portrait of the Pope torn from the wall of the Catholic publishing offices in Rome. The semi-official Vatican organ, *Osservatore Romano*, which printed emphatic denials of *Lavoro Fascista's* charges, was banned from the streets of Rome.

The gravity of the dispute was emphasized May 30, when Premier Mussolini dissolved all branches of Catholic Action (about 500,000 members enrolled in 15,000 clubs); all Catholic clubs and three playgrounds in Rome financed by the American Knights of Columbus were closed by the police. The Pope at the same time placed Catholic Action under the direct tutelage of the bishops and canceled the Italian Eucharistic Congress scheduled for the following week. On June 1, Premier Mussolini ordered the dissolution of all organizations of Catholic youths in Italy by decree. On the same day the Pope called a consistory of the 24 cardinals in Rome, at the close of which he announced that "in view of the present dolorous circumstances" all processions and religious festivals outside the churches would be prohibited.

Although a halt was called to editorial

polemics on both sides, the controversy raged throughout the summer, with frequent exchanges of notes between the Vatican and the Italian Government and official statements by both parties. Several times a severance of all diplomatic relations appeared imminent. A feature of this debate was the Pope's encyclical letter of July 4, in which he presented a detailed defense of Catholic Action and unqualifiedly denied Fascist charges that Catholic Action had participated in political activities.

Meanwhile negotiations for a settlement of the dispute were continued and on September 2 the Italian Government formally announced that the controversy was at an end. The settlement was achieved through a reinterpretation of Article 43 of the Lateran Concordat. The government agreed to permit the reopening of Catholic Action clubs on condition that their activities would be confined to "occupations of a recreative or educational character with a religious purpose." Catholic Action clubs were forbidden to engage in trade-union activities and they were placed under the jurisdiction of the bishops instead of under the former control board of laymen, some of whom had been accused of political propaganda. No anti-Fascists were to be chosen directors of the clubs. Catholic Action was pledged to abstain from politics and "from all those things which by tradition properly belong to political parties." Catholic Action associations were to have no flags except the national flag and religious banners and were to refrain from any athletic and sporting activity. The educational spheres of the two parties were more clearly defined by the provision that material, physical, and athletic education was to be everywhere conducted by the Fascist Balilla and Avanguardisti, while religious and spiritual instruction was to remain in the hands of priests, who were to be appointed as chaplains in all sections of the two Fascist youth organizations. Catholic club properties were immediately returned to the owners and reopened.

The chief concession made by the Vatican was that the Catholic Action branches must abstain from athletic and sporting activities. But the Vatican won its primary contention through the retention of the right to supervise activities of an "educational character with a religious purpose." Concluding phases of the dispute were marked by the resignation of Major Giuriati, secretary of the Fascist party; the Pope dismissed the Jesuit Father Enrico Rosca, editor of the Catholic review *Civiltà Cattolica*, whose writings had displayed a marked antipathy toward Fascism, and Count dalla Torre, editor of *Osservatore Romano*. Achille Starace, vice president of the Fascist party for eight years, succeeded Giuriati as secretary on December 8. Later the Holy See announced that Catholic university professors might take the oath of allegiance to the Fascist régime, as it was "not a political party but the government of the nation." Out of more than 12,000 professors, only 11 refused to take the oath.

INTERNAL DEVELOPMENTS. The Fascist régime, as in previous years, severely punished attempts to organize public resistance against it. Michele Schirru, a naturalized American citizen, was executed by a firing squad May 29, following his conviction on a charge of conspiring against the life of Premier Mussolini. A special tribunal on May 30 sentenced five "intellectuals," who admitted opposing Fascism and working to dis-

credit it, to prison sentences of from 6 to 20 years. Two others tried on the same charge were acquitted. On June 5, six men, several of them Communists, received sentences ranging from 3 to 12 years on a charge of placing a bomb which killed 20 persons and injured 23 others as King Victor Emmanuel was inspecting the Milan fair Apr. 12, 1928. The King narrowly escaped injury. On September 1, Professor Leo J. Moulin, a Belgian, and four others were tried by the special tribunal for the defense of the state, the charge being that they introduced into Italy and distributed anti-Fascist propaganda with the object of causing an insurrection. (See **BELGIUM**, under *History*).

These drastic penalties failed to prevent a series of bombings in various Italian cities during the year, which cost the lives of a number of Fascist officials. In America it was learned that on May 20, Arturo Toscanini, Italian conductor of the New York Philharmonic Orchestra, had been attacked and beaten by a Fascist mob at Bologna. Toscanini had previously refused the request of Leandro Arpinati, Under-Secretary of State for the Interior, and the prefect of Bologna, that he play the royal march or the Fascist hymn at his concert.

Meanwhile the Fascist Government was actively developing its programme of public works. With the opening of the Ravenna aqueduct, fresh water was brought into that city for the first time since the Roman aqueducts fell into decay in the Middle Ages. The launching of the 50,000-ton Atlantic liner *Rex* on August 1 and the rebuilding of nearly 4000 miles of highway were other evidences of Fascist energy. The Ministry of Public Works announced that from Oct. 28, 1922, to Dec. 31, 1930, it had spent about \$1,345,000,000 on public improvements. The Ministry of Communications announced Aug. 29, 1931, that the government would spend \$145,000,000 during the approaching winter on public works projects which would give employment to 250,000 men. The projects included work on railways, hydro-electric plants, public buildings, land reclamation, and the further restoration of earthquake areas. At that time it was stated that 1,863,600 acres in the Pontine marshes had been drained, while 2,146,602 acres were in course of drainage, and 835,765 remained to be drained. Widespread popular support of the Fascist régime was indicated by the success of a government internal bond issue floated in May to refund 4,000,000,000 lire (about \$209,000,000) of the debt due in November. The issue was oversubscribed 75 per cent, according to the Finance Minister. On Dec. 31, 1931, there were 982,321 unemployed in Italy, compared with 878,207 on November 30.

The budget showed serious deficits during the first two months of the 1931-32 fiscal year. Accordingly the government on September 25 levied a 15 per cent ad valorem tax on all imported goods, in addition to tariffs already in force. Deaths of two important Italians—the Duke of Aosta and Tommaso Tittoni—occurred during the year. On December 21 occurred the sudden death of Arnaldo Mussolini, brother of the Premier. (See biographies of each.)

To protect Italy against the possible withdrawal of short-term loans, such as had precipitated financial crises in Germany and Great Britain, the Banca Commerciale Italiana, the largest bank in Italy, on November 3 announced

a reorganization which provided it with liquid capital sufficient to cover all short-term obligations. The banking and commercial activities of the bank were separated. To aid in thawing out "frozen" credits, a new \$25,000,000 credit organization was established by the Cabinet November 9. See **CYRENAICA**.

Consult Bolton King, *Fascism in Italy* (London, 1931); Vera Micheles Dean, "Fascist Rule in Italy," *Foreign Policy Reports*, Apr. 15, 1931, vol. vii, no. 3.

**IVORY COAST.** A colony in French West Africa situated between Liberia and the Gold Coast (British). It has an area of about 121,590 square miles and a population of 1,724,545 (1926 census). Capital, Bingerville. See **FRENCH WEST AFRICA**.

**JADWIN**, LIEUT. GEN. EDGAR, U. S. A., RET. An American soldier and military engineer, died in Balboa, Canal Zone, Mar. 2, 1931. He was born in Honesdale, Pa., Aug. 7, 1865, studied at Lafayette College in 1884-86, and was graduated from the U. S. Military Academy in 1890. After serving in the Spanish-American War and in various engineering posts, he was engaged in the construction of the Panama Canal.

During the World War General Jadwin held the temporary rank of brigadier general and organized and commanded the 15th U. S. Engineers, the first American regiment to pass under arms through England in 1917. He was at first, director of light railways and roads for the A.E.F. in France and later directed a general construction programme employing 160,000 men. He was a member of the American Mission to Poland and observer in the Ukraine in 1919. Returning to the United States, he became engineer of the 8th Corps Area at San Antonio, Tex. (1920-22), division engineer of the Southeast Division at Charleston, S. C. (1922-24), assistant to the Chief of Engineers with the rank of brigadier general (1924-26), and in 1926, chief of engineers with the rank of major general. In that capacity, he formulated the Mississippi River flood-control plan that bears his name. He was retired Aug. 7, 1929, with the rank of lieutenant general. He was senior member of the American section, Joint Engineering Board, St. Lawrence Waterway Project; chairman of the reorganized Federal Power Commission; consulting engineer to the Meadows Reclamation Commission of New Jersey; and chairman of the Inter-ocean Canal Board. He contributed articles on military engineering to the **NEW INTERNATIONAL ENCYCLOPEDIA**.

**JAIL OUTBREAKS.** See **CRIME**.

**JAÍME**, h'má, (JAÍME JUAN CARLOS ALFONSO FELIPE), Prince of Bourbon, Duke of Madrid. A Carlist claimant of the Spanish throne, died in Paris, Oct. 2, 1931. He was born in Vevey, Switzerland, June 27, 1870, son of the Bourbon Prince known as Don Carlos and of Marguerite of Parma. After receiving a military education in England and Austria, he entered the Russian army, in which he became a colonel. During the Russo-Japanese War he was a correspondent at Russian headquarters. He made his residence at Frohsdorf near Vienna for many years. On his father's death in 1909 Don Jaime became head of the royal Spanish house of Bourbon-Anjou.

**JAMAICA.** A colony of Great Britain, consisting of the island of Jamaica, which is the largest in the British West Indies, and the following dependencies: Turks and Caicos Islands;

Cayman Islands; Morant Cays; and Pedro Cays. Area of Jamaica, 4450 square miles; of the dependencies, 224 square miles. Population of Jamaica, according to the census of 1921, 858,118, including 660,420 blacks, 157,223 of mixed race, 14,476 whites, 18,610 East Indians, and 3690 Chinese; estimated population at the end of 1929, 994,419, including 17,424 East Indians.

Jamaica is primarily agricultural, the leading crops being sugar, coffee, bananas, coconuts, cacao and vegetables. In 1929-30, the area under cultivation was 828,064 acres. The 1930 sugar crop was estimated at 67,000 long tons, one of the largest on record. Imports in 1930 totaled \$28,337,000 and exports \$28,977,000, the excess of imports being characteristic of trade since 1910. The United States is the chief customer and principal source of supply. Revenue for the fiscal year ended Mar. 31, 1930, amounted to £2,292,869 and expenditure to £2,310,502. The public debt at the end of the 1929-30 fiscal year was £5,237,909. The crisis in the Jamaica sugar industry in 1930 and 1931 led the British Government to agree to suspend for 1931-32 Jamaica's annual war contribution of £60,000.

The Governor is assisted by a privy council and a legislative council of 5 *ex-officio*, 10 nominated, and 14 elected members. A resolution asking for a full representative government for the colony was introduced into the legislature in 1931. Governor-in-Chief and Captain-General in 1931, Sir R. E. Stubbs, appointed 1925. A committee of the Legislative Council recommended in 1931 that immigration from the Near and Far East be suspended for three years and that there should thereafter be a quota system.

**JAPAN.** A Far Eastern empire, consisting of the five main islands of Honshu (mainland), Hokkaido, Kyushu, Shikoku, and Taiwan (Formosa), together with some 600 smaller islands and island groups, the peninsula of Korea, or Chosen, and Karafuto (the southern half of the island of Sakhalin). Capital, Tokyo; reigning sovereign in 1931, Emperor Hirohito.

**AREA AND POPULATION.** The area of the Japanese Empire and the census populations in 1925 and 1930 are shown in the accompanying table.

#### JAPANESE EMPIRE: AREA AND POPULATION

Island	Area, square miles	Population, 1925 census	Population, 1930 census
Japan proper . . .	147,327	59,736,822	64,447,724
Chosen (Korea) . .	85,228	19,522,945	21,057,969
Taiwan (Formosa) .	13,840	3,993,408	4,594,161
Karafuto . . . . .	13,934	203,754	295,187
Total . . . . .	260,329*	83,456,929	90,395,041

\* Including Pescadores.

The Japanese government also held a 99-year lease of Kwantung (including Port Arthur and Dairen in South Manchuria) with a population of 1,327,971 (about 250,000 Japanese) in 1930, and mandated territory in the South Seas, with a population of 69,627 (about 19,000 Japanese) in 1930. The density of population per square mile for the Empire in 1930 was 347.2, while that for Japan proper was 437.4. The number of Japanese residing abroad was 762,569 on Oct. 1, 1929, including 108,639 men and 63,964 women in North America. Foreigners in Japan numbered 38,829 (2098 Americans). The average annual number of births in Japan proper during the five years 1925-29 was 2,092,822 and of

deaths 1,210,740, the excess of births being 876,082. The average annual birth rate per 1000 inhabitants for the 5-year period was 34.1 and the death rate 19.8. In 1929 the rates were 33 and 20, respectively.

The population of the chief cities at the 1930 census, with 1925 census figures in parentheses, was: Osaka, 2,453,509 (2,114,804); Tokyo, 2,070,529 (1,995,567); Nagoya, 907,402 (768,558); Kyoto, 765,142 (679,963); Kobe, 787,596 (644,212); Yokohama, 620,296 (405,888).

**EDUCATION.** Elementary education is compulsory for children between the ages of 6 and 14 and in 1927 less than 1 per cent of the population was illiterate. During the 1928-29 school year, the elementary schools enrolled 9,680,732, the secondary schools 702,978, special schools 76,920, normal schools 51,578, technical schools 274,833, and universities 61,497. There were five Imperial universities and 32 other institutions of university rank.

**PRODUCTION.** While industry has made rapid strides, agriculture in 1931 supported directly about 50 per cent of the population. Out of a total area of 94,289,000 acres, or less than that of California, there were in Japan proper in 1930, 7,847,000 acres of rice fields, 6,980,000 acres of upland farms, 4,566,000 acres of moors and pastures, and 21,266,000 acres of taxable forests. The cultivated area was less than 2 per cent of the arable acreage of the United States. About 54 per cent of the cultivated land was owned by wealthy landowners and leased, in plots averaging about 2½ acres each, to tenants who wrung a bare subsistence from the soil. Rice is the largest crop and the principal diet of the people. The value of the 1930 crop (about \$10,000,000) was over half that of all agricultural products. The area and production of the chief crops are shown in the accompanying table from the 1931 *Commerce Yearbook*.

#### CROP AREAS AND PRODUCTION: JAPAN PROPER

Crop	Area <sup>a</sup>		Production <sup>b</sup>	
	1929	1930	1929	1930
Wheat . . . . .	1,214	1,198	30,496	29,538
Barley . . . . .	2,202	2,110	80,360	72,472
Oats . . . . .	289	296	11,045	12,558
Rice . . . . .	7,868	7,941	527,595	592,093
Tea . . . . .	105	105	86,861*	87,439*
Tobacco . . . . .	88	89	138,065*	145,175*
Cocoons . . . . .	....	....	844,043*	880,181*

<sup>a</sup> Thousands of acres.

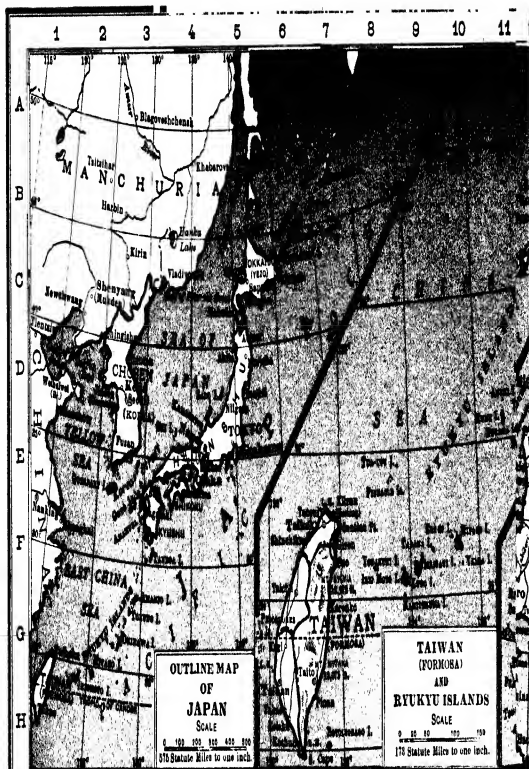
<sup>b</sup> Thousands of units—bushels except as indicated.

\* Unit, pound.

Next to rice, fish is the most important article of diet. Fishery products in 1930 were valued at \$150,000,000, the catch accounting for nearly one-fourth of the world supply. Mineral products are varied, but limited in quantity, copper being the only metal available in quantities more than sufficient for local needs. The value of the 1929 output was \$262,682,000. Mineral and metallurgical production for 1929 and 1930 is shown in the table on page 433.

**MANUFACTURING.** Japanese industry, as well as commerce, is largely in the hands of a few wealthy family groups. The total manufacturing output in 1929 was valued at 7,938,058,000 yen (\$3,659,445,000), compared with 7,337,954,000 yen (\$3,424,108,000) in 1928. Employees in all manufacturing plants numbered 1,824,000 (1,936,000 in 1928). Silk and cotton textiles are the predominant industrial lines. Silk yarn normally











## MINERAL AND METAL PRODUCTION: JAPAN PROPER

Product	1929	1930
Coal .....	1,000 met. tons 84,258	29,874
Iron pyrites .....	met. tons. 618,743	.....
Crude petroleum .....	1,000 bbls. 1,958	1,905
Sulphur .....	met tons. 65,464	56,000
Gold .....	troy oz. 885,078	864,292
Silver .....	1,000 troy oz. 5,163	5,127
Copper .....	met. tons. 75,469	77,911
Pig iron .....	1,000 met. tons 1,515	1,656
Steel ingots .....	do. 2,037	1,794

comprises more than 40 per cent of the value of all exports, and of this more than 90 per cent goes to the United States. Nearly a fourth of all factory workers are employed in silk filatures and about one-half of the farm families depend upon the production of silk cocoons for a substantial part of their income. In June, 1930, there were 262 modern cotton mills in Japan; cotton textiles normally comprised one-fourth the value of all exports. The 1930 production of cotton yarn was 10,080,000 pounds and of spun silk, 13,464,000 pounds; the value of cotton fabrics produced was \$253,840,000 and of silk fabrics, \$161,414,000. Rayon, iron and steel, ships, paper, flour, camphor, tobacco products, sake (rice wine), and porcelain earthenware are other leading products.

COMMERCE. Normally, the foreign trade of Japan proper aggregates about 46 per cent of the value of the domestic commerce, whereas the ratio of American foreign to domestic trade is placed at 10 per cent. Japan's national economy was consequently seriously deranged by a 31 per cent decline in the value of exports (10 per cent decline in volume) in 1930, as compared with 1929. (General exports for 1930 declined to a value of 1,469,852,000 yen from a total of 2,148,619,000 yen in 1929 (1 yen exchanged at \$0.4939 in 1930), while general imports were reduced to 1,546,071,000 yen from 2,216,240,000 yen in the previous year. The value of both imports and exports in 1930 was within close range of the trade figures recorded in the post-war depression year of 1921. The volume of exports, however, was 70 per cent greater than in 1921 and the volume of imports about 40 per cent greater. Imports exceeded exports in value by 76,219,000 yen (87,621,000 yen in 1929). Including invisible trade, however, the balance was estimated to be favorable by 50,000,000 yen, or 40,000,000 yen less than the favorable balance in 1929. The most important item of import was raw cotton, 1,262,438,000 lbs. valued at \$178,051,000, of which the United States furnished 593,282,000 lbs. valued at \$87,322,000.

The United States again held first place in Japan's trade in 1930, taking 34.4 per cent of all exports (42.5 per cent in 1929) and furnishing 28.6 per cent of its imports (29.5 per cent).

Other leading markets for Japanese exports in 1930 were China, which took 17.7 per cent of the total (16.1 per cent in 1929); British India, 8.8 per cent (9.2); Great Britain, 4.1 per cent (3.0). After the United States, British India was the leading source of supply, furnishing 11.7 per cent of all imports (13 per cent in 1929). China furnished 10.5 per cent (9.5 in 1929); Germany, 6.9 (7.1); and Great Britain, 6 per cent (7.0). Exports of raw silk in 1930 dropped 46 per cent in value and 18 per cent in quantity, compared with 1929. Silk shipments to the United States were valued at only 398,715,000 yen, com-

pared with 755,378,000 yen in 1929. Cotton textile exports declined 12 per cent in quantity and 34 per cent in value from 1929.

In 1931, exports to China decreased 36 per cent and imports from China 16 per cent, as compared with 1930. From September, 1931, when the Chinese boycott was instituted, through December, exports to China fell 60 per cent below the same period of 1930.

FINANCE. The revised budget for the fiscal year ending Mar. 31, 1932, was balanced late in 1931 at 1,397,000,000 yen, with ordinary revenues placed at 1,238,000,000 yen, and extraordinary revenues at 159,000,000 yen, including loans amounting to 123,500,000 yen. The budgets for the fiscal years 1929-30 and 1930-31 are shown in the accompanying table.

GOVERNMENT RECEIPTS AND EXPENDITURES  
[Thousands of yen: 1 yen equals \$0.4985 at par]

Item	1929-30, actual *	1930-31, budget estimates
<b>ORDINARY RECEIPTS</b>		
Income tax .....	199,852	204,019
Land and business tax .....	123,616	127,140
Customs .....	186,097	144,244
Liquors, sugar, and textiles .....	861,598	849,664
All other taxes .....	72,342	71,742
Stamp receipts .....	79,258	85,556
Posts, telegraphs, and telephones (gross) .....	239,464	253,033
Monopolies (net) .....	177,803	177,478
Other public enterprises .....	62,697	70,768
All other .....	28,416	30,880
<b>Total .....</b>	<b>1,481,143</b>	<b>1,514,524</b>
Extraordinary receipts .....	845,301	94,114
<b>ORDINARY EXPENDITURES</b>		
Debt service .....	280,343	271,242
National defense .....	326,547	329,847
Public instruction .....	121,422	131,829
Agriculture and forestry .....	30,469	31,844
Communications (gross) .....	296,047	297,886
All other .....	157,899	161,889
<b>Total .....</b>	<b>1,212,727</b>	<b>1,224,037</b>
Extraordinary expenditures ....	523,590	384,601

\* Subject to revision.

The total national debt at the end of 1930 was 6,029,162,000 yen, an increase of 123,162,000 yen during the year. On Mar. 31, 1930, with a total debt of 6,004,000,000 yen (about \$2,993,000,000), the external debt amounted to 1,447,000,000 yen (about \$721,000,000). After the removal of the gold embargo (Jan. 11, 1930) reserves of gold coin and bullion declined, the specie reserve on Dec. 31, 1931, totaling 469,549,000 yen. Gold exports during 1930 aggregated 308,634,000 yen and those during 1931, 421,539,000 yen.

COMMUNICATIONS. Railways in Japan proper in 1929 extended 12,187 miles, of which 8497 miles were government owned. In addition, the Government owned 1710 miles of line in Korea and 540 miles in Formosa. The gross receipts of public and private lines in Japan proper for the year ended Mar. 31, 1929, were equivalent to \$281,031,000. The largest railway station in the Orient was under construction at Osaka in 1931 at a cost of about \$49,000,000. The highway mileage at the beginning of 1931 was placed at 659,215 miles, of which only 35,466 miles were used for motor traffic. Four commercial air routes, with an aggregate mileage of 1888, were in operation in 1931; one linked Osaka with Dairen, Manchuria, via Seoul (Keijo), Korea. During

1930, a total of 18,818 vessels, of 58,483,000 net registered tons, entered the ports of Japan proper in the foreign trade, and 18,242 vessels, of 58,325,000 tons, cleared. On July 10, 1931, there were 523 idle steamers in Japanese ports, with a gross tonnage of 299,000 out of a total merchant marine in 1930 of 2060 vessels (of 100 tons or more), aggregating 4,316,804 gross tons.

**ARMY AND NAVY.** Military or naval service is universal and compulsory. Liability commences at the age of 17 and extends to 40, but actual service begins at 20. The peace establishment of the active army in 1930 was 15,340 officers and 195,640 other ranks. See **MILITARY PROGRESS.**

The accompanying table from the *Statesman's Year Book* for 1931 shows the classification of the Japanese Fleet for the three years ending with 1930. Also see **NAVAL PROGRESS.**

JAPANESE FLEET

	Completed at end of		
	1928	1929	1930
Battleships and battle cruisers . . . . .	10	10	10
Armored cruisers . . . . .	7	7	7
Aircraft carriers . . . . .	3	3	3
Cruisers . . . . .	27	29	32
First-class gunboats . . . . .	3	2	2
Destroyers . . . . .	106	112	106*
Submarines . . . . .	71	65	66*

\* Including 58 first-class and 48 second-class.

\* Including 22 first-class, 44 second-class.

**GOVERNMENT.** Executive power is vested in the Emperor who acts with the advice and aid of a ministry appointed by, and responsible to, himself; legislative power is in the Emperor and the Imperial Diet of two chambers, namely, the Upper House or House of Peers, composed of membership based on rank, wealth, and other qualifications, and numbering 407 members; and the Lower House or House of Representatives, elected for four years, unless sooner dissolved, and numbering 466 members. Emperor Hirohito, born Apr. 20, 1901, succeeded his father, Yoshihito, Dec. 25, 1926. The cabinet as constituted Apr. 14, 1931, was as follows: Premier, Baron Reijiro Wakatsuki; Home Affairs, Kenzo Adachi; Foreign Affairs, Baron Kijuro Shidehara; Finance, Junnosuke Inouye; War, General Minami; Marine, Admiral Baron Kiyotane Yasuho; Justice, Viscount Chiaki Watanabe; Education, Ryuzo Tanaka; Agriculture and Forestry, Chuji Machida; Commerce and Industry, Sachio Sakurauchi; Communications, Matajiro Koizumi; Railways, Tasuku Egi; Overseas Affairs, Shujiro Hara. For subsequent changes in 1931, see *History*. The membership of the House of Representatives elected Feb. 21, 1930, was: Minseito (Government party), 273; Seiyukai (Conservative Opposition), 174; Labor, 5; other groups, 9; Independents, 5.

### HISTORY

Sabotaging the conciliatory policy of the Wakatsuki government toward China, the military party in the fall of 1931 launched an armed adventure in Manchuria, which, in a few short months, brought that great Chinese domain under virtually complete Japanese control. The adventure was fraught with ominous consequences to the peace of the Far East. By the close of the year it had resulted in a state of open though undeclared warfare with China and the virtual collapse of the Nationalist government at Nanking. Relations with the United States and with

the Soviet Union evidenced a growing tension. The movement for the limitation and reduction of world armaments and the organization of world peace under the aegis of the League of Nations sustained a severe setback. Finally, the Manchurian adventure and the opposition encountered enabled the military party to triumph temporarily in its bitter struggle with the growing forces of liberalism in Japan. The aroused patriotism of the Japanese public forced the Wakatsuki government to support the aggressive policy of the militarists and with the resignation of the Cabinet on December 11 a new government more sympathetic to a "strong" policy in China came into power.

Several significant developments illumined the background of the Japanese intervention in Manchuria. The military party in Japan was anxious to consolidate its prestige, which had been shaken by the victory of the civilian Hamaguchi Cabinet in the struggle of 1930 over the London Naval Treaty (see 1930 YEAR BOOK). Japan had completed in 1930 the giant task of reconstruction necessitated by the disastrous earthquake of September, 1923. For several years, Marshal Chang Hsüeh-liang, the young Chinese war lord of Manchuria, had been obstructing Japanese commercial and economic activities in that region. In Siberia, the Soviet government was pushing to completion large metallurgical industries, which aroused Japanese fears of another Russian bid for the mastery of Manchuria. In China, a split between the Nanking and Canton leaders had destroyed what little unity the country had won through the Nationalist movement of 1926-30. Finally, the worldwide economic and financial crisis, besides absorbing the attention of the other great powers, was inflicting severe damage upon Japan's industry, finance, and foreign trade. Wages were reduced and unemployment and labor disputes increased throughout 1931. Commodity, and particularly farm prices, continued their downward trend until the end of the year, causing rural suffering and widespread unrest among the working classes.

**THE INTERVENTION IN MANCHURIA.** Japanese military action in Manchuria grew out of the fundamental clash of Sino-Japanese economic, strategic, and political interests in that area, which had long been recognized as a menace to peace. The difficulties were gradually brought to a head by the growing nationalist sentiment among the Chinese, which found expression in years of continuous anti-Japanese propaganda, in steady pressure to secure the abrogation of the treaties of 1904 and 1915 legalizing Japan's position in Manchuria, and in the construction of new railways and ports which threatened to cut off the revenues of the lucrative South Manchuria railway, acquired by the Japanese government from Russia following the Russo-Japanese War. The nationalism of the Chinese was aggravated by alarm and suspicion of Japan's intentions in Manchuria. There had been a steady expansion of Japanese economic activities and a gradual extension by purchase and otherwise of areas within Japanese treaty jurisdiction.

On the basis of its privileged position in Manchuria, Japan had developed there an economic structure of vital importance to the continued existence of the Empire as a first-class power. About \$850,000,000 had been invested in the exploitation of Manchuria's abundant coal, iron,



*Acme Newspictures*

JAPANESE SOLDIERS ALONG THE TAONAN-SSUPINGKAI RAILWAY IN MANCHURIA



*Wide World Photos*

THE EMPEROR OF JAPAN REVIEWING HIS ARMY



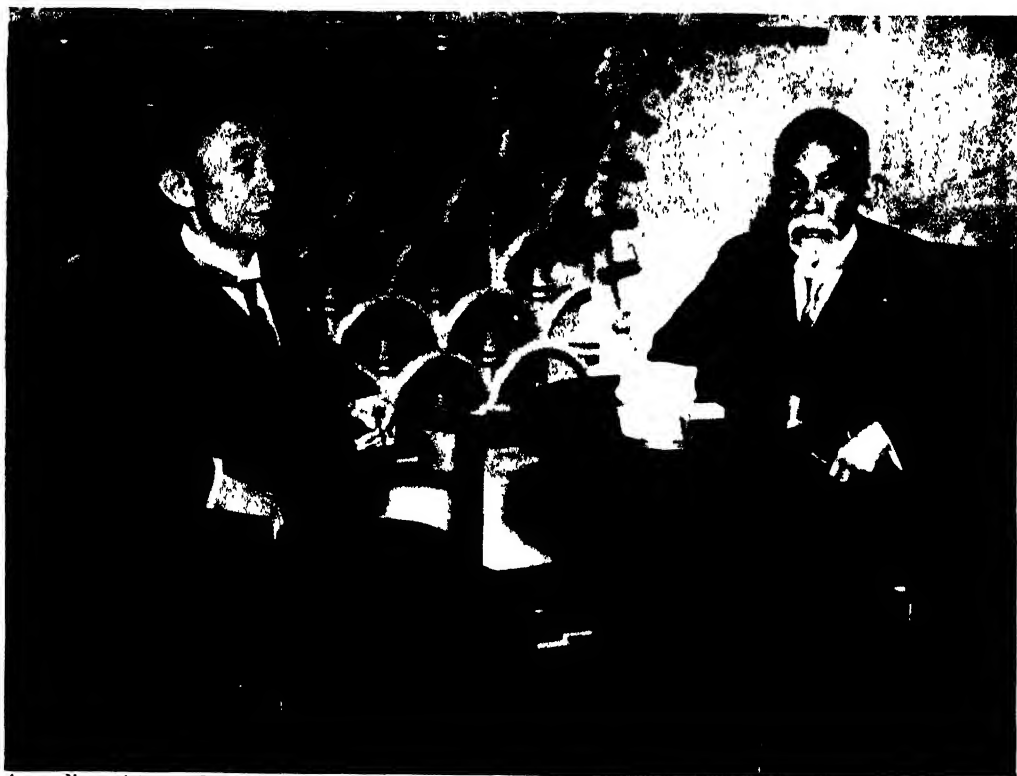
*Wide World Photos*

**GENERAL SADAO ARAKI**  
Japanese Minister of War



*Underwood & Underwood*

**BARON KIJURO SHIDEHARA**  
Foreign Minister in the Wakatsuki Cabinet



*Acme Newspictures, Inc*

**FOREIGN MINISTER KENKICHI YOSHIZAWA AND PREMIER KI (TSUYOSHI) INUKAI**

and other raw materials necessary to supplement the meagre natural resources of the Japanese homeland. Without free access to Manchuria's cheap minerals and food supplies, Japanese statesmen questioned the feasibility of providing sustenance for their rapidly increasing population through continued industrialization.

The menace presented by Chinese railway and port construction to the prosperity of the South Manchuria railway was mentioned by Foreign Minister Shidehara before the Diet on Jan. 22, 1931. Attempting to settle the dispute by friendly negotiation, the Foreign Minister sent an emissary to discuss the matter with Marshal Chang Hsüeh-liang, but up to the middle of the summer no agreement was reached. The increasing Chinese opposition aroused growing resentment in Japan. Late in May the Japanese National Chamber of Commerce passed a resolution calling attention to "the anti-Japanese attitude which China has been adopting of late" and demanding firm action by the government to uphold Japan's rights in Manchuria.

A succession of incidents now kindled the smoldering Sino-Japanese hostility into flame. On July 2, a dispute over water rights between Korean settlers and Chinese at Wanpaoshan, near Changchun, Manchuria, culminated in the killing of a number of Koreans and the dispatch of Japanese troops to protect their nationals. (Koreans retained their Japanese citizenship in Chinese territory.) The news, spread in Korea, led to savage retaliatory attacks on Chinese by Korean mobs, in which 119 Chinese were killed and some 375 injured. In China, it was charged that the Korean riots were instigated by the Japanese authorities. The Nanking government sent a strong protest to Tokyo and the Shanghai Chamber of Commerce launched an anti-Japanese boycott which spread throughout the country with great rapidity. Anti-Japanese riots occurred at Tsingtao, in Shantung, and other points.

Japanese sentiment was further inflamed by the announcement, August 17, that Captain Shintaro Nakamura and Private Entaro Isugi of the Japanese army were arrested and shot by regular Chinese soldiers late in June, while traveling as civilians in the interior of Manchuria on Chinese passports. Foreign Minister Shidehara continued his efforts to reach a friendly settlement, sending a new minister—Mr. Shigemitsu—to Nanking to open negotiations. But the military party, through Minister of War Minami, was also preparing to act. In June, army units in Korea were increased from two to three divisions, and in July the garrison in Manchuria was increased. On September 13 it was announced that the Manchurian authorities had accepted Japanese demands for reparation for the Nakamura execution. Three days later, came the news that Minister Shigemitsu and T. V. Soong, Chinese Minister of Finance, had agreed to the establishment of a joint commission for investigation and settlement of the Sino-Japanese disputes in Manchuria.

Hopes for a peaceful solution were dashed, however, by a clash between Chinese soldiers and Japanese railway guards at Peitaying, on the outskirts of Mukden, the night of September 18. Japanese officers reported that the clash followed the blowing up of a section of the South Manchuria railway by Chinese troops. The Chinese

stated that the Japanese forces attacked them without provocation.

Apparently without consulting the Tokyo government, the Japanese military leaders in Manchuria on the early morning of September 19 launched a carefully planned offensive covering the whole zone of the South Manchuria railway. With disconcerting suddenness, Japanese troops attacked and disarmed the large Chinese garrisons at Mukden and Changchun. Operating outside the limits of the treaty zones, the Japanese took over the arsenal and government buildings in Mukden and occupied strategic points at various other stations along the South Manchuria railway and its branches. Within three days, the military plan had been successfully pushed through against much larger Chinese forces. About 10,000 soldiers of Marshal Chang Hsüeh-liang had been dispersed, with but few Japanese casualties and much heavier Chinese losses. Kirin, capital of Kirin Province; Tunhua, terminus of the Changchun-Tunhua railway; and Chengchiatun on the Chinese-owned Tahushan-Anganchi railway, had been occupied, cutting all Chinese railway communications between North and South Manchuria. Having established a favorable strategic situation, insured the protection of Japanese nationals and investments, and dislocated the Chinese governmental system in Liaoning and Kirin Provinces, the Japanese military now rested on their arms.

The scene shifted to Geneva, Washington, Tokyo, and the other world capitals, where Japanese diplomats commenced their campaign to prevent intervention of the League of Nations or of the powers in the Manchurian dispute. The Nanking government on September 21 invoked Article XI of the League Covenant, requesting the Council of the League to restore the *status quo ante* and to determine reparation due for the Japanese military action. In response to requests of the Council and of the American Secretary of State, the Japanese toward the end of September withdrew their troops within the treaty zones, except in Mukden, Changchun, and Kirin. While denying intention to infringe upon Chinese sovereignty in Manchuria, the Japanese Foreign Office declined to allow the intervention of third parties in the dispute, insisting that it must be settled by direct Sino-Japanese negotiation. On September 30, the League Council adjourned until October 14, giving Japan until that date to carry out its promise to withdraw all troops within the treaty areas, provided the safety of Japanese nationals was assured.

The situation took a turn for the worse on October 8, when Japanese army planes bombed Chinchow, a station on the Peiping-Mukden railway southwest of Mukden, where Marshal Chang Hsüeh-liang had established temporary headquarters. While disorders and anti-Japanese riots spread throughout Manchuria and China proper, the powers and the League Council unsuccessfully exerted pressure upon the Japanese government to withdraw its troops. On October 9, Secretary of State Stimson announced that "the American government, acting independently through its diplomatic representatives, will endeavor to reinforce what the League does. . . ." On October 12, he authorized Prentiss Gilbert, American Consul General in Geneva, to participate informally in the Council sessions which began two days later. Despite the objections of Kenkichi Yoshizawa, Japanese representative on



the League Council, that body voted 13-1 to invite the American representative to join it in the consideration of the dispute and Mr. Gilbert accepted October 16.

The following day the Council voted to invoke the Kellogg-Briand Peace Pact and within the next few days the United States, Great Britain, France, and other signatories sent notes to both China and Japan reminding them of their obligations under Article II of the pact. The Japanese delegate on the Council on October 20 submitted five points as a basis for negotiations: (1) A mutual pledge of non-aggression by both China and Japan; (2) suppression of hostile boycotts, agitation, and propaganda; (3) respect for the territorial integrity of Manchuria by Japan; (4) protection of Japanese residents in Manchuria by Chinese authorities; and (5) a Sino-Japanese agreement giving effect to all existing treaty rights and eliminating all ruinous competition between the South Manchuria and other Manchurian railways. The Chinese, however, declined to enter negotiations until Japanese troops were withdrawn.

The League Council on October 22 passed a resolution calling upon Japan to withdraw its troops within the treaty areas by November 17. It also requested the Chinese authorities to assume responsibility for the safety of Japanese interests in association with representatives of other powers. Finally, the resolution urged direct Sino-Japanese negotiations for a settlement of the Manchurian dispute as soon as the evacuation had been carried out. As Mr. Yoshizawa voted against the resolution, it became merely a recommendation. Nevertheless, on October 30 and November 7, M. Briand, president of the Council, warned both parties to cease hostilities. Similar representations were made by the U. S. State Department.

Instead of withdrawing, Japanese troops steadily expanded the area under their control. Chinese troop concentrations in several Manchurian towns were bombed October 21. On November 5, Japanese forces crushed a Chinese army under Gen. Ma Chen-shan at the Nonni River, near Tsitsihar, where they had advanced to repair railway bridges on the Taonan-Anganchi line destroyed during fighting between rival Chinese leaders. The railway line was mortgaged to Japanese capitalists. On November 9 and 11, fighting occurred between Japanese and Chinese forces in Tientsin, in China proper. A puppet government under Japanese control was established in Mukden November 10, and on the 18th, despite Soviet protests, the Japanese crossed the Chinese Eastern railway at Anganchi and captured Tsitsihar, capital of the Northern Manchurian Province of Heilungkiang.

Meanwhile the League Council, with the American Ambassador to Great Britain acting in a consultative capacity, had reconvened November 16. After long efforts to reach a settlement satisfactory to both China and Japan, the Council agreed (December 10) that a commission of five neutral members would be sent to Manchuria to study the situation and report back. Some difficulty was experienced in forming the commission and at the end of the year it was not yet ready to start.

**CAPTURE OF CHINCHOW.** General Honjo, Japanese military commander in Manchuria, had repeatedly given notice that he would not permit Marshal Chang Hsueh-liang to retain any

of his authority in that region. On November 27, a large Japanese force was dispatched from Mukden against Chang's temporary headquarters at Chinchow. The following day, however, the expedition was recalled, due to protests of the powers and the intervention of the Cabinet at Tokyo. League representatives then undertook to establish a neutral zone around Chinchow. Following the collapse of the Wakatsuki Cabinet (see below), General Honjo launched a new offensive westward from the South Manchuria railway on December 21. Sweeping a large area clear of bandits and Chinese irregular soldiery, the Japanese columns continued on toward Chinchow in a converging movement which caused Marshal Chang to order the evacuation of the city on December 30. The advance on Chinchow was made in the face of strenuous protests by the governments of the United States, Great Britain, and other powers.

Thus, by the end of the year, Japan had extended her sway in Manchuria over some 200,000 square miles, as compared with the 108 square miles under Japanese control previous to the intervention. The Chinese local authorities in all three Manchurian Provinces had been ousted and dummy governments installed. The Manchurian armies aggregating some 400,000 men had been annihilated or dispersed by not more than 15,000 Japanese. Japan had extended her control of Manchurian railways from about 700 miles on September 18 to about 2300 miles on December 31. There remained only some 1400 miles of the Chinese Eastern railway, under joint Sino-Soviet control. Furthermore, Japan had assured her domination of the economic resources of Manchuria; banks, public utilities, power plants and large manufacturing establishments had been reorganized under Japanese supervision and control. The military intervention, however, was not without its disadvantages. During the last half of 1931, Japan's trade with China, which normally constituted about one-fourth of its total foreign trade, had been cut by the boycott; one-third of the value shown for the same period of 1930. And the cost of the campaign was causing an increasing drain upon the Imperial Treasury.

**DEVELOPMENTS IN JAPAN.** A direct result of the naval controversy of 1930 was the resignation of Premier Yuko Hamaguchi on Aug. 14, 1931, and the reorganization of the Cabinet the following day. Premier Hamaguchi had been severely wounded Nov. 14, 1930, in an attempt made by a member of a reactionary patriotic society to assassinate him for his support of the London Naval Treaty. His inability to resume active direction of the government occasioned repeated Opposition demands for his withdrawal and he was finally forced to comply. Hamaguchi (q.v.) died August 26. During his absence from Parliament Foreign Minister Shideha served as acting Premier. The new Cabinet headed by Baron Reijiro Wakatsuki, chief of the Japanese delegation to the London Naval Conference, continued Premier Hamaguchi's liberal policies. It contained only three new members—Gen. Jiro Minami as Minister of War, Sach Sakurachi as Minister of Commerce and Industry, and Shujiro Hara as Minister of Overseas Affairs (colonies). For the full Wakatsuki Cabinet list, see under *Government*.

Due to Opposition (Seiyukai) filibustering and obstruction, little was accomplished during the session of the Diet prorogued Mar. 27. Bills

legalizing trade unions and extending the suffrage to women for local elections were passed in the lower House but were vetoed in the House of Peers. The Cabinet's financial policies were severely arraigned and following adjournment of the Diet, the Ministry took steps to eliminate a threatened \$65,000,000 budget deficit by introducing, effective June 1, a 20 per cent cut in salaries of 60,000 government employees, along with other economies.

The resignation of Premier Wakatsuki and his Minseito Cabinet on December 11 was not primarily due to the developments in Manchuria. The Premier opposed the proposal of Kenzo Adachi, Minister of Home Affairs, for the formation of a coalition ministry including the Opposition (Seiyukai) party, whereupon Mr. Adachi declined to attend Cabinet meetings. Since the Minister controlled a large bloc of Minseito members in the House of Representatives, the position of the Government was undermined and it resigned.

Behind Minister Adachi's move was said to be the demand for the reimposition of the gold embargo made by the Mitsui trust and other great Japanese financial and industrial interests. On the advice of the surviving genro, Prince Saionji, the Emperor called on Ki Inukai, president of the Seiyukai party, to form a new government, which he did on December 13. Kenkichi Yoshizawa, the new Premier's son-in-law, was made Foreign Minister. Other members of the Cabinet were: Finance, Korekiyo Takahashi; Home Affairs, Tokugoro Nakahashi; Commerce, Yonezo Mayeda; Agriculture, Teijiro Yamamoto; Justice, Kisaburo Suzuki; Communications, Chujo Mitsuchi; Overseas Affairs (Colonies), Toyosuke Hata; and Railways, Takejiro Tokonami. Field Marshal Prince Kohohito Kanin, a prince of the royal blood, was appointed chief of the general staff and Gen. Sadao Araki, Minister of War.

The Seiyukai Cabinet held only 171 seats in the Diet, as against 251 Minseito members. Accordingly it was anticipated that Premier Inukai would seize the first favorable opportunity to appeal to the country in the hope of securing a majority in the Diet. One of the first acts of the new Cabinet was the abandonment of the gold standard (December 13). The exchange value of the yen thereafter declined steadily until the close of the year. Premier Inukai also indicated that his government would adopt most of the budget of former Finance Minister Inouye.

Full details of the extensive roundup of Communists in Tokyo during 1930 came to light on May 20, 1931, with the arraignment of 173 prisoners, of whom 93 were graduates and four former professors at the Imperial University at Tokyo. Trial of the prisoners took place in public in August. On March 16 a Japanese patriot attempted to assassinate the commercial counselor of the Soviet mission to Japan. In response to a Soviet note of protest, the Japanese Foreign Office gave satisfactory assurances and explanations. Another Soviet-Japanese quarrel, involving fishery rights off the Siberian coast, was settled early in May. A central labor organization, called the Japan Labor Club, was formed during the year, uniting a quarter of a million members of divers labor organizations. The event was considered an epoch in Japan's labor history, as repeated previous attempts had failed.

See CHINA, UNITED STATES, and BRITISH COLUMBIA under *History*; LEAGUE OF NATIONS;

MANCHURIA; KOREA; FORMOSA; KARAFUTO; and CAROLINE ISLANDS.

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**JAPANESE BEETLE.** See ENTOMOLOGY, ECONOMIC.

**JAPANESE LITERATURE.** See PHILOLOGY, MODERN.

**JAVA.** See NETHERLAND EAST INDIES.

**JEANS,** SIR JAMES, THEORIES OF. See ASTRONOMY.

**JEBEL DRUZE.** See SYRIA.

**JEBEL SHAMMAR.** See ARABIA.

**JENKINS,** EDWARD HOPKINS. An American agricultural chemist, died in New Haven, Conn., Nov. 7, 1931. He was born in Falmouth, Mass., May 31, 1850; in 1872 was graduated from Yale University (Ph.D., 1879) and studied at the University of Leipzig (1875-76). He served as chemist (1877-1900), vice director (1882-1900), director (1900-23), and treasurer (1901-23) of the Connecticut Agricultural Experiment Station. From 1897 to 1903 he was chairman of the Connecticut Sewage Commission.

**JERUSALEM.** See ARCHÆOLOGY.

**JESUIT ACTIVITIES.** See ROMAN CATHOLIC CHURCH.

**JEWS. STATISTICS.** According to the estimates prepared for the *American Jewish Year Book* by Dr. H. S. Linfield, the total number of Jews in the world for the year 1931 was put at 15,050,000. Of that number, 4,380,000 lived in North America and the West Indies; 7,500,000 lived in the group of countries commonly designated as Central Europe; 300,000 lived in Palestine and the adjacent countries of Arabia, Iraq, and Syria; 400,000 lived in the Arab speaking countries of North Africa; 1,500,000 lived in Western and Southern Europe; 200,000 lived in the Baltic countries; and 25,000 lived in Australia and New Zealand. In all, 61.7 per cent of all the Jews lived in Europe, 30.7 per cent lived in America, 3.8 per cent lived in Asia, 3.6 per cent in Africa, and 0.2 per cent lived in Australasia.

During the fiscal year ended June 30, 1930, a total of 11,526 Jewish immigrants were admitted to the United States; 4020 Jews were admitted during the six months ending Dec. 31, 1930. Of the 11,526 Jews admitted during the year ending June 30, 1930, 7486 came from Central Europe and 4040 came from other countries, chiefly Canada, Cuba, Great Britain, and Palestine. During the year ending Mar. 31, 1930, a total of 4164 Jews were admitted to Canada, of whom 620 came from the United States. During the year 1930, a total of 1374 Jews entered Cuba. During 1925, 5610 Jews were admitted to Brazil. During the same year, 2000 Jews entered Uruguay and 5986 Jews entered Argentina.

During the year 1930, a total of 4944 Jewish immigrants entered Palestine and in the same

year, 1036 Jews departed, making for a net immigration of 3308. During the same year, 1489 non-Jewish immigrants entered and 1275 immigrants left the country. From the date of the British occupation of Palestine (Dec. 9, 1917) to the end of 1930, a total of 108,972 Jews entered the country. However, in view of the sizable emigration, the net immigration for the period was 62,944. In the same period, a total of 7816 non-Jews were admitted to the country, the emigration being 12,629 or a net decrease for these years of 4813.

**JEWS IN GERMANY.** The victory of the National Socialists (Nazi), with their open programme of hostility toward the Jews, brought dismay to Jewish communities both in Germany and throughout the world. Open demonstrations against Jews followed when the Reichstag opened in October, 1930. In the cities of Germany there took place attacks on Jews, the breaking into of shops, the disturbing of religious services in synagogues, and the desecration of cemeteries. Not a small number of German students participated in these outrages, openly giving their support to the Nazis.

**JEWS IN AUSTRIA.** The situation of the Jews in Austria was not dissimilar and here again economic breakdown lay at the heart of prevailing anti-Semitism. Demonstrations by the Heimwehr (the Austrian counterpart of the Nazi movement) continued unchecked. Clashes took place between Jewish students of the University of Vienna and anti-Semitic groups, and in February, 1931, the rector of the University was compelled to close the institution for a time because of the bitterness of feeling. Boycotts were declared against Jewish merchants, and newspaper advertisements for help directly discriminated against Jewish workers.

**JEWS IN HUNGARY.** The situation of the Jews in Hungary showed no improvement over previous years, their economic plight being particularly apparent. Anti-Jewish student attacks took place at many universities and Jewish war veterans were discriminated against when seeking membership in veteran organizations.

**JEWS IN RUMANIA.** Outrages against the Jews in this country continued unabated. Harry Schneiderman, in the *Jewish Year Book*, reported that Jews in small villages were being subjected to a veritable reign of terror. These outrages appeared to be centred chiefly in the agricultural districts of Bukovina, Bessarabia, and Transylvania. While arrests of anti-Semitic leaders did take place, none of these resulted in conviction.

**JEWS IN POLAND.** The Jews in this country continued to suffer from the prevailing economic depression. According to governmental statistics, 325,900 out of the country's 2,850,000 Jews were out of employment on Jan. 1, 1931; Jewish leaders, however, declared that the total unemployed was closer to 1,000,000 Jews. Significant proportions of Jewish families in the industrial cities of Lodz and Warsaw were being supported from communal funds. Despite strenuous efforts on the part of American Jewry to treat with the Polish government, there was no economic relief reported during the year. Representatives of the American Jewish Committee conferred with the Polish ambassador to the United States, calling particular attention to the economic disabilities leveled against the Jewish middle class. See also the article on POLAND under *History*.

**JEWS IN RUSSIA.** Jews suffered less from official persecution in this country during the year than had been the case heretofore. This was largely due to the slowing up of the anti-religious drive and to the compromises effected in the state programme of collectivization. Nevertheless, the difficulties confronting declassed Jews were still gigantic. Measures for relief in the case of the *kustars*, or artisans, were slow in appearing despite continued industrialization. The status of declassed Jews showed some improvement, however, when public employment exchanges were authorized to register all persons applying for work; when children of the *kustars* were granted admission to educational institutions; and when special privileges were accorded to the *kustars* on condition of their organization of producers' coöperatives.

The "Five Year Plan" for the economic transformation of the Jewish *kustars* was announced by the Comzet (the governmental agency for settling Jews on the land and for furthering their industrialization). This called for the training of 135,000 Jewish youths; the conversion of 50,000 *kustars* into factory workers; and the training of 10,000 Jewish professional men for productive labor. As for the Jews in agriculture, there was recorded during the year a total of 280,000 working on the land in various parts of the U.S.S.R. Eight per cent of the Jewish farmers were members of collectives. The widely heralded settlement of Bira Bidjan, in the Far Eastern Republic, was not receiving popular support and but 2700 Jews were recorded as living there.

**JEWS IN MEXICO.** Reports were current that the Mexican government planned to repudiate its earlier friendly policy toward Jewish immigrants and to move against the participation of Jews in mercantile trades. Propaganda was increasingly appearing in the Mexican press aimed at Jewish vendors and in April, in Mexico City, a large group of these peddlers actually were driven from one of the city markets. American Jewish communal organizations indicated their interest in the situation and not only filed representations with the State Department but sent their agents to the spot where they learned that the outbreaks were directed not so much against the Jews as against all foreigners. By the end of the year the situation had to a very considerable extent been relieved and no further outrages or hostility were reported.

**CLOSING OF THE PASSFIELD INCIDENT.** The 1930 YEAR BOOK contained an extended discussion of the Passfield White Paper, which was aimed against the continued Jewish economic expansion of Palestine. In February, 1931, Prime Minister MacDonald sought to remove much of the sting from this official policy by reaffirming the intention of the government to adhere to the mandate. See PALESTINE under *History*.

Dr. Chaim Weizmann, head of the Zionist world organization, expressed himself as satisfied with this revision of the White Paper and declared that the Zionist confidence in the mandatory had been restored. However, the Revisionists and the Mizrachi dissented from Doctor Weizmann's position.

**ZIONISM.** The World Zionist Congress met for its seventeenth convention at Basel, Switzerland, July 1-15, 1931. The most important concerns before the gathering, to which delegates from 50 countries assembled, were the resignation of

Dr. Chaim Weizmann, following the release of the Passfield White Paper, and the official attitude that Zionists themselves were to take toward this new policy of the mandatory power. The Revisionists, led by Vladimir Jabotinsky, attacked Weizmann and Great Britain. Concerning the latter Jabotinsky said: "Let us make a last experiment with Great Britain. I believe in the honesty of the civilized world, but what can we expect from Britain if by innumerable persuasive speeches we declared ourselves satisfied? If we are truly optimistic let us seek the fault in our leadership, its defections and its weaknesses." Mr. Jabotinsky placed on the record his party's adherence to the establishment of a state in the Holy Land in which the majority of the population was to be of Jewish origin. When the Congress defeated the Revisionist resolution calling for the creation of a Jewish state, this party bolted the Congress.

Despite Weizmann's replacement by Dr. Nahum Sokolow, who was named the new president of the World Zionist Organization, it was apparent that the Congress meant to carry out the Weizmann policies as evidenced by the following resolution carried by the members:

Zionism is a national movement to secure the freedom of the Jewish people. It adheres firmly and unalterably to its aims as laid down in the Basel programme (to create for the Jewish people in Palestine a publicly recognized and legally secured home), and to bring about in Eretz Israel a solution of the Jewish problem. The homeless and landless Jewish people which is compelled to migrate strives to overcome its abnormal political, economic and spiritual conditions by reestablishing itself in historic homeland through large and uninterrupted immigration and settlement and recreating in Eretz Israel its national home with all the essential features of a people's existence. The Congress emphatically rejects any attempt to minimize this fundamental aim of Zionism.

Particularly interesting was the victory gained by the American Zionists, led by Judge Julian W. Mack and Supreme Court Justice Louis D. Brandeis, when they obtained the approval of the Congress to the separation of the private economic developmental programme in Palestine from the political programme. The resolution as adopted committed the Congress to the establishment of private corporations to assist the flow of private capital into all the economic fields of Palestine. Corporations of the kind indicated, such as the Palestine Electric Corporation, the Palestine Potash, Ltd., and the Palestine Economic Corporation, were already functioning.

Doctor Nahum Sokolow, in addition to being elected president of the World Zionist Organization, was also named the new president of the Jewish Agency for Palestine (also succeeding Weizmann here). The post of chairman of the council, vacant since the death of Lord Melchett, was filled by the election of Osmond E. A. Goldsmid, English communal worker and president of the board of deputies of British Jews. Doctor Lee K. Frankel (United States) was named joint chairman; Prof. M. Speyer (Belgium) and Robert Szold (United States) were named vice presidents.

The Zionist Organization of America, at its meeting in November, voted to continue the administration's policy, when Robert Szold of New York was reelected national president and other officers were reelected for the next annual term. This action was taken by the unanimous vote of the 500 delegates attending the thirty-fourth annual convention. Federal Judge Julian W. Mack was elected honorary president and Louis

Lipsky and Rabbi Stephen S. Wise were named honorary vice presidents. Resolutions adopted called for the continuing of propaganda among American Jewish youths in the interest of the establishment of a Jewish national home in Palestine; for continued support of the Jewish National Fund; and for the support of colonization of the Jewish national home by American Jews.

**JOAN OF ARC ANNIVERSARY.** See CELEBRATIONS.

**JOFFRE**, zhô'fr', MARSHAL JOSEPH JACQUES CÉSAIRE. A French soldier, died in Paris Jan. 3, 1931. He was born in Rivesaltes, Pyrénées, Jan. 12, 1852. From the Collège de Perpignan he entered the École Polytechnique in 1868 to study military engineering, but the outbreak of the Franco-Prussian War resulted in his enlistment in the French Army and his taking part in the defense of Paris. After the war he returned to the Polytechnique with the grade of 2d lieutenant. In 1872 he entered the Engineer Corps, and four years later became a captain, helping to plan the defenses of Pontarlier. From 1883 onwards he served almost continuously in the colonies, fighting under Courbet in Tongking, French Indo-China; organizing the defenses of Formosa in 1885; and occupying Timbuktu, French Sudan, in 1894 after a 500-mile forced march to relieve Bonnier. Returning to France he was made a professor in the staff college at Paris for a time, and was promoted to brigadier general in 1901 and to general of a division in 1905. In 1910 he became a member of the Conseil Supérieur de la Guerre, and the following year, while commanding the 2d Army Corps at Amiens, was appointed chief of the general staff.

Marshal Joffre was commander-in-chief of the French armies on the western front from the outbreak of the World War until December, 1916, when he was transferred to Paris as "technical adviser to the government." His fame rested on the Battle of the Marne, one of the great decisive battles of the world, that stemmed the German advance on Paris Sept. 6, 1914. In recognition of this achievement he was made a Marshal of France, the first to receive that title since 1870. His unavailing offensives in 1915 and the heavy losses at Verdun and on the Somme in 1916, however, resulted in his loss of prestige, and the following year he was succeeded in the command of the western front by General Nivelle. There had also been conferred on him in 1915 the title of commander-in-chief of the French armies operating in Europe, which included the Army of the Orient. In the spring of 1917, he was sent on a mission to the United States, following the entry of that country into the World War. In 1920 he returned to the Conseil Supérieur de la Guerre. He was elected a member of the Académie Française in 1918, and received the British Order of Merit and the Grand Cross of the Legion of Honor. He wrote *My March to Timbuktu* (1915) and *La Préparation de la guerre et la conduite des opérations, 1914-15* (1920).

**JOHNS HOPKINS UNIVERSITY**, THE. A nonsectarian institution of higher education for men and women in Baltimore, Md., founded in 1876. The enrollment for the autumn of 1931 was 6316. The faculty numbered 675. The productive funds amounted to \$28,873,945, and the income from all sources for 1930-31 was \$2,812,557.

The main library contained 401,215 volumes. The plan for the reorganization of the curriculum of the college of arts and sciences was put into operation during the year. The first two years were to be regarded as a background for either a liberal arts education or a professional career. At the end of the second year the student might apply for admission to one of the departments of the schools of higher studies or for permission to remain in the college of arts and sciences as a candidate for the bachelor's degree. The curriculum for the last two years was arranged for specialized study in one of the following groups: science and logic, social science and ethics, literature and language. For the programme of the Page School of International Relations, see INTERNATIONALISM.

Important gifts to the university during 1930-31 included: \$1,500,000 from an anonymous donor as the first half of a gift for the endowment of the Osler and Halsted clinics; \$40,000 from the Chemical Foundation for the endowment of two fellowships in chemistry; \$45,000 from the J. J. Abel Fund for research on the common cold; \$146,242 from the estate of William D. Gill for the establishment and maintenance of a chair of forestry; and \$50,000 from the Rockefeller Foundation for support of the biological sciences and \$20,000 for the fluid research fund in the humanities. Dr. William H. Howell resigned as director of the school of hygiene and public health and was made director emeritus and professor emeritus of physiology; Dr. W. H. Frost was appointed dean of the school. Dr. William H. Welch was made professor emeritus of the history of medicine. Dr. P. E. Dumont, a lecturer in the university for several years, was appointed professor of Indology, and Dr. Roger Jones, formerly on the faculty of the University of California, became professor of Greek. Dr. Georg Tischler, professor of botany and director of the botanical institute and gardens at the University of Kiel, was the Speyer visiting professor. President, Joseph Sweetman Ames, Ph.D.

**JOHNSON, ALLEN.** An American historian, educator, and editor, died in Washington, D. C., Jan. 18, 1931. He was born in Lowell, Mass., Jan. 29, 1870. On being graduated from Amherst College in 1892, he studied at the University of Leipzig, at the École des Sciences Politiques, Paris, and at Columbia University. He was appointed professor of history at Iowa (later Grinnell) College in 1898, professor of history and political science at Bowdoin College in 1905, and Larned professor of American history at Yale University in 1910. He resigned the latter chair in 1926 to become editor of the *Dictionary of American Biography*, of which at the time of his death six of the contemplated 20 volumes had been completed. His works include: *The Intendant under Louis XIV* (1899); *Stephen A. Douglas* (1908); *Readings in American Constitutional History* (1912); *Union and Democracy* (1915); *Jefferson and His Colleagues* (1921); *The Historian and Historical Evidence* (1926).

**JOHNSON, ROSSITER.** An American editor and author, died in Amagansett, N. Y., Oct. 3, 1931. He was born in Rochester, N. Y., Jan. 27, 1840, and was graduated from the University of Rochester in 1863. From 1864 to 1868 he was assistant editor of the *Rochester Democrat* (later *Democrat and Chronicle*) and from 1869 to 1872 edited the *Concord* (N. H.) *Statesman*. He then became an associate editor in the revision

of the *American Cyclopædia* (1873-77) and editor of the *Annual Cyclopædia* (1883-1902). From 1886 to 1888 he was managing editor of the *Cyclopædia of American Biography* and from 1892-94 associate editor of the *Standard Dictionary*. In 1900 he was made editor-in-chief of the *Universal Cyclopædia*, in which position he remained until 1904, devoting himself thereafter to writing and lecturing on American historical subjects.

Among his works are *A History of the War of Secession* (1888); *The Turning Points of the Civil War* (1894); *A Short History of the War between the United States and Spain* (1899); *The Hero of Manila* (1899); *The Story of the Constitution of the United States* (1906).

**JOHNSON, WILLIS FLETCHER.** An American editor and historian, died in Summit, N. J., Mar. 28, 1931. He was born in New York City, Oct. 7, 1857, and was graduated from New York University in 1879. In 1880 he became a member of the editorial staff of the *New York Tribune*, and was an occasional contributor to its successor, the *New York Herald Tribune*. He was also, after 1913, a contributing editor of the *North American Review*. From 1908 to 1912 he was president of the New Jersey State Civil Service Commission. His more important writings include *A Century of Expansion* (1903); *Four Centuries of the Panama Canal* (1906); *America's Foreign Relations* (2 vols., 1916); *America and the Great War for Humanity and Freedom* (1917); *History of Cuba* (5 vols., 1920); *Life of Warren G. Harding* (1922); *Political and Governmental History of the State of New York* (2 vols., 1923); and *George Harvey—A Passionate Patriot* (1929).

**JOHNSTON, ANNIE FELLOWS.** An American author, died near Louisville, Ky., Oct. 5, 1931. She was born in Evansville, Ind., May 15, 1863, the daughter of the Rev. Albion and Mary Erskine Fellows, and after attending the State University of Iowa was married in 1888 to William L. Johnston. On her husband's death she entered upon her career as one of the most popular of children's writers.

Her most famous books were the "Little Colonel" series, which covered her entire writing career from 1895 to 1929 and were published in several languages. They included *The Little Colonel*, *The Little Colonel's House Party*, etc.

**JOHNSTON, CHARLES.** American Orientalist, died in New York City, Oct. 16, 1931. He was born in Ballykilbeg, County Down, Ireland, Feb. 17, 1867, and attended Dublin University. After spending a few years in the India civil service, he came to the United States in 1896, becoming noted as a writer and lecturer on Oriental history and philosophy and as a translator of many sacred books of the East, including *The Upanishads* (1896), *Bhagavad Gita* (1908), and *Yoga Sutras of Patanjali*. He was the author of *The Memory of Past Births* (1900); *Kela Bai* (1900); *The Parables of the Kingdom* (1909); and *Why the World Laughs* (1912).

**JOHORE.** See NON-FEDERATED MALAY STATES.

**JORDAN, DAVID STARR.** An American educator, author, and naturalist, first president of Leland Stanford Junior University, died in Palo Alto, Calif., Sept. 19, 1931. He was born in Gainesville, N. Y., Jan. 19, 1851, and was graduated from Cornell University in 1872. In 1875 he received the M.D. degree from Indiana Medical College, and in 1878 the Ph.D. degree from



Butler University, where he was professor of biology from 1875 to 1879. He held the same chair at Indiana University until 1885, when he was elected president of that institution. In 1891, on the founding of Leland Stanford Junior University, he became its president, and under his able supervision the university was successfully developed along original and progressive lines. He remained president until 1913, when the post of chancellor was created. He retired as chancellor emeritus in 1916.

While at Cornell Dr. Jordan began under the direction of Louis Agassiz the studies which were eventually to make him one of the foremost of ichthyologists. He was appointed in 1897 as special United States commissioner in the Bering Sea controversy, which had arisen out of the depredations of unlicensed Canadian sealers on the seal fisheries of the north Pacific, and was later appointed to investigate the salmon fisheries of Alaska. During 1908-10 he was international commissioner of fisheries. An ardent peace advocate, he acted as chief director of the World Peace Foundation from 1910 to 1914 and as president of the World's Peace Congress in 1915. In 1924 he received the Raphael Herman Peace Prize of \$25,000 for the best educational plan calculated to maintain world peace.

In addition to papers in the proceedings of scientific societies and in the reports of the U. S. Fish Commission and the Bureau of the Census, Dr. Jordan published *A Manual of Vertebrate Animals of the Northern United States* (1876); *Science Sketches* (1887); *Fishes of North and Middle America* (with B. W. Evermann, 4 vols., 1896); *The Higher Sacrifice* (1908); *The Religion of a Sensible American* (1909); *The Stability of Truth* (1909); *The Unseen Empire* (1912); *War's Aftermath* (with Harvey E. Jordan, 1912); *War and Waste* (1914); *World Peace and the College Man* (1914); *War and the Breed* (1915); *Ways to Lasting Peace* (1915); *Alsace-Lorraine, a Study in Conquest* (1915); *Democracy and World Relations* (1918); *The Days of a Man* (autobiography, 2 vols., 1922); and *The Trend of the American University* (1929).

**JUGOSLAVIA.** See YUGOSLAVIA.

**JUVENILE DELINQUENCY.** See CHILD WELFARE; CRIME.

**KAISER WILHELMSLAND.** See NEW GUINEA.

**KAMERUN.** See CAMEROON.

**KANSAS.** POPULATION. According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 1,880,999; in 1920, 1,769,257. The predominant native white element of the population rose to 1,792,847 (1930), from 1,708,906 (1920). The number of foreign-born whites declined to 69,716 (1930), from 110,578 (1920); the decline was due only in part to the fact that the Mexican-born group, included in the total of 1920, was separately listed in 1930. Mexicans in 1930 numbered 19,149. Negroes in the State increased in number to 66,344 (1930), from 57,925 (1920). Indians numbered 2455 in 1930.

The rural group of the population remained stationary in number, 1,151,165 (1930), 1,151,293 (1920). It still predominated over the urban population (residing in communities of 2500 or over) which numbered 729,834 (1930), 617,964 (1920). The greatest city, Kansas City, had 121,857 inhabitants (1930), 101,177 (1920); Wichita had 111,-

110 (1930), 72,217 (1920); Topeka, the capital, 64,120 (1930), 50,022 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Wheat ...	1931	12,632,000	239,868,000	\$88,749,000
	1930	12,357,000	166,702,000	93,388,000
	1931	6,505,000	113,838,000	35,290,000
Corn ....	1930	6,776,000	81,312,000	47,974,000
	1931	1,094,000	1,545,000	10,042,000
Hay, tame	1930	1,060,000	1,607,000	15,588,000
	1931	1,494,000	41,085,000	8,217,000
Oats ....	1930	1,334,000	36,685,000	12,840,000
	1931	1,107,000	17,712,000	5,314,000
Grain sorghum	1930	988,000	10,374,000	6,743,000
	1931	563,000	8,726,000	1,920,000
Barley ...	1930	512,000	10,496,000	3,884,000
	1931	46,000	3,634,000	2,180,000
Potatoes .	1930	42,000	4,788,000	4,309,000
	1931			

\* Tons.

**MINERAL PRODUCTION.** The petroleum wells of the State, usually furnishing not far from half of the yearly total of its mineral production, yielded but 41,617,000 barrels of petroleum in 1930, as against 42,813,000 in 1929; lower prices obtained brought down the value of the petroleum to \$54,500,000 (estimated) for 1930, from \$62,510,000 for 1929. The production of natural gas was 38,469,000 M cub. ft. for 1929 and 45,644,000 M cub. ft. for 1928; in value it was \$13,429,000 for 1929 and \$14,144,000 for 1928. Production of gasoline from natural gas decreased to 32,300,000 gallons for 1930, from 36,227,000 for 1929; and in value, to \$1,600,000 (estimated) for 1930, from \$2,207,000 for 1929. Less cement was produced in 1930, the shipments declining to 5,633,098 barrels for 1930, from 6,855,861 for 1929, and in value to \$8,254,416 for 1930, from \$10,041,282 for 1929. Clay products aggregated \$3,279,953 for 1929 and \$3,593,130 for 1928. Coal production dropped somewhat sharply to 2,360,000 short tons for 1930, from 2,975,971 for 1929, for which year the value of the output was \$6,697,000. The total value of the State's mineral production was \$124,472,480 for 1929; for 1928, \$113,279,524.

**MANUFACTURES.** Federal Census data gathered in 1930 to cover the year 1929 stated the number of the State's manufacturing establishments as 1918. These employed 46,906 wage earners, or 3.4 per cent more than the number for 1927. Wages paid to the earners in 1929 totaled \$72,628,477 and exceeded the total for 1927 by some 20 per cent. Materials for manufacture, plus fuel and purchased electricity, cost \$544,010,255 in 1929, or 5 per cent above 1927. The manufactured product of 1929 was valued at \$734,919,439, which was 7.8 per cent in excess of the product of 1927. Value added by manufacture in 1929 was estimated at \$19,909,184.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$15,920,202 (of which \$623,034 was for local education); for conducting public-service enterprises, \$177,156; for interest on debt, \$7,474,753; for permanent improvements, \$18,570,830; total, \$36,142,941 (of which \$19,872,414 was for highways, \$2,356,683 being for maintenance and \$17,515,731 for construction). Revenues were \$33,595,607. The State's funded debt on June 30, 1930, was \$24,500,000. Net of sinking fund assets, the debt was \$23,173,030. On a property valuation of \$3,-



\$16,825,048 were levied in the year taxes of \$7,653,907.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 9338.71. During the year preceding, 4.15 miles of line had been given up, while 0.8 mile had been added. In 1931 were built 26.89 miles of additional first track.

**EDUCATION.** For the year ended with June, 1930, the number of persons of school age in the State was reported as 554,902. There were enrolled in the public schools 430,983 pupils. Of these, 315,980 were in common schools or elementary grades; in high schools were 115,003. The year's expenditures for public-school education totaled \$43,378,595. Average salaries of teachers, by the month, ranged from \$99 and \$91, respectively, for males and females in one-teacher schools to \$154 (males) and \$155 (females) in the elementary grades and \$205 (males) and \$162 (females) in high schools, in the first-class cities.

**CHARITIES AND CORRECTIONS.** The State maintained control of its institutions of care and custody in 1931, through the Board of Administration. This board had four members, not counting the Governor, who ranked ex officio as one of its officers. As its executive aid it had a business manager. The board subsisted, substantially, as created in 1905. Institutions under its care fell into three classes, charitable, correctional, and of the special educational type. Charitable institutions, with their respective populations of Dec. 1, 1931, were: Topeka State Hospital, Topeka, 1794; Osawatimie State Hospital, Osawatimie, 1491; Larned State Hospital, Larned, 807; State Hospital for Epileptics, Parsons, 699; State Training School, Winfield, 1014; State Sanatorium for Tuberculosis, Norton, 235; State Orphans' Home, Atchison, 180. Correctional institutions, with populations of the same date, were: Kansas State Penitentiary, Lansing, 1719; Kansas State Industrial Reformatory, Hutchinson, 754; Women's Industrial Farm, Lansing, 183; Boys' Industrial School, Topeka, 245; Girls' Industrial School, Beloit, 155.

**LEGISLATION.** A regular session of the State Legislature was held, convening January 13 and adjourning March 17. Sufficient economies were effected to bring the total of appropriations for the biennium about \$1,000,000 below the corresponding total for the session of 1929. In the field of taxation, a measure was passed to submit to popular vote, in 1932, an amendment to the State constitution to permit of the creation of a graduated tax on incomes. Another proposed amendment of the constitution was submitted, to limit the rate of the general property tax to 2 per cent on city real estate and  $1\frac{1}{2}$  per cent on farms. The Legislature followed the recommendation of Governor Woodring in keeping the rate of the gasoline tax at three cents on the gallon, defeating efforts to raise the rate to four cents. A law placing the tax on intangibles at 50 cents to the \$100 was enacted, as a measure to keep liquid capital within the State.

Of a number of proposals adverse to the public utilities of the State, offered by the Governor, the Legislature rejected one that would have compelled these utilities themselves to bear the cost of supporting the Public Service Commission, which regulated them. An act was passed that provided a fund of \$100,000 for the use of the commission in proceedings to compel the lowering

of electric and gas rates in cities and towns; the power of examining the accounts of holding companies possessing the securities of utilities active in the State was also granted the commission.

A drivers' license law was enacted, requiring the licensing of persons driving motor vehicles, at a low fee. Public utilities were forbidden to retail such merchandise as appliances for the use of their own products, a practice that the local merchants had regarded as harmful to their trade. Regulations for the size of trucks and automobiles using the public roads were passed, and with them, charges upon such vehicles, in accordance with size, to contribute toward road maintenance. Through a redistricting act, the seven Representatives allowed the State under the new Federal reapportionment were assigned to as many districts.

Among other laws enacted were: Prohibition of the use of butter substitutes in State institutions; a measure creating a State system of fingerprint records of criminals; prohibition of incorporated farms; authorization of the Public Service Commission to supervise the proration of the production of petroleum; extension of the Moving Picture Censor Board's power of deletion to dialogue and sounds, as well as to pictures.

**POLITICAL AND OTHER EVENTS.** Governor Woodring, soon after his inauguration, took an aggressive course in dealing with companies purveying natural gas. With the support of the *Kansas City Star* he called for a reduction of 10 cents in the rate for natural gas, which for Kansas City was 40 cents a thousand feet. The Cities Service Company, supplying gas to more than 100 communities in the State, refused to reduce its rates. The State administration rejoined by a decree of the Banking Department to prevent the sale of the junior stock issues of the company to purchasers in Kansas. The Banking Department was enjoined from enforcing this prohibition, upon the motion of attorney for the company. Henry L. Doherty, head of the Cities Service Company at the same time brought suit for libel to the sum of \$12,000,000 against the *Kansas City Star* for alleged misstatements in its campaign to influence opinion against the company.

**OFFICERS.** Governor, Harry H. Woodring; Lieutenant-Governor, J. W. Graybill; Secretary of State, E. A. Cornell; Auditor, Will J. French; Treasurer, Tom B. Boyd; Attorney-General, Roland Boynton; Superintendent of Public Instruction, George A. Allen, Jr.

**JUDICIARY.** Supreme Court: Chief Justice, William A. Johnston; Associate Justices, Rousseau A. Burch, John S. Dawson, W. W. Harvey, William Easton Hutchinson, William A. Smith, E. R. Sloan.

**KANSAS, UNIVERSITY OF.** A State institution of higher education in Lawrence, Kansas, founded in 1864. The 1931 autumn enrollment was 4220. The 1931 summer session had an enrollment of 1902, of whom 963 were women and 939 men. The full-time teaching staff, exclusive of deans, numbered 239. The endowment fund amounted to \$240,000, and the income for the year, including the balance carried over from 1930, was \$2,000,000. The Watkins Memorial Infirmary was the outstanding gift of the year. There were 235,000 volumes in the library. Chancellor, Ernest Hiram Lindley, LL.D.

**KANSAS CITY, MISSOURI.** See *MISSOURI under Political and Other Events.*

**KANSAS WESLEYAN UNIVERSITY.** A coeducational institution under the auspices of the Methodist Episcopal Church, in Salina, Kan., founded in 1885. The enrollment for the autumn of 1931 was 456. The faculty numbered 30. The endowment amounted to \$221,000, while the budget for the fiscal year ending July 31, 1931, amounted to \$129,561. President, L. B. Bowers, D.D.

**KARAFUTO**, ká'ra-fóv'tó. The Japanese portion of the island of Sakhalin, lying south of the parallel of 50° north latitude. With an area of about 13,935 square miles, Karafuto had a population estimated at 240,502 on Jan. 1, 1929. Fishing, mining, lumbering, and agriculture are the chief industries. See JAPAN.

**KARA-KALPAKIA**, or KARA-KALPAK. AUTONOMOUS AREA OF. See SOVIET CENTRAL ASIA.

**KARELIA.** An autonomous socialist soviet republic within the Russian Socialist Federal Soviet Republic, Karelia lies between Finland and the White Sea. The area of 56,476 square miles is about that of the State of Illinois; the population at the 1926 census totaled 269,734 (58.5 per cent Russians and 44.5 per cent Karelians, Finns, and Vepps). Capital, Petrozavodsk. For the Russo-Finn dispute over Karelia, see FINLAND and UNION OF SOVIET SOCIALIST REPUBLICS under *History*.

**KARIKAL.** See FRENCH INDIA.

**KARL FELDT**, ERIC AXEL. Swedish poet, died in Stockholm, Apr. 8, 1931. He was born in Folkarna, July 20, 1864, and was graduated from the University of Upsala in 1898. In 1904 he was made a member of the Swedish Academy, later becoming its permanent secretary. He was also secretary of the academy's committee which annually awards the Nobel prize in literature. Typical of his poetry, in which he voiced the beauties of nature and depicted the life and customs of the Dalecarlian peasants, are: *Songs of Love and the Open* (1895); *Fridolin's Poetry* (1902); *Flora and Pomona* (1906); and *Flora and Bellona* (1918). A posthumous award of the Nobel prize in literature to him was announced on Oct. 8, 1931.

**KASSIOTIS**, DAMIANOS. Prelate of the Greek Orthodox Church, died in Jerusalem, Aug. 14, 1931. He was born on the Island of Samos in 1848, where he attended the Pythagorean College and served as clerk in the courts of justice at Marathakampos. In 1872 he entered the monastery of St. Constantine in Jerusalem, becoming priest in 1875 and archimandrite in 1881. In 1887 he was appointed commissioner to the Phanar in Constantinople, and in 1890 became titular Archbishop of Philadelphia and a member of the Holy Synod. He represented the Synod at the coronation of Czar Nicholas II in 1894, and three years later was elected by that body Patriarch of Jerusalem and All Palestine, Syria, Arabia beyond the Jordan, Cana of Galilee, and Holy Zion. He was enthroned as the 132d Patriarch of Jerusalem on Aug. 15, 1897.

During the World War the Turks exiled him to Damascus, but on his return to Jerusalem after the British occupation he received the support of the British administration.

**KAZAK REPUBLIC.** See UNION OF SOVIET SOCIALIST REPUBLICS and SOVIET CENTRAL ASIA.

**KEDAH.** See NON-FEDERATED MALAY STATES.

**KEELING ISLANDS.** See STRAITS SETTLEMENTS.

**KEEWATIN.** See NORTHWEST TERRITORIES.

**KELANTAN.** See NON-FEDERATED MALAY STATES.

**KELLOGG-BRIAND PACT.** See LEAGUE OF NATIONS.

**KELLOGG CHILD WELFARE FOUNDATION.** See CHILD WELFARE.

**KENTUCKY.** POPULATION. According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 2,614,589, as against 2,416,630 in 1920. The whites, native with the exception of a small total of 21,840 foreign-born, numbered, in 1930, 2,388,364; in 1920, 2,180,560. Negroes numbered 226,040 (1930); 235,938 (1920). Persons of other race or origin numbered, in 1930, only 185. The rural population was virtually stationary, numbering 1,815,563 in 1930 and 1,783,087 in 1920, while the urban population (living in communities of 2500 or more), though still inferior, rose to 799,026 (1930), from 633,543 (1920).

By reported occupation the population of 1930 was largely agricultural, 358,575 being engaged in agriculture out of a total of 907,166 having gainful occupation. Farmers and farm managers prevailed over farm laborers in the proportion of almost two to one. Persons in the manufacturing industries and the building industry numbered 153,282; in trade, 98,405; in transportation, 77,024; in professional service, 47,861; in domestic and personal service, 72,272. Louisville, the chief city, had 307,745 inhabitants in 1930, 234,891 in 1920; Lexington, 45,736 (1930), 41,534 (1920); Covington, 65,252 (1930), 57,121 (1920); Paducah, 33,541 (1930), 24,735 (1920); Frankfort, the capital had 11,626 (1930), 9805 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops for 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Tobacco ...	1931	586,000	506,890,000*	\$45,620,000
	1930	519,500	372,123,000*	45,399,000
Corn .....	1931	2,871,000	80,388,000	28,940,000
	1930	2,815,000	28,150,000	25,698,000
Hay, tame .	1931	1,154,000	1,208,000*	12,080,000
	1930	1,071,000	829,000*	12,391,000
Potatoes ..	1931	55,000	8,960,000	2,970,000
	1930	44,000	2,772,000	3,465,000
Wheat ....	1931	242,000	4,840,000	2,614,000
	1930	202,000	2,828,000	2,573,000
Oats .....	1931	232,000	4,872,000	1,418,000
	1930	155,000	2,015,000	1,068,000
Sweet potatoes .	1931	21,000	2,100,000	1,470,000
	1930	13,000	845,000	1,014,000

\* Pounds.    † Tons.

**MINERAL PRODUCTION.** The activity of the coal mines, which had normally furnished nearly three-fourths of the yearly value of the mineral production, was much curtailed. The quantity of coal mined diminished to 50,697,000 short tons for 1930, from 60,402,600 for 1929. The value of the coal mined in 1929 totaled \$93,283,000. Petroleum was produced to the quantity of 7,345,000 barrels in 1930 and of 7,775,000 in 1929; and to the value of \$11,600,000 (estimated) in 1930 and of \$13,220,000 in 1929. The production of natural gas (figures not available for 1930) had risen to 27,588,000 M cub. ft. for 1929, from 15,383,000 M cub. ft. for 1928; and to the value of \$8,822,000 for 1929, from \$5,349,000 for 1928. The total value of the mineral production of the State was \$132,649,508 for 1929; for 1928, \$131,969,907.

**MANUFACTURES.** Federal Census data gathered in 1930 to cover the year 1929 stated the number

of the State's manufacturing establishments as 2227, or about 20 per cent greater than in 1927. There were employed in such establishments in 1929, 76,201 wage earners, to whom were paid wages to the total of \$87,517,967; the earners were 1.7 per cent more numerous and the wage total was nearly 5 per cent higher than for 1927. Materials for manufacture, plus fuel and purchased electricity, cost \$262,557,633 in 1929, or 5 per cent more than for 1927. The manufactured product of 1929 was valued at \$490,492,239, which exceeded the corresponding amount for 1927 by 9.5 per cent. The value added to goods by manufacture in 1929 was estimated at \$227,934,806.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$21,953,987 (of which \$5,695,244 was for local education); for interest on debt, \$625,548; for permanent improvements, \$11,553,370; total, \$34,161,321 (of which \$14,734,415 was for highways, \$4,574,673 being for maintenance and \$10,159,742 for construction). Revenues were \$36,756,080. Of these, property and special taxes formed 34.9 per cent; departmental earnings and remuneration to the State for officers' services, 7.2; sale of licenses, 44.9 (including gasoline sale taxes amounting to \$8,076,441). The State's funded debt outstanding on June 30, 1930 was \$2,497,021. Net of sinking fund assets, debt was \$2,005,819. On a property valuation of \$3,252,926,459 were levied in the year taxes of \$11,704,653.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 4054.55. During the year preceding, 21.35 miles of line had been added, and only 0.03 mile had been given up. In 1931 were built 5.66 additional miles of first track and 22 of second track.

**EDUCATION.** For the academic year ending in 1931 the number of persons of school age (6 to 18 years) was reported as 694,971. There were enrolled in the public schools of the State 593,381 pupils. Of these, 529,012 were in common schools or elementary grades, and 64,369 were in high schools. The year's total of expenditure for public-school education, exclusive of certain appropriations for outlays, was \$28,931,340. The yearly salaries of teachers averaged \$799 for the elementary group, \$1347 for the high-school group, and \$904 for all.

**CHARITIES AND CORRECTIONS.** The management and control of the State's seven institutions of care and custody of individuals rested in the State Board of Charities and Corrections, as created by an act of 1920. The board was a non-partisan body consisting of a chairman and eight members, of whom at least 2 must be women. Members drew no salary.

The institutions thus governed, with their average populations for the year ended June 30, 1931, were: Eastern State Hospital, Lexington, 1626; Central State Hospital, Lakeland, 2200; Western State Hospital, Hopkinsville, 1703; Feeble-Minded Institute, Frankfort, 615; State Houses of Reform, Greendale, 640; State Reformatory, Frankfort, 2393; State Penitentiary, Eddyville, 1135.

**POLITICAL AND OTHER EVENTS.** The drought of 1930 left in many parts of the State an aftermath of crop failure, starving cattle, human destitu-

tion, tax delinquencies, and bank failures. Local chapters of the Red Cross were reported in January as caring for 28,700 persons. The need for succor continued for months thereafter. The failure, late in 1930, of the Bancokentucky, involving a large amount of public moneys, was investigated by a Grand Jury. The inquiry went into the negotiations for a merger of the Bancokentucky Company and the Caldwell banking interests of Nashville, Tennessee, which had preceded the collapse of the institutions in both States. Indictment was found in Kentucky against the Tennessee banker, Rogers Caldwell, for his part in the Kentuckian collapse. The defendant, however, was tried, convicted, and sentenced to prison in July in his home State of Tennessee. James B. Brown of Louisville, newspaper publisher and former head of the Bancokentucky, was tried in the Circuit Court in Louisville on a charge of embezzlement relating to a \$2,000,000 note transaction, and was acquitted on May 25.

The Democratic party of the State resorted to the convention method in nominating its candidate for Governor. This proceeding was contested in the courts by a group of Democrats who wanted the nominee chosen by the method of primary election. The State Court of Appeals, in a decision of May 1, upheld the statutory and constitutional validity of the option that the Democratic organization exercised in calling a convention. The convention was accordingly held at Louisville on May 12, and Judge Ruby Laffoon was nominated. The State Court of Appeals, in July ruled that county boards of education had no power to refund indebtedness by the issue of bonds; the decision was held to invalidate nearly \$900,000 in bonds and to affect some \$2,500,000 in floating debts. Another decision of this court, rendered on March 3, upheld as constitutional the statute permitting pari-mutuel wagers at race tracks.

A coal strike occurred in the spring and led to bloodshed in the Harlan county non-union field. Deputy sheriffs were attacked and in some cases wounded or killed. Company stores were raided. Finally Governor Sampson called into service several companies of the National Guard and sent them into the disturbed area on May 7. A series of trials of officials of coal miners' unions and leaders of the disturbers, for murder, was in progress before Circuit Judge Henry R. Prewitt at Mount Sterling in December. See **COMMUNISM.**

**ELECTIONS.** At the election on November 3 Circuit Judge Ruby Laffoon, Democrat, was elected Governor by a decisive majority of some 70,000 over William B. Harrison, Republican and Mayor of Louisville. The other elective State offices went to Democrats. A proposal to hold a State constitutional convention was reported to have been defeated by popular vote. Laffoon based his campaign largely on criticism of the Republican Federal and State administrations.

**OFFICERS.** Governor, Flem D. Sampson (until December 8; was then succeeded by Ruby Laffoon); Lieutenant-Governor, James Breathitt, Jr. (until December 8; was then succeeded by Albert B. Chandler); Secretary of State, Ella Lewis; Attorney-General, J. W. Cammack; Auditor, Clell Coleman; State Treasurer, Emma Guy Cromwell; Commissioner of Agriculture, Labor, and Statistics, Newton Bright; Superintendent of Public Instruction, W. C. Bell.

**JUDICIARY.** Court of appeals: Chief Justice,

Richard Priest Deitzman; Associate Judges, William Rogers Clay, Gus Thomas, William H. Reese, S. S. Willis, J. Basil Richardson, Wesley Vick Perry.

**KENTUCKY**, UNIVERSITY OF. A coeducational State institution of higher learning in Lexington, Ky., founded in 1866. The enrollment in the autumn of 1931 was 3222. There were 1945 students registered in the 1931 summer session. The faculty numbered 265. The productive funds amounted to \$184,075, and the income for the year was \$1,667,437. During 1931 construction of a new library building and a new observatory was completed. The library contained 127,292 volumes. President, Frank LeRond McVey, Ph.D., LL.D.

**KENYA**, kē'en-yā (formerly the East Africa Protectorate). A British crown colony and protectorate in East Africa, bordering on the Indian Ocean between Italian Somaliland and Tanganyika and extending inland to Uganda and Ethiopia. Area, 224,900 square miles; population, estimated in 1929 at 3,003,158, including 16,663 Europeans, 39,504 Asiatics, and 12,504 Arabs. Capital, Nairobi, with 51,599 inhabitants (4411 Europeans). Mombasa, the second town in size, has a population of about 50,000, including 1200 Europeans.

The colony is mainly agricultural, there being about 2880 European farmers in the territory in 1930. Coffee, maize, sisal, and wheat are extensively raised in the highlands and maize, coconuts, sisal, and cotton in the lower regions. Sugar-cane, groundnuts, simsim, barley, and potatoes are other crops. There are more than 3300 square miles of merchantable timber; some gold, marble, lime, and mica are produced, but the mineral resources are not fully explored. Kenya and Uganda Protectorate constitute a customs union, the joint imports in 1930 being \$39,865,000 and the joint exports \$26,683,000. In the year 1929 Kenya's revenue totaled £3,333,742 and expenditure £3,505,072. The public debt at the end of 1929 was £13,500,000.

The colony is governed under the Constitution of December, 1925, which provides for executive and advisory legislative councils. Governor and Commander-in-Chief in 1931, Sir Joseph Byrne.

**HISTORY.** The report of the Parliamentary Joint Committee on Closer Union in East Africa was published in London Nov. 3, 1931. After holding hearings throughout the year in East Africa and in Great Britain, the committee rejected the proposals for making a single administrative unit out of Kenya, Uganda, and Tanganyika. In Kenya, where the question of native and Indian representation on an elective legislative council proved extremely difficult of solution, the committee recommended that the Legislative Council should retain its advisory status, while remaining the central political institution of the colony. It suggested an increase in the native representation to five in place of the one delegate formerly appointed. The powers of the Chief Native Commissioner were also to be extended and an inquiry instituted into the amount of taxation paid and received back by the natives. See TANGANYIKA and UGANDA.

**KENYON COLLEGE.** A college of arts and sciences for men in Gambier, Ohio, established in 1824 by the Protestant Episcopal Church and associated with it. The enrollment for the autumn term of 1931 was 210. The faculty numbered 22 members. The endowment funds amounted to

\$1,671,000, and the income for the year was \$209,000. The value of buildings and equipment was \$1,755,000. The library contained 78,000 volumes. President, William F. Peirce, L.H.D., D.D., LL.D.

**KINDERGARTEN ASSOCIATION**, NATIONAL. See NATIONAL KINDERGARTEN ASSOCIATION.

**KINDERGARTENS.** See EDUCATION IN THE UNITED STATES.

**KING**, EDWARD S (KINER). An American astronomer, died in Cambridge, Mass., Sept. 10, 1931. He was born in Liverpool, N. Y., May 31, 1861. On graduation from Hamilton College in 1887, he became connected with the Harvard College Observatory. In addition to photometric and spectroscopic studies of stars, he maintained systematic tests of photographic plates from 1896. He was assistant professor of astronomy at Harvard from 1913 to 1926 and Phillips professor from 1926 until his retirement in 1930.

**KIRGHIZIA**, or KIRGHIZ AUTONOMOUS SOCIALIST SOVIET REPUBLIC. See SOVIET CENTRAL ASIA.

**KITAZATO**, SHIBASABURO. A Japanese physician and bacteriologist, died in Tokyo, June 13, 1931. Born in Kumamoto in 1859, he was graduated from the school of medicine of the University of Tokyo in 1883, and during 1885-91 studied in Berlin, Germany, under Dr. Robert Koch. On his return to Japan he was appointed director of the Imperial Japanese Institute for the Study of Infectious Diseases, but retired from the government service in 1914 to open his own laboratory. At the time of his death he was dean of the college of medicine of Keio University. He succeeded in isolating the tetanus bacillus and bacillus of symptomatic anthrax in 1889, and also the dysentery bacillus in 1898. His other achievements included the preparation of a diphtheria antitoxin in 1890 and the discovery of the etiological agent of bubonic plague, the *Bacillus pestis*, in 1894.

**KIWANIS INTERNATIONAL.** An organization of clubs made up of not more than two of the leaders in each business and profession, united for the rendering of civil and social service to the community. Each club enjoys autonomy but at the same time functions in direct connection with district and international administrations. There are 29 geographical districts, each with a governor, in the United States and Canada. The first club was organized in Detroit, Mich., in January, 1915; by 1917 the organization had spread into Canada. At the close of 1931 the international organization consisted of 1883 clubs, with an approximate membership of 100,000. Some 35,000 civic and welfare projects were carried out by these organizations during the year. William O. Harris of Los Angeles, Calif., was the international president for 1931-32; Fred C. W. Parker of Chicago, secretary; and Walter R. Weiser of Daytona Beach, Fla., treasurer. Headquarters are at 520 North Michigan Avenue, Chicago, Ill.

**KLAIPEDA.** See MEMEL.

**KNIGHTS OF COLUMBUS.** A fraternal society of Roman Catholic men, organized under a special charter granted by the General Assembly of the State of Connecticut in 1882. The order is composed of a supreme council, a board of directors, and State and subordinate councils. On June 30, 1931, there were 61 State councils and two territorial jurisdictions. The subordinate councils, numbering 2576, had a member-

ship of 591,424, of whom 261,553 were insurance members and 329,871 associate members.

The Circles of Columbian Squires, the junior order for boys between 14 and 18, in 1931 numbered 96 with a membership of 5600. The objectives of the junior order are: to develop a programme of activities most suitable for boys of the middle adolescent group; to train Catholic boys for future leadership; and to develop them through the five-fold programme into high-type Catholic gentlemen.

The supreme convention was held in French Lick, Ind., Aug. 18-20, 1931, with an attendance of approximately 1500 members. The convention reiterated its request to each council of the order that a committee be appointed to work for the general alleviation of the unemployment situation in the United States. It also was announced that at the supreme convention in 1932 a memorial statue of Cardinal Gibbons, for which Congress had granted a site in Washington, would be dedicated.

The officers reflected at the convention were: Martin H. Carmody, supreme knight; John F. Martin, deputy supreme knight; William J. McGinley, secretary; D. J. Callahan, treasurer; Edward F. Fahey, M.D., physician; Luke E. Hart, advocate; the Rev. John J. McGivney, chaplain; and David F. Supple, warden. The order publishes *Columbia*, a monthly magazine. The headquarters of the supreme council are in New Haven, Conn.

**KOBER, GEORGE MARTIN.** An American physician, died in Washington, D. C., Apr. 24, 1931. Born in Alsfeld, Germany, Mar. 28, 1850, he came to the United States in 1867 and was graduated with the M.D. degree from Georgetown University in 1873. After serving as assistant surgeon in the Medical Department of the U. S. Army until 1886, he became professor of hygiene in the school of medicine at Georgetown University in 1890 and was made dean in 1901, retiring as dean emeritus in 1928. He was also a member of the consulting staff of the Children's Hospital, the Georgetown University Hospital, and the Gallinger Municipal Hospital in Washington. He endowed the Kober Foundation for honoring each year the physician whose achievements had been of greatest importance to the advancement of medical research. Among his works are *Tuberculosis in Relation to Occupation* (1920); *Tuberculosis among the North American Indians* (1921); *Industrial Health* (with Emery H. Hayhurst, 1923).

**KONGO, BELGIAN, KONGO FREE STATE.** See CONGO, BELGIAN.

**KOREA (CHOSEN).** A peninsula of eastern Asia annexed by the Japanese Empire on Aug. 22, 1910, and incorporated as an integral part of Japan by an Imperial Rescript of 1919. Capital, Keijo-fu (Seoul).

**AREA AND POPULATION.** With an area of 85,228 square miles, Korea had a population at the 1930 census of 21,057,969, as compared with 19,522,945 at the census of 1925. The 1930 population included about 470,000 Japanese and 53,500 foreigners. The population of the chief cities at the end of 1928 was: Keijo-fu (Seoul), 321,848 (86,548 Japanese); Fusan-fu (Pusan), 116,207; Heijo-fu (Pyong-Yang), 127,103; Taikyu-fu (Tai-Ku), 88,609; and Chemulpo, 57,449. Less than 20 per cent of the population is literate. Japanese is the official language, but the language commonly used by the people is a mixture of Japanese and Mongolo-Tartar.

**PRODUCTION.** Korea is almost exclusively an agricultural country. Land under cultivation totaled 10,115,900 acres, or about 20 per cent of the total area; 36.5 per cent of the cultivated land was devoted to paddy fields. Japanese owned nearly one-half of the tilled land. Rice, barley, wheat, beans, tobacco, cotton, hemp, ginseng, and various cereals are the leading crops. Livestock raising, fruit growing, and silk culture are important subsidiary industries of the farms.

Gold, iron, graphite, and anthracite are the principal minerals; considerable quantities of silver, zinc, copper, lead, tungsten ore, and kaolin are produced also. Textile fabrics, paper, pottery, metal ware, manufactured tobacco, brewed drinks, and leather are the chief industrial products.

**COMMERCE.** General imports in 1930 were equivalent to \$181,285,000 (\$195,046,000 in 1929) and general exports to \$131,648,000 (\$159,351,000 in 1929). Rice exports in 1930 totaled 25,160,000 bushels, valued at \$54,163,000. In 1930, Japan purchased 90.3 per cent of all Korean exports (89.7 per cent in 1929) and supplied 75.8 per cent of all imports (74.5 per cent in 1929).

**FINANCE.** Actual provisional budget returns for the fiscal year ended Mar. 31, 1930, showed a surplus equivalent to \$7,896,000. All receipts totaled 240,580,000 yen (1 yen equaled \$0.4985 at par) and all expenditures 224,740,000 yen. Budget estimates for 1930-31 placed ordinary and extraordinary revenues at 238,960,000 yen; receipts at 238,960,000 yen. The public debt on Mar. 31, 1930, was 377,136,000 yen (\$188,002,000), compared with 353,034,000 yen (\$175,987,000) on the same date of 1929.

**COMMUNICATIONS.** Government railway lines extended 1710 miles in 1930; private lines, 440 miles. The highway network covered 10,767 miles in 1930, mostly graded earth or gravel roads. An air line linked the chief cities with Japan and with Manchuria. Shipping entering the ports in 1929 had an aggregate tonnage of 8,162,338; those clearing, 8,069,346.

**GOVERNMENT.** Korea is governed as an integral part of Japan through a governor general entrusted with large administrative powers. Viscount Minoru Saito and Count Kodama resigned as Governor General and Vice Governor, respectively, in June, 1931. They were succeeded by Gen. Kazunari Ugaki, a leader of the Japanese military clique, as Governor General, and Mr. Imaida. For anti-Chinese riots in Korea in July, 1931, see JAPAN under *History*.

**KOWEIT, or KUWAIT.** See ARABIA.

**KRAUSITE.** See MINERALOGY.

**KU KLUX KLAN, KNIGHTS OF THE.** An American benevolent eleemosynary, and fraternal institution, incorporated under the laws of the State of Georgia in 1915. "The membership is made up of white, male, Gentile persons, native-born American citizens, 18 years of age. They must be of sound mind, good character, commendable reputation, and respectable vocation; must believe in the tenets of Christian religion; and must owe no allegiance to any foreign government, nation, institution, sect, ruler, prince, potentate, people, or person, and whose allegiance, loyalty, and devotion to the Government of the United States of America in all things is unquestionable." The institution's membership decreased in 1931, but it continued its activity in all matters of civil government affecting its ideals or principles. The officers were: President, Hiram



W. Evans; secretary, H. C. Spratt; treasurer, Sam H. Venable. Headquarters are in Atlanta, Ga.

**KULAKS.** See UNION OF SOVIET SOCIALIST REPUBLICS under *History*.

**KUOMINTANG** (CHINESE NATIONALIST PARTY). See CHINA under *History*.

**KURDISTAN**, kōr'dē-stān'. A term applied to an indefinite region in eastern Asia Minor comprising portions of Turkey, Persia, Soviet Transcaucasia, and Iraq and inhabited by approximately 1,500,000 semi-nomadic Kurds, a people related to the Persians in race and language. Due to their nationalistic aspirations the Kurds have remained in a state of chronic revolt against their respective governments. See IRAQ, PERSIA, and TURKEY under *History*.

**KURIA MURIA ISLANDS.** See ADEN.

**KUWAIT.** See ARABIA.

**KWANGCHOW (KWANG CHAU WAN)**, kwāng'chō'wūn. A small territory on the coast of the Chinese Province of Kwangtung, leased to France in 1898, and two small islands commanding Kwangchow Bay leased to her the following year. Area, about 190 square miles; population in 1929, 184,651. See FRENCH INDO-CHINA.

**KWANTUNG**, kwān'tung', or KWANTAO. A territory at the southern end of the Liaotung Peninsula in Manchuria leased to Japan by China, as a successor to Russia after the Russo-Japanese War. Area, including 40 small islands adjacent to the peninsula, 1303 square miles; population, July 31, 1930, 906,181, including 114,032 Japanese. Capital, Dairen (formerly Dalny), with about 262,000 inhabitants. The agricultural products include, rice, tobacco, hemp, and various grains and vegetables. The fishing industry is of importance. In 1929 there were 231 factories, with a total production for the year valued at 100,735,003 yen, or more than the value of agricultural production. Bean cake and bean oil, salt, paper, iron and steel, soap, glass, and cement were the chief products. Imports (1929) totaled 204,490,325 Haikwan taels and exports 256,953,525 Haikwan taels (1 Haikwan tael had an average exchange rate of \$0.64 in 1929). The aggregate budget for the fiscal year 1930-31 balanced at 22,949,939 yen (one yen equaled \$0.498 at par). The territory is administered by a Japanese governor-general. See MANCHURIA; JAPAN.

**LABOR. FIVE-DAY WEEK.** The agitation for the five-day week, largely the result of the official approval given it by the American Federation of Labor, in recent years had taken on considerable impetus. The Bureau of Labor Statistics of the U. S. Department of Labor reported that there was to be found, particularly in the building trades, an increased extension of the five-day week. In 1930 more than 50 per cent of building trade workers covered by the Bureau's surveys were receiving full holidays on Saturdays and Sundays. In June, 1931, a five-day week was in existence in 190 cities and towns for one or more of the crafts in the building trades, and in 44 cities and towns all the crafts of the building trades were at work on a 40-hour basic week. In an examination made of a sampling of 37,587 establishments in 77 different industries, the Bureau of Labor Statistics found that 3,941,800 employees were working on the basis of a five-day week. The automobile industry, as far as the percentage of workers on the five-day week was concerned, led all of the others, 44.3 per cent of all the employees being on such a basis. The radio industry came next, with 34.4 per cent; the

dyeing and finishing textiles industry showed a percentage of 27.0; the aircraft industry followed with 24.9 per cent.

**INJUNCTIONS.** In 1931, the Wisconsin legislature passed a comprehensive statute relating to litigation arising out of labor disputes and limiting the jurisdiction of courts in such cases. Thus, Wisconsin became the first State, according to the *Monthly Labor Review*, "to enact a complete and comprehensive code covering the public policy of the State toward collective bargaining and the use of the injunction in labor disputes." Among other matters this new statute provided: the right of labor to collective bargaining; the prohibition of discriminatory labor contracts; legalizing certain conduct in labor disputes; immunity of members of associations or organizations for responsibility of the acts of individuals; the use of injunctions and the right of appeal; the enumeration of the rights of individuals in contempt cases; penalties for the violation of provisions contained in the act. Contracts known as "yellow dog" contracts were declared illegal.

The following acts on the part of workers were to be considered legal: ceasing or refusing to do any work regardless of any promise undertaken to contract; becoming or remaining a member of a labor union; paying or giving strike benefits; giving publicity to and obtaining information regarding the existence of a strike whether by advertising, speaking, picketing or any other method not involving fraud, violence or breach of the peace; conducting a primary boycott; assembling peaceably; advising, urging or inducing without fraud or violence others to perform the above enumerated acts. The law forbade any court to issue temporary or permanent injunctions prohibiting any person or persons from doing singly or in concert any of the above. The law further provided that no restraining order or injunctive relief was to be granted to any complainant entering the court without "clean hands." Persons charged with contempt were to be granted public and speedy trial by an impartial jury of the county where the contempt was committed, exception being made in the case of those contempts committed in the presence of the court.

**THE NEGRO IN THE INDUSTRIAL DEPRESSION.** A study made by the National Urban League indicated that Negroes were suffering a greater proportionate amount of unemployment than were white workers; there was evincing itself a tendency in some sections of the country to substitute white for colored workers; Negroes were not suffering discrimination in the matter of public and private relief; white workers were appearing in those types of activity that had heretofore been regarded as exclusively the province of Negroes; there was a growing restlessness among Negroes who were moving about the country in search of work. The National Urban League's investigation indicated that in a number of cities unemployment among the Negroes was particularly marked. In Baltimore, where Negroes made up 17 per cent of the population, they formed 13.5 per cent of the unemployed group; in Charleston, where they made up 49 per cent of the population, they were comprising 70 per cent of the unemployed; in Chicago, where they made up 4 per cent of the population, they comprised 16 per cent of the unemployed; in Memphis, the proportions were 38 per cent and 75 per cent; in Philadelphia, 7 per cent and 25 per cent; in Pittsburgh, 8 per



cent and 38 per cent. The League found that substitution of white for colored workers was quite general, particularly in such jobs as house janitors, porters, domestic workers, maids, elevator boys, and cooks. The League also found that in a number of hotels white girls were replacing colored men. The National Urban League from its study presented the following conclusions:

That measures for relief were confined almost entirely to charity.

That negroes get more relief and fewer jobs than others from agencies established to aid the unemployed.

That negroes continued, and unless provision is made to the contrary, will continue to contribute more than their proportionate share of the burden of relief agencies.

That the economic structure of the entire negro race is in an alarming stage of disrepair with dire effect of business and professional interests dependent upon the patronage of negro wage earners.

That restlessness is evident from one end of the country to the other; for unquestionably negroes have lost jobs to which they will not return even when normal times come again.

That the new jobs offered negroes in public works have not been in proportion to their need.

The reader is referred to the following articles for discussions of the various aspects of the history of labor during the year: CHILD LABOR; CO-OPERATION; LABOR ARBITRATION AND CONCILIATION; LABOR LEGISLATION; MINIMUM WAGE; OLD AGE PENSIONS; STRIKES AND LOCKOUTS; UNEMPLOYMENT; WOMEN IN INDUSTRY; WORKMEN'S COMPENSATION; and to the articles dealing with the respective countries. See also TRADE UNIONS; COMMUNISM; and SOCIALISM for special aspects of the labor subject.

**LABOR, AMERICAN FEDERATION OF.** The fifty-first convention of the American Federation of Labor was held at Vancouver, B. C., October 5-15, with 300 delegates in attendance. Among the guests of the trade unionists were Secretary of Labor William M. Doak, and Senator James J. Davis, of Pennsylvania, former secretary. The Federation's executive council's report, which was laid before the convention, recommended a national conference on work apportionment, shorter hours, wage standard maintenance, work assurance, prohibition of child labor, industrial specialization particularly in seasonal industries, the balancing of production through equalization of supply and demand, higher income taxes, modification of the Volstead act to permit 2.75 per cent beer, private and community unemployment relief work, and comprehensive planning to prevent future depressions, with national economic conferences to show the way. The average paid-up membership, as reported by the executive council was 2,889,550 for the year ending Aug. 31, 1931. This was a decrease of 71,546 from 1930's membership. The membership was distributed in 28,229 local unions, in the 105 national and international unions, and in the 334 local trade and federal unions.

Senator Davis struck the keynote of the convention when in an address on October 6 he made a severe arraignment of compulsory unemployment insurance under government auspices and advocated a plan of "employment assurance" in which management, employers and employees should share equally. Senator Davis declared that unemployment insurance tended to become a dole in time of economic depression and actually became a "premium on indolence." As indicative of the fact that Senator Davis' programme for the American Federation of Labor was likely to meet with opposition was a resolution submitted by

the American Federation of Teachers asking for convention approval of "a system of unemployment insurance, inaugurated and controlled by the States and subsidized by the Federal government."

The 21 standard railway unions reported to the convention that they were at work on a programme for a shorter work day and a shorter work week to be submitted to the next session of Congress on behalf of the 1,000,000-1,500,000 men at work on railways in the United States. In effect, it meant that the railroad brotherhoods were going to agitate for the system of a basic six-hour day. The United Mine Workers of America similarly reported to the convention their plan to summon a conference in Washington to inaugurate a legislative campaign on behalf of a bill to classify coal as a public utility, the intent being the creation of a Federal trade commission over the coal industry comparable to the rôle being played by the Interstate Commerce Commission in railroading.

Among the resolutions approved by the convention were the following: a demand for the modification of the Volstead Act to permit beer containing 2.75 per cent alcohol; the extension of the ban on immigration to keep out the nationals of all countries except Canada was approved; the prevention of the entry of Mexican laborers into the country before 10 A.M. The convention again went on record as favoring the exclusion of Filipinos. It supported independence for the Philippine Islands. The Federation pledged its support to the bituminous coal workers in their strikes throughout the coal fields for the purpose of winning immunization and in their efforts to establish an adequate wage scale. A resolution was passed opposing military training in the public schools. Labor's "non-partisan political policy" of "rewarding our friends and punishing our enemies" was reaffirmed. Another resolution was passed indorsing the principle of State income taxes graduated to levy higher percentages on larger incomes. See PROHIBITION.

William Green was reelected president for his eighth successive term; Frank Duffy, T. A. Rickert, Matthew Woll, James Wilson, John Coefield, Arthur O. Wharton, Joseph M. Weber and G. M. Bugniet were elected vice presidents; Martin F. Ryan was elected treasurer; Frank Morrison was elected secretary. The convention chose Cincinnati for its fifty-second meeting to be held in November, 1932.

**LABOR ARBITRATION AND CONCILIATION.** The U. S. Conciliation Service reported that for the fiscal year ended June 30, 1931, it handled 582 specific cases of trade disputes, threatened strikes, and lockouts. These cases came from 37 States and involved 379,585 workers, of whom two-thirds were directly involved in such disputes. For the fiscal year, of the 582 cases, 385 were adjusted, 52 were unadjusted, 82 were still pending and 63 were unclassified. The following brief summaries contain accounts of the more important disputes which were successfully handled by the Conciliation Service's commissioners. See STRIKES AND LOCKOUTS.

*Public Service Company, St. Louis, Missouri.* On May 16 a commissioner succeeded in averting a strike of some 3000 employees working on the street car railway system in St. Louis, Missouri. The point at issue was the threatened termination on the part of the company of the existing trade agreement between the union and itself as well as a proposal that the carmen participate in the income losses that the company was suffering. A strike

vote had been taken on May 14 to go into effect five days later. At the urging of the Service's commissioner both parties agreed to arbitration on the question of the termination of the trade agreement and the conditional wage cut.

**Mishawaka Rubber and Woolen Manufacturing Company, Mishawaka, Indiana.** On May 18, 1931, 2400 workers in this plant went on strike in protest against pay cuts, additional work, and decreased earnings. As a result of the mediation of a Service commissioner a plan was accepted for the election of shop committees among the workers to meet with the management from time to time. Thus, after a strike lasting three weeks, manufacturing operations were resumed.

**Duplan Silk Corporation, Hazleton, Pennsylvania.** A strike of 1750 silk workers broke out here on Nov. 17, 1930, as a protest against a general wage reduction. Service commissioners participated in the negotiations between workers and employer and a number of conferences were held at Hazleton and in New York City. On December 8, the company officials declared themselves as in favor of the operation of an open shop and hence opposed to the activities carried on by representatives of the United Textile Workers, the A. F. of L. union. On Jan. 15, 1931, a final conference was held at which a basis of agreement was reached revolving about the recognition of a local branch of the United Textile Workers.

**Philadelphia and Reading Coal and Iron Company.** On Apr. 11, 1931, 7000 anthracite coal miners, employed by this company, left the pits of nine collieries as a result of the closing down of a number of openings. A Service commissioner urged the men to return to work pending the consideration of the matters in dispute in the usual way, and in line with the terms of the trade agreement entered into by the company and the United Mine Workers of America to which the men belonged. In two weeks a large number of miners heeded this advice and returned to the pits, and by April 26 the strike was declared off and the dispute was referred to the proper channels.

#### LABOR CONFERENCE, INTERNATIONAL.

The fifteenth session of the official International Labor Conference, which was held in Geneva from May 28 to June 18, dealt with the following matters: (1) hours of work in coal mines; (2) minimum age of admission of children to employment in non-industrial occupations; (3) partial revision of the convention concerning night-work of women; and (4) application of conventions which have been in force ten years. In addition, it elected the governing body of the International Labor Organization for the next three years. The conference decided to place on the agenda of the next session for a second and final discussion, the question of the age of admission of children to employment in non-industrial occupations. The conference adopted by 81 votes to 2 a draft convention for the limitation of work to 7¼ hours a day for underground workers in all coal mines, whether hard coal or lignite, the hours being calculated "from bank to bank." Two amendments to the Washington (1919) convention concerning the night work of women were adopted by small majorities. They related to the exemption from the general prohibition of women holding positions of managerial responsibility, and to the precise hours to be deemed "night."

**LABOR LEGISLATION.** In 1931 there were convened in regular session the legislatures of forty-four States, two insular possessions and two Territories, and the Congress of the United States. In addition, in several States, the Legislatures met in special session. Notable among new laws were the provision for old age pensions in five additional States thus bringing the total to seventeen; the final adoption of long-range planning of public works by the Federal government; the creation of eight State investigating commissions on unemployment and unemployment insurance; the adoption by Wisconsin of the first real Bill of Rights for labor in this country; improvement of several workmen's accident compensation laws; reorganized labor de-

partments in Georgia and North Carolina, and the creation for the first time of a labor department in New Mexico.

**Alabama.** Child labor law amended; workmen's compensation law amended.

**Alaska.** Lien law amended; liens on mining claims protected; prevailing wage rate required on public works; rest periods for public employees extended; preference created for Alaskan labor on public works.

**Arizona.** Wage payment law amended; mechanics' lien law amended; "yellow dog" contracts voided; women's hour law amended; local employment services authorized; private employment agencies regulated; emergency public works authorized; law regulating employment on public works amended and constitutional amendment upheld, excluding aliens from public works; reclamation loan fund bill urged; mine safety law amended; contractors licensed and regulated.

**Arkansas.** Federal aid for maternity and infancy accepted. (Special session.) No labor laws enacted.

**California.** Wage payment law amended; payment of disputed wage claims regulated; mechanics' lien law amended; wage preference laws amended and bureau of labor statistics authorized to collect mechanics' liens; personal service contracts extended; terms of present industrial welfare commissioners limited; law regulating wages on public works repealed and new law enacted; hours of certain railroad employees regulated; Federal action on hours of railroad employees urged; hour law for public works amended; county employees granted vacations; private employment agency law amended; bureau of labor statistics authorized to collect claims against employment agencies; aliens excluded from employment on public works; unemployment commission created; preference for California products urged; fire safety in factories, places of public assembly, etc., regulated; part-time school law amended; small cleaning shops regulated; law regulating dry cleaning establishments amended; ambulance chasing prohibited; workmen's compensation law amended and supplemented; administration of rehabilitation law altered; old age pension law amended; State employees' retirement fund created; county employees' retirement act amended; division of industrial fire safety altered; division of housing and sanitation altered; terms of industrial welfare commissioners amended; terms of industrial accident commissioners revised; jurisdiction of bureau of labor statistics extended; civil service act amended; committee created to investigate civil service charges; fire marshal authorized to regulate factories, etc.; fire marshal authorized to regulate small cleaning shops and to appoint assistants; administration of rehabilitation act altered; board created to administer retirement fund.

**Colorado.** Wage claim courts established; "yellow dog" contracts voided; salary scale fixed for clerical workers; Saturday half-holiday extended in government offices; coal mine law amended; metal mine law amended; child labor amendment ratified; boiler inspector act amended; workmen's compensation law amended; old age pension law amended; State employees' retirement law enacted; boiler inspection fees revised; civil service salary scale established; administration of mining laws altered; retirement board created.

**Connecticut.** Employment preference for citizens established on public works; employment commission created; child labor law amended; workmen's compensation law amended; group life insurance authorized for certain public employees; jurisdiction over bake shops altered; administration of employment certificating and continuation school laws altered.

**Delaware.** Wilmington relief programme commended; child labor law amended; workmen's compensation law amended; old age pension law enacted.

**Florida.** No labor legislation reported. (Special session.) No labor legislation reported.

**Georgia.** Industrial commission abolished; department of industrial relations created and certain departments abolished. (Special session.) Workmen's compensation benefits, etc., exempted from income tax.

**Hawaii.** Contractors' bond requirements amended; garnishment law amended; amendment of immigration law urged; workmen's compensation law amended; heirs protected under pension laws; public employees' retirement law amended; department of immigration, labor and statistics abolished.

**Idaho.** Work for Puget Sound Navy Yard urged; workmen's compensation law amended; old age pension law enacted; safety order power of industrial accident board revised. (Special session.) No labor laws enacted.

**Illinois.** Commission on child welfare legislation continued; contractors' bonds required; garnishment law amended; threshers' lien law amended; prevailing wages required on public works; hours limited on public works; additional public employment office authorized; private employment agency law amended; aliens excluded from certain park employment; coal mine investigating commission created; washroom law extended; child labor law of 1897 repealed; workmen's compensation act

amended; investigation of occupational disease compensation authorized; administration of vocational rehabilitation act altered; old age pension commission created; park employees retirement law amended; forestry preserve employees covered by retirement law; Chicago sanitary district employees' retirement law enacted; pension act for certain city employees amended; pension act for certain city employees repealed; division of statistics and research established; division of vocational rehabilitation created.

*Indiana.* Wage claims of certain public employees protected; preference created for state-mined coal; liability policies regulated.

*Iowa.* Contractors' bond law amended; preference created for Iowa labor on public works; workmen's compensation law amended.

*Kansas.* Wage payment law amended; contractors' bond law amended; prevailing wage rate law amended; hour law for public works amended; employment agency law amended; membership of mine examining board altered; workmen's compensation act amended; pensions and disability allowances authorized for certain city employees; membership of mine examining board altered.

*Louisiana.* (Special session.) No labor laws enacted.

*Maine.* Hour law for laundries amended; child labor law amended; work in compressed air regulated; municipal building inspection law extended; boiler safety law extended; workmen's compensation law amended; administration of rehabilitation act amended; State employees' retirement act amended; commissioner of labor and industry authorized to modify compressed air regulations; administration of rehabilitation act amended.

*Maryland.* Wage payment law amended; threshers' lien law amended; Sunday labor law repealed; commission on employment of the deaf appointed; school attendance law amended; workmen's compensation law amended; old age pension law amended; certain manual laborers included under police department pension plan; limit on administrative assessments raised under workmen's compensation law; administration of old age pension law altered.

*Massachusetts.* Obsolete provisions and errors corrected in various labor laws; commission created on minimum wage law, wage regulations for public works extended; public works appropriations for unemployment relief; State building programme accelerated; new preference established for employment on public works; present law governing preference extended; commission created on regularization of employment; certain unfair requirements as a condition of employment forbidden; regulation of hawkers and peddlers extended; street trades law amended; workmen's compensation act amended; death benefits for dependents of reserve policemen limited; financing of old age pensions temporarily provided; State employees' retirement act amended; commission on public employees' retirement granted extension; administration of street trades law amended; civil service law amended; consistent salary classification of State employees provided; operation of minimum wage law to be investigated. (Special session.) No labor laws enacted.

*Michigan.* Penalties in intimidation law revised; registration fees of public employment offices discontinued; local public employment offices authorized; loans for public employment office revolving fund authorized; union employment agencies exempted from regulation; penalties revised in certain laws protecting workers seeking employment; dry cleaning and dyeing plants regulated; sanitary law for construction workers amended; workmen's compensation act amended; fire marshal authorized to regulate dry cleaning plants.

*Minnesota.* Contractors' bonding law amended; wage standards in certain city contracts authorized; experimental public employment office authorized; Congress urged to pass Shipstead-Mansfield bill; study of employment conditions authorized; law regulating dry cleaning plants amended; workmen's compensation law amended; workmen's compensation carriers further regulated; old age pension law amended; surplus funds made available for old age pensions; State employees' retirement law amended; local employees' retirement law enacted; dependents of certain deceased public employees provided for; public employees' retirement board created; administration of old age pension law altered.

*Mississippi.* (Special session.) No labor laws enacted.

*Missouri.* Railroad workers' hour law repealed; public employment offices extended; railroad safety regulations repealed; obsolete child labor law repealed; workmen's compensation act amended; obsolete compensation law repealed; constitutional amendment on old age pensions, obsolete labor department act repealed.

*Montana.* Contractors' bonds required; threshers' lien law amended; Congress urged to limit immigration; prevailing wage rate law enacted; preference for employment on public works established; Congress urged to create preference for citizens; workmen's compensation law amended.

*Nebraska.* Hours of motor carrier drivers restricted; lunch periods required for certain employees; night work law amended. (Special session.) No labor laws enacted.

*Nevada.* Wage payment law amended; responsibility of contractors defined; wage collection powers of labor commissioner extended; private employment agencies limited; mine safety laws provisionally extended; workmen's compensation law extended; safety work financed from State insurance fund; contractors declared responsible for insurance obligations of subcontractors; powers and staff of labor commissioner extended; salaries of deputy mine inspectors increased; mine inspectors' jurisdiction extended.

*New Hampshire.* Workmen's compensation act amended; acceptance of rehabilitation act reaffirmed; old age pension law enacted.

*New Jersey.* Wage protection act for public works amended; prevailing wage rates required on public works; citizens granted preference for employment on public works; public works appropriations authorized for relief; age-discrimination act amended; migrant welfare commission appointed; migratory children's commission continued; workmen's compensation act amended and supplemented; old age pension law enacted; age-discrimination law amended in regard to pensions; boiler inspection service revised. (Special session.) Unexpended balances allotted for unemployment programmes; unemployment relief bonds authorized; municipal public works authorized; preference for employment on public works altered; highway relief work continued; emergency relief bill passed; funds transferred for emergency relief.

*New Mexico.* Collection of wage claims provided for; lien created for oil and gas well workers; Sunday observance law amended; collection of claims against employment agencies provided for and public employment office authorized; preference for employment on public works; seats for women required; liability of common carriers increased; enforcement of workmen's compensation law further provided for; acceptance of rehabilitation act reaffirmed; insurance for irrigation district employees authorized; labor and industrial commission created.

*New York.* Theatre employees exempted from certain laws; committee on liens continued; eviction of certain employees regulated; women's hour law amended; list of seven days workers in public service required; emergency public works appropriation made; advance plans for public works required; corporations authorized to contribute to social projects; committee on unemployment created; information on industrial fires required; seats for elevator operators in State buildings required; workmen's compensation law amended and supplemented; State employees' retirement act amended; city employees' retirement act amended; committee on civil service classification continued. (Special session.) Wage protection on public works temporarily extended; five-day week required on emergency public works; hour law for public works temporarily extended; emergency relief law enacted.

*North Carolina.* Wage protection law amended; personnel director empowered to determine wages; women's hour law amended; children's hour law amended; personnel director empowered to fix hours and vacations; night work law for girls enacted; report of unemployment committee requested; certain occupations prohibited for minors; labor department authorized to regulate work places; workmen's compensation law amended; rating bureau created; industrial commission included in department of labor; group insurance regulation amended; labor department reorganized; personnel department is created; salaries and qualifications of compensation commissioners altered.

*North Dakota.* Industrial survey commission created; wage claims on public works limited; threshers' lien law amended; employment preference created on public construction project; workmen's compensation act amended; acceptance of Federal maternity aid affirmed; powers and organization of workmen's compensation bureau revised.

*Ohio.* Employees protected as members of naval militia; leave of absence granted for military training, etc.; "yellow dog" contracts voided; prevailing wages required on public works; committee created to investigate wages on public works; emergency public works programme undertaken; unemployment insurance commission created; local relief bonds authorized; manufacture and sale of fireworks regulated; dry cleaning law repealed and reenacted; workmen's compensation act amended; insurance law amended; powers of fire marshal extended; department of industrial relations authorized to license fireworks plants.

*Oklahoma.* Payment of highway commission employees expedited; emergency relief funds provided; highway department equipment loaned for emergency relief work; committee created on coal mine disasters; highway law amended respecting accident insurance; compensation benefits exempted from income tax; industrial commission act amended; passage of maternity aid law urged.

*Oregon.* Wage collection powers of labor commissioner increased; contractors' bond law amended; mechanics' lien law amended; lumbermen's lien law extended; immigration restriction urged; "yellow dog" contracts voided; industrial welfare commission abolished; wage stand-

ards guaranteed in public printing contracts; hour law for public employees amended; hour standards guaranteed in public printing contracts; preference created on public printing contracts; commission created on unemployment insurance, etc.; immigration restriction urged; apprenticeship regulated; child welfare inspectors abolished; workmen's compensation law amended and supplemented; commission on old age pensions and unemployment insurance created; acceptance of Federal maternity aid authorized; welfare commission created and certain other bodies superseded; salary of labor commissioner raised; powers of labor commissioner extended; apprenticeship commission created.

*Pennsylvania.* Additional contractors' bonds required; injunctions in labor disputes limited; persons charged with contempt for violating injunctions protected; wages on public works protected; experimental employment service authorized; local relief bonds authorized; migratory children protected; workmen's compensation act amended; constitutional amendment on old age pensions provisionally passed; State employees' retirement act amended; group insurance for public employees authorized.

*Porto Rico.* Wage collection act amended; wage payment act amended; wage payment law enacted for public works; construction workers' lien created; sharecropping regulated; conciliation commission absorbed by department of labor; over-time employment regulated; child labor law amended; heavy loads prohibited; workmen's compensation act amended; workmen's compensation commission absorbed by department of labor; Federal rehabilitation act accepted; centralized labor department created; civil service law enacted.

*Rhode Island.* Wage payment law amended; night work commission created; employment preference created on public works; child labor law amended; factory regulations amended; certain reports no longer required. (Special session.) Unemployment relief law passed.

*South Carolina.* Preference for residents created in highway work. (Special session.) No labor laws enacted.

*South Dakota.* Threshers' lien law amended; cash payment required in minimum wage law; minimum wage law amended; workmen's compensation act amended and supplemented; powers and staff of child welfare commission extended; Secretary of Agriculture instructed to enforce certain labor laws.

*Tennessee.* Committee created to investigate labor conditions; coal donated for unemployed; unemployment committee created; insurance companies permitted to create pension plans for their employees.

*Texas.* Wage standards authorized for public works contracts; employment preference created on public works; workmen's compensation law amended; group insurance regulated.

*Utah.* Lien law amended; committee created to plan public works relief programme; passage of reclamation fund bill urged as relief measure; passage of drainage bill urged as relief measure; accident compensation for militia men revised; medical and hospital service provided for injured miners, continuation of Federal maternity aid urged.

*Vermont.* Free employment offices authorized in certain cities; employment preference created on highway work; child labor law amended; factory regulations extended; paint labelling law amended; workmen's compensation law amended; workmen's compensation benefits, etc., exempt from income tax, enforcement of paint labelling law transferred to commissioner of industries.

*Washington.* Electrical safety law amended; manufacture of explosives regulated, merit rating revised; workmen's compensation act amended; appeal from labor department orders revised; rule power under electrical code transferred to director of labor and industries.

*West Virginia.* Emergency road work authorized and employment preference created; action for wrongful death revised; medical care authorized for injured troopers; old age pension law enacted; health department co-operation with Federal government authorized.

*Wisconsin.* Wage payment act amended; wage deductions regulated; lien law amended; collective bargaining legalized and protected; unanimous jury findings required in certain contempt cases; prevailing wage rate laws enacted; women's hour law amended; prevailing hours required in public contracts; certain Sunday work forbidden; five-day week for public employees urged; vacation for public employees revised; emergency relief programme undertaken; adequate Federal relief programme urged; preference created for Wisconsin products; commission on unemployment insurance created; Federal unemployment insurance urged; unemployed excepted from certain relief regulations; full crew law extended; railroad safety law amended; industrial commission act extended; personal injury actions revised; workmen's compensation act amended; old age pension law amended; investigation services created in certain counties; group insurance law extended; industrial commission directed to collect wage claims; civil service act amended; destruction of certain records authorized.

*Wyoming.* Contractors' bonding law amended; employees protected as voters, etc.; hour law for miners and

smelters strengthened; hour law for public works strengthened; preference created for State products; mine safety law amended; workmen's compensation act amended; old age pension expenditures increased.

*United States.* Confiscation of pay forbidden; naturalization act amended; prevailing wage rate law enacted; Saturday half-holiday granted certain public employees; immigration service employees granted overtime pay; public works appropriations allowed; public works expedited; advance planning law enacted; appropriation for advance planning; rehabilitation act extended to Porto Rico; canal employees' retirement law enacted; organic act of Porto Rico amended to establish independent labor department.

See MEXICO under *History* for new labor code.

**LABOR LEGISLATION, AMERICAN ASSOCIATION FOR.** Founded in 1906, this membership organization of socially-minded economists, lawyers, journalists, labor leaders, and employers has worked along scientific lines, fearlessly attacking needless industrial evils from the general welfare viewpoint. It continues its work as the American arm of the International Association for Social Progress formed by the fusion of the three international organizations for labor legislation, unemployment, and social insurance. See SOCIAL PROGRESS, INTERNATIONAL ASSOCIATION FOR. Progress of the Association was recorded in its substantial quarterly, the *American Labor Legislation Review*, the December, 1931, issue of which contained a convenient annual summary and index of all new labor laws enacted in the United States. A cumulative index to the preceding 20 volumes of this *Review* was also published during the year.

The continuance of business depression during the year brought renewed interest in the Association's unemployment programme. As in 1915 and 1921 a country-wide unemployment survey was made in 1930 and standard recommendations concerning emergency relief measures, public employment agencies, long-range planning of public works, stabilization, and unemployment insurance were stressed. After consultation with representative authorities throughout the country an unemployment insurance bill was drafted which the Association called "An American Plan for Unemployment Reserve Funds" and which was carefully framed to meet the special conditions of American industrial life.

The twenty-fifth annual meeting was at Washington, December 28-30, several sessions being held jointly with the American Economic Association, the American Political Science Association, and the American Statistical Association.

The president in 1931 was Ernest G. Draper, the secretary John B. Andrews, with headquarters at 131 East 23d Street, New York City. See LABOR LEGISLATION.

**LABOR UNIONS.** See TRADE UNIONS.

**LABRADOR,** lăb-ră-dôr. A large peninsula of British North America, lying between the Atlantic Ocean and Hudson Bay and forming the easternmost part of the North American Continent. The Atlantic watershed of the peninsula, a large part of which was claimed by Quebec, was awarded to Newfoundland by the Privy Council in 1927. The remainder comprises part of Quebec. The population of the section attached to Newfoundland was 4163 in 1929 (2228 males). Fishing and lumbering are the chief industries. An aerial hydrographic survey of the Labrador Coast from Cartwright to the northernmost point at Cape Chidley was made under the supervision of Sir Wilfred Grenfell in 1931. Approximately half of the sledge dogs of Labrador were exterminated

during the year by an epidemic of fever, which originated in wild animals. See NEWFOUNDLAND.

**LABUAN.** See STRAITS SETTLEMENTS.

**LACEY, THOMAS ALEXANDER.** A British clergyman, died in London, Dec. 7, 1931. Born in Nottingham in 1853, he studied at Balliol College, Oxford, and was ordained in the Church of England in 1876. After acting as assistant master at Wakefield Grammar School and Denstone College, he was made vicar of Madingley, Cambridge, in 1894 and chaplain and warden of the London Diocesan Penitentiary at Highgate in 1903, holding the latter appointment until 1919. He was appointed Canon of Worcester in 1918, and from 1922 to 1929 was proctor in convocation of the diocese of Worcester. Among his works are: *Liturgical Interpolations* (1898); *The Anglo-Catholic Faith* (1926); *Authority in the Church* (1928); and *The Reformation and the People* (1929).

**LACROSSE.** St. John's College of Annapolis, Md., had the best lacrosse team in the United States in 1931, winning the intercollegiate championship by defeating all opponents and then going on to capture the Lally Cup, the most prized trophy of the lacrosse season, from an all-Canada team. The State of Maryland remained in absolute control of the game, the best teams representing colleges from that State. Maryland, St. Johns, Johns Hopkins, and the U. S. Naval Academy were supreme, and only Army and Rutgers also succeeded in placing men on the all-American team, that was made up almost exclusively of Maryland men. Professional box lacrosse was organized during the season in Canada and in 1932 the league was to have teams in the United States. This is a slightly faster game and has become the national game of Australia.

**LAFAYETTE COLLEGE.** An institution for the higher education of men in Easton, Pa., founded in 1826. The registration in the autumn of 1931 was 994, the enrollment being restricted to 1000. The faculty numbered 100. The productive funds amounted to \$3,510,197, on July 1, 1931, and the income for the previous year was \$600,598. The number of volumes in the library was 80,000. The Leslie Freeman Gates Memorial Dormitory was completed during the year. President, William Mather Lewis, A.M., LL.D., Litt.D.

**LAKE TSANA,** or TANA. See ETHIOPIA under History.

**LAMBETH CONFERENCE.** See ENGLAND, CHURCH OF.

**LAMBS.** See LIVESTOCK.

**LAND CLASSIFICATION.** See SOILS.

**LANDESITE.** See MINERALOGY.

**LANDS, PUBLIC.** The Commissioner of the U. S. General Land Office, in his annual report for the fiscal year ended June 30, 1931, stated that 5,218,627 acres were embraced in original entries allowed for the fiscal year. The demand for homes thus indicated had apparently no relation to economic conditions, for in 1926, a year of general prosperity, only 3,243,446 acres of public lands were embraced in original entries. During the continuance of prosperity the amount was increased to 3,594,834 acres in 1927; to 3,726,421 acres in 1928; and during the hectic period of 1929 the land entered was 4,612,722 acres, but after the stock market collapse in 1929, and the resulting depression the acreage for the year 1930 arose to 5,434,550 acres. Final homestead entries to the number of 6199 were approved and pat-

ented. The additional amounts made available for the year 1931 for fighting forest fires were the means of a more efficient distribution of the fire prevention forces. Notwithstanding the low price of oil the receipts under the mineral leasing act were \$3,531,655.05, of which the largest amount was obtained from mineral lands in Wyoming, \$2,184,422.88. California was the second State in the amount of receipts with \$870,453.58. The total expenditures for the conduct of business of the General Land Office, including expenses of the district land offices, amounted to \$2,158,159.80 as against \$2,222,785 spent for the same purposes during the year 1930.

There were added to national forests from the public domain approximately 198,450 acres and 2000 acres excluded from such reservations were restored. On June 30, 1931, there were 151 national forests embracing 185,251,582 acres, of which something over 85 per cent is public land of the United States. Eighty-nine hydro-electric power project applications were transmitted to the General Land Office by the Federal Water Power Commission, involving public lands and lands within national forests in 12 States and the Territory of Alaska. There were withdrawn during the year 1931 under the Federal Water Power Act 35,644 acres, and prior thereto 2,064,876 acres. Executive or Departmental withdrawals placed in reservation 6,964,797.32 acres. The restoration from previous withdrawals total 4,920,363.64 acres. Allotments to Indians not residing upon reservations numbered 1684 and 384 patents were issued on cases of this character. Applications in 2396 cases for fee and trust patents for the benefit of Indians were adjudicated and 1172 fee and 188 trust patents issued.

Patents, with the reservation of all minerals to the United States, were issued on 2462 final stock-raising homestead entries for 1,051,593.21 acres. Prior to July 1, 1931, 60,071 such final stock-raising homestead entries had been passed to patent for an area of 22,341,253.90 acres, including those during the year. Patents have issued with the reservations of all minerals, or some particular minerals, to the extent of 34,610,838.20 acres. The vacant lands subject to all applicable public land laws on June 30, 1931, were 177,101,551 acres. Of this area 127,265,885 acres were surveyed and (estimated) 49,835,666 acres unsurveyed. The foregoing did not include any public land situated in the Territory of Alaska or embraced in an Indian reservation, a national forest or park, or withdrawn for stock driveway or other public purposes.

**LAND USE CONFERENCE.** See AGRICULTURE.

**LAND UTILIZATION.** See SOILS.

**LANE-POOLE, STANLEY.** A British Orientalist, archæologist, and historian, died Dec. 29, 1931, in London where he was born Dec. 18, 1854. Educated at the universities of Oxford and Dublin, he was connected with the coin department of the British Museum from 1874 to 1892. During this period he prepared a fourteen-volume catalogue on the Oriental and Indian coins in the museum. He also was sent on important archæological missions to Egypt (1883) and Russia (1886), and in 1895-97 was employed by the Egyptian government in research at Cairo. From 1898 to 1904 he was professor of Arabic at Trinity College, Dublin, and was also during 1901-02 secretary of the council of the Royal Irish Academy and examiner in Arabic to the



University of Wales. Among his many works are biographies of his great-uncle, Edward William Lane, the Orientalist (1877); Lord Stratford de Redcliffe (1888); Sir G. F. Bowen (1889); Aurangzib (1892); Saladin (1898); and Babur (1899). Also numerous histories, such as *The Moors in Spain* (1887); *Turkey* (1888); *The Barbary Corsairs* (1890); *The Mogul Emperors* (1892); *The Mohammedan Dynasties* (1893); *Egypt in the Middle Ages* (1901); *The Story of Cairo* (1902); *Medieval India* (1902); *Islam* (1903); *Medieval India from Contemporary Sources* (1916); and *A Short History of India in the Middle Ages* (1917).

**LANGUAGE STUDIES.** See PHILOLOGY, MODERN.

**LAOS.** See FRENCH INDO-CHINA.

**LAPUAN MOVEMENT.** See FINLAND under History.

**LATIN AMERICA.** See articles on the various countries of the Caribbean, Central America, and South America; also PAN AMERICAN UNION; UNITED STATES and SPAIN under History, etc.

**LATIN STUDIES.** See PHILOLOGY, CLASSICAL.

**LATTER-DAY SAINTS, CHURCH OF JESUS CHRIST OF.** A religious body commonly known as the Mormon Church, existing chiefly in the United States. It was organized Apr. 6, 1830, at Fayette, N. Y., by Joseph Smith to whom is credited by his followers the discovery, through divine revelation, of a set of metal plates, buried in a hill, from which by a special power received from God he translated the text of the Book of Mormon, the special sacred book of the church. The Mormon articles of faith include belief in God, Jesus Christ, and the Holy Ghost as individual beings, the punishment of men for their own sins, the atonement, divine authority, baptism, laying on of hands, prophecy, salvation for the dead, the Bible "as far as it is translated correctly," the Doctrine and Covenant, the *Pearl of Great Price* which contains instructions claimed to have been received divinely by Joseph Smith, the common virtues, and obedience to constituted authorities.

The administrative divisions of the church are known as the general, stake, ward, branch, and mission. A stake is a geographical division and comprises wards and branches, and is directed by a presidency of three. A ward is frequently a part of a city, and is directed by a bishop and two counselors. The branch, similar to the ward, is directed by an elder. In 1931 the church consisted of 104 stakes, 926 wards, and 74 independent branches. The estimated membership was 671,223. There were 13 missions in America with a membership of approximately 92,751; the missions in Europe had a membership of 28,781 and those in the Pacific Islands of 15,473. A mission is directed by a mission president. In 1931, 2084 missionaries were at work in various countries, 1110 being outside the United States.

The general authorities who have jurisdiction over the entire church are the First Presidency, the Quorum of the Twelve Apostles, the Presiding Patriarch, the First Council of Seventy, and the Presiding Bishopric. In 1931 these authorities were: First Presidency: Heber J. Grant, president; Anthony W. Ivins, first counselor; Charles W. Nibley, second counselor. Quorum of the Twelve Apostles: Rudger Clawson, president, and Reed Smoot, George Albert Smith, George F. Richards, David O. McKay, Joseph Fielding

Smith, James E. Talmage, Stephen L. Richards, Richard R. Lyman, Melvin J. Ballard, John A. Widtsoe, and Joseph F. Merrill, apostles. Presiding Patriarch: Hyrum G. Smith. First Council of Seventy: Brigham H. Roberts, J. Golden Kimball, Rulon S. Wells, Joseph W. McMurrin, Charles H. Hart, Levi Edgar Young, and Antoine R. Ivins. Presiding Bishopric: Sylvester Q. Cannon, presiding bishop; David A. Smith, first counselor; and John Wells, second counselor.

The church maintains seven temples which are devoted to sacred ordinances for the living and the dead, such as baptisms, endowments, and marriages. It also maintains Brigham Young University (q.v.) at Provo, Utah, five junior colleges, three collegiate institutes, one high school, and 80 seminaries, small schools adjoining high schools and providing special religious instruction. The Sunday schools in 1931 had an enrollment of 258,429 pupils and 26,661 officers and teachers. Junior seminaries had an enrollment of 12,984.

**LATTER-DAY SAINTS, REORGANIZED CHURCH OF JESUS CHRIST OF.** After the death of Joseph Smith in 1844, several factions developed among the Latter-day Saints. In 1852, in Wisconsin, one of these scattered congregations effected a partial reorganization, which was completed in 1860 under the name of "Reorganized Church of Jesus Christ of Latter-Day Saints."

In 1931 the church reported a membership of 110,482, which included members throughout the United States and in Canada, Great Britain, Australia, Germany, Isle of Pines, Holland, Switzerland, Norway, Sweden, Palestine, South Sea Islands, Hawaii, and New Zealand. There were 745 churches, 7000 ministers, and 730 Sunday schools with 45,000 pupils. The church also maintained Graceland College in Lamoni, Iowa, and the Institute of Arts and Sciences, home for the aged, and the Independence Sanitarium in Independence, Mo. The official periodical, the *Saints' Herald*, is issued weekly. Headquarters are in Independence, Mo.

**LATVIA.** A Baltic republic formed from territories of the former Russian Empire on Nov. 18, 1918; bounded by Estonia on the north, the Soviet Union on the east, and Lithuania and Poland on the south. Capital, Riga.

**AREA AND POPULATION.** The total area, excluding inland lakes, is approximately 24,440 square miles. The population at the census of 1930 was 1,900,045 (including 56,168 foreigners), as compared with 1,844,805 at the census of 1925. Letts comprised 73.4 per cent of the Latvian citizens, Russians 12.52 per cent, Jews 4.97 per cent, Germans 3.12 per cent, Poles 1.36 per cent, and Lithuanians, Estonians, and others the remainder. The birth rate per 1000 of population in 1929 was 18.77 and the death rate 15.01. The chief cities, with the census population in 1930, were: Riga, 377,917; Liepāja (Libau), 57,238.

**EDUCATION.** Each national minority has the right to its own schools, with its own language of instruction. In 1929-30, there were 1944 elementary schools, with 172,702 pupils; all except 127 schools were supported by the state or municipalities. In the 138 secondary schools (79 state or municipal) there were 22,876 pupils. Besides the University of Latvia at Riga, with 8284 students in 1929-30, there were a number of technical professional and art schools.

**PRODUCTION.** While agriculture is still the primary industry, manufacturing has made rapid



gains. About 55 per cent of the total area, or 8,118,000 acres, was under cultivation in 1929, and 29.2 per cent was under forest. Livestock in 1929 included 975,100 cattle, 899,900 sheep, 359,600 horses, and 387,700 swine. The principal crops are cereals, potatoes, and flax.

Ranked in order of the number of employees, the chief industries at the beginning of 1930 were: Woodworking, 13,980 employees; metallurgical, 11,485; textile, 10,100; chemical, 5410. Exports of wood and wood products in 1930 amounted to \$14,984,000 (preliminary), compared with \$16,656,000 in 1929. Mineral resources are relatively unimportant.

**COMMERCE.** Latvian foreign trade showed a marked decline in 1930. Exports declined to 247,600,000 lats (about \$47,800,000) from 273,800,000 lats (about \$52,900,000) in 1929 and imports fell even more sharply to 296,100,000 lats (about \$57,200,000) from 362,100,000 lats (about \$69,900,000) in 1929. The unfavorable balance of trade was 48,500,000 lats in 1930, compared with 88,300,000 lats in the previous year. In 1931, according to preliminary figures, imports amounted to 177,000,000 lats and exports to 164,000,000 lats.

**FINANCE.** The budget for the fiscal year ended Mar. 31, 1931, was estimated to balance at 178,299,000 lats (about \$34,412,000). Preliminary actual returns indicated a surplus of about \$578,000. In the previous year (1929-30) the budget estimates balanced at 186,491,721 lats and the closed account showed an actual surplus of 11,764,000 lats. The national debt on Apr. 30, 1930, consisted of \$5,475,000 borrowed in the United States, £2,000,000 borrowed in Great Britain, and an internal debt of 722,000 lats. As a result of the drain on the gold reserve caused by the European financial crisis of 1931, the Bank of Latvia on October 8 was given complete control of transactions in foreign exchange. Dealing in futures was prohibited. The 1931-32 budget, as revised by Parliament Dec. 30, 1931, reduced expenditures to 154,200,000 lats and the anticipated revenues to 126,500,000 lats. The budget balanced originally at 177,800,000 lats.

**COMMUNICATIONS.** On Jan. 1, 1930, Latvia had 1759 miles of railway lines, of which 1005 miles were of the Russian gauge and 282 miles of normal gauge. Highways in 1930 extended 22,796 miles, of which about 674 miles were macadamized. The navigable inland waterways total about 1829 miles and carry about 1,500,000 tons of goods annually.

**GOVERNMENT.** Under the constitution adopted by the constituent assembly, Feb. 15, 1922, executive power is vested in a president, elected by Parliament for three years; and legislative power in the Saeima, or Parliament, comprising 100 members elected for three years, by universal direct suffrage (men and women), on the basis of proportional representation. President in 1931, Albert Kviesis (Agrarian), elected Apr. 9, 1930. Prime Minister at the beginning of 1931, Hugo Celmins, appointed Nov. 30, 1928.

**HISTORY.** Two new Cabinets were formed in Latvia during 1931. The Celmins Ministry, an Agrarian-Conservative coalition which had been in power for two years, resigned in March and on March 24 a new Ministry was formed under Karl Ulmanis, a former instructor in the State University of Nebraska, who had served five times as Prime Minister of Latvia. The new Prime Minister also held the portfolio of Foreign Affairs. Premier Ulmanis resigned on November 3, fol-

lowing elections to the Latvian Parliament of October 3-4, which showed a strong trend toward conservatism. The parties of the Centre and Right emerged with 55 out of the 100 seats in Parliament. The Ulmanis Cabinet submitted its resignation at the first meeting of the new Parliament, when the Agrarians proposed the formation of a government by the bourgeois groups. It was not until Dec. 5, 1931, that a new Ministry was formed under Margers Skujenieks, leader of the Reform Social Democratic party, supported by a coalition of agrarian and bourgeois groups.

A compact was signed between the Foreign Ministers of Latvia and Estonia on May 5, after negotiations at Riga. It provided for close coöperation of the two governments at the 1932 Disarmament Conference and in the promotion of certain agricultural exports. A joint steamship line was to be considered. No final agreement was reached on the much-discussed trade pact of 1928 or on the question of a tariff union. Negotiations on these problems were to continue. The Ulmanis Government in April was reported to have guaranteed credits for Soviet purchases in Latvia. Consult Malbone W. Graham, "Stability in the Baltic States," *Foreign Policy Reports*, May 27, 1931, vol. vii, no. 6.

**LAURA SPELLMAN ROCKEFELLER MEMORIAL.** See ROCKEFELLER FOUNDATION.

**LAVAL,** PREMIER, VISIT TO UNITED STATES. See UNITED STATES under *Administration*, and FRANCE under *History*.

**LAVONGAI.** See BISMARCK ARCHIPELAGO.

**LAW,** INTERNATIONAL. See INTERNATIONAL LAW.

**LAW, PROGRESS AND DEVELOPMENTS. LEGISLATIVE.** From the standpoint of comparative law, the most important piece of the year's legislation was probably the new Spanish republican constitution which replaced the monarchical and reactionary one of 1876. See SPAIN under *History*.

The Statute of Westminster, recognizing the legislative autonomy of the British Dominions, having passed the House of Commons by a vote of 350 to 50, was accepted by the Lords without amendment and received the royal assent early in December. The Statute was a formal expression of the fundamental agreements arrived at during the Imperial Conference of 1926 and 1930 and promises to rank as a landmark in British constitutional law, of hardly, if any, less importance than the famous Magna Carta. See GREAT BRITAIN under *History*.

The New York electorate displayed not a little discrimination in passing upon six proposed amendments to the State Constitution, viz., (1) Utilizing the Federal census in forming new legislative districts; (2) Rendering members of the legislature eligible, during their terms, to other offices and thus reviving an ancient evil; (3) Providing for the purchase of waste land for reforestation; (4) Creation of a new judicial district on Long Island; (5) Substituting "Social Welfare" for "Charities" in the title of the State department of that name; (6) Enabling Westchester County to establish its own assessment system. Amendments 1, 3, and 5 were carried although Amendment No. 3 was actively opposed by former Governor Smith and involved an eventual outlay, for posterity's benefit, of over \$19,000,000, which the legislature is required to appropriate by installments. Others were rejected and the result was hailed as a vindication of the voter as a legislator. See NEW YORK.

The new Yugoslavian electoral law was applied for the first time on November 8. The anti-government party charged that the law discriminated against it and generally refrained from voting. See YUGOSLAVIA under *History*.

**EDUCATION.** State legislatures in the United States generally grappled with the mounting costs of public instruction. A typical instance was that of North Carolina where the General Assembly took the schools out of local financial control and support, increased the school revenues and instituted drastic economies; but restricted to funds actually available the operating budget for the six months' period of school sessions for the year. To an extraordinary session of the Tennessee legislature, convened on November 16, Governor Horton announced that some schools had already closed for lack of funds and that "many others" would be forced to close unless financed speedily. The Nebraska legislature, which greatly reduced the budget offered by the State university authorities, passed an act authorizing the establishment of junior colleges, with a two-year curriculum, in any district having 200 high school pupils and property of the assessed value of \$5,000,000.

The bill, pending in Congress for over a decade, to create a Federal Department of Education, again failed to pass the committee stage; but on November 14 the National Advisory Committee on Education, submitted its report to the President, recommending a "Federal Headquarters for Education" in the form of a government department with a Secretary of Education in the cabinet but limited to research, fact-finding and the diffusion of information calculated to promote cooperation with and among the States in educational affairs and the coordination of Federal educational agencies. The present Office of Education was recommended as a nucleus.

**LABOR.** Legislation prohibiting, as contrary to public policy, "yellow dog" clauses—i.e., those by which each party to a contract of employment agrees not to join a union or association—was enacted in Arizona, Colorado, Ohio, and Oregon. In Massachusetts, the passage of a similar act was averted by an advisory opinion (171 N. E. 234) to the effect that it would be unconstitutional. A similar opinion of the Indiana Attorney General caused the Governor of that State to veto the measure which the legislature had passed; after which the lower house, but not the upper, repassed it over the veto. See **LABOR LEGISLATION**.

**MARITAL STATUS.** By a vote of 169 to 153, the Spanish National Assembly, on October 16, took the revolutionary step of authorizing the dissolution of marriage upon "just grounds" at the instance of either party and on equal terms. At least since the sixth century Spain had been under Canon law which treats marriage as indissoluble save by death. What was there known as "divorcio" was really nothing more than separation (the "limited divorce" of American jurisprudence) although it might include either persons or property or both. The new provision therefore completely reversed the prior situation and on November 18 the Papal Nuncio lodged a protest from the Vatican. Similar measures were under consideration during the year in Bolivia, Philippines and Trinidad. In Bolivia, the proposed law was adopted in the Chamber of Deputies by a large majority in November; but it was expected that the conservative Senate would postpone action until the next session. In the Philippines, the Roman Catholic Archbishop of Manila

issued a pronouncement against the pending measures on September 21. In Trinidad, where the government had been pressing the proposed legislation for some time, the Roman Catholic Archbishop likewise protested and was supported by Venezuelan priests, the Anglican Bishop, and Hindu pundits. The measure was nevertheless adopted. Approximately three-fourths of the American State legislatures considered changes in matrimonial legislation and one result was a trend toward devices like those of the Council of Trent to prevent hasty marriages. Colorado, Idaho, Iowa, Minnesota, Ohio, and Wyoming enacted laws requiring a five-day interval between the application for, and the issuance of, a license. In Idaho the latter must also be issued within 30 days after the former and in Delaware must contain a certificate as to the applicant's marital status. In Spain, the new constitution left the detailed grounds of divorce to future legislation. American State legislatures appeared disposed to extend the grounds and even to render possible divorce by mutual consent. Since 1916 an act of the Louisiana legislature has permitted either of the spouses, who have lived apart for seven years, to obtain a divorce. Thus by agreeing so to live apart such spouses become divorced by mutual consent. A similar statute, though reducing the period to five years, was enacted in 1931 in Arizona, Nevada, and North Carolina, though the last named limited its application to marriages where there are neither children nor property, while in Nevada the rendition of such a decree is made discretionary with the court and a default decree in any case is amendable if the defendant subsequently appears. A Vermont statute of the year authorizes a two-year resident to be divorced from an insane spouse, confined for five years. A tendency to shorten the residential period required of the applicant was also manifest, due perhaps to the competition of Cuba (now a signatory of the Pan-American Code, which the United States recognizes) and certain Mexican states. The Nevada legislature reduced the time to six weeks though corroborative evidence of intention is required. A 90-day period was adopted in Arkansas and Idaho, but in the former a petition for a referendum, to be taken at the general election of 1932, was presented but on November 23 was declared insufficient by five of the seven Supreme Court judges. See **MARRIAGE AND DIVORCE**.

**NATIONALITY.** Public Act 829 of the Seventy-first Congress authorizes American women who have married aliens ineligible to citizenship, or who have lost theirs by subsequent residence abroad, to repatriate themselves by registration at the consulate, thus ending a hardship resulting from the Cable Act of 1922, which left them permanently aliens under such circumstances. Public Act 683 requires the deportation of aliens under sentence for unlawfully vending narcotics.

**PROCEDURE.** Public Act 862 authorizes the United States to be made a party to Federal district court proceedings involving property in which the Government may have an interest. This is a step beyond the Court of Claims Act by which the United States consents to be sued there only. Meanwhile the Supreme Court held (*Russian Volunteer Fleet v. U. S.*, 51 Sup. Ct. Rep., 129) that the plaintiff there was an "alien friend" and entitled to sue in that court. Public Act 548 authorizes prosecution by complaint or information (instead of Grand Jury indictment) of all those

accused of offenses (those under the Volstead Act evidently intended) penalized by imprisonment not over six months or fine not over \$500 or both. Bills to authorize trials of such and similar offenses without a jury failed of passage in Congress. The Supreme Court, meanwhile, held (*Dist. of Col. v. Colts*, 51 Sup. Ct. Rep., 52) that even one charged with reckless driving of an automobile was entitled to a jury trial in the District of Columbia. The same tribunal, on the other hand, held inoperative in the Federal courts a State constitutional requirement that the defense of contributory negligence or assumption of risk should always be left to the jury (*Herron v. So. Pac. R. Co.*, 51 Sup. Ct. Rep., 383), and the Illinois Supreme Court held unconstitutional a century and a quarter old statute making jurors "judges of the law and the fact"; on the main ground that the jury trial guaranteed by the State's constitution was by a common law jury which, in the court's view, passed on the facts only. (*People v. Bruner*, 343 Ill. 146.)

A bill passed by the Nebraska legislature, requiring the Supreme Court to file written opinions in deciding all questions, was vetoed by Governor Bryan, who, although not a lawyer, thus agreed, perhaps unconsciously, with the California Supreme Court which as long ago as 1859 (*Houston v. Williams*, 13 Cal. 24) held such a statute unconstitutional as infringing the judicial prerogative.

**PROFESSIONAL QUALIFICATIONS AND STANDARDS.** An act of the New York legislature, admitting to practice in the courts of that State, without examination, former U. S. Attorney-General Sargent, was vetoed by Governor Roosevelt, on the ground that all requirements to that end should be equal and uniform. On December 17, the Supreme Court of Illinois disbarred John J. Gorman for his attack on Prof. David S. Muzzey of Columbia University, as an alleged "propagandist for Great Britain" in his textbook of American history. The attack was made in the course of a proceeding conducted by the former as corporation counsel under Mayor William Hale Thompson of Chicago. After Professor Muzzey instituted an action for libel against Gorman, the latter made a formal apology and the Chicago Bar Association thereupon initiated the disbarment proceedings. An act of the Indiana legislature gives the State Supreme Court "exclusive jurisdiction to admit attorneys under such rules and regulations as it may prescribe"; thereby providing a way of escape from an early constitutional provision which, in practice, has proved unamendable, fixing no other qualifications than a citizenship and good moral character.

The Wisconsin legislature passed an act (No. 93A) reinstating a suspended lawyer whose application for reinstatement by the Supreme Court of the State was then pending. Governor LaFollette, in approving the act, wrote a lengthy message upholding the legislature's power to pass it. In contrast was the Oklahoma Supreme Court's decision on April 21 sustaining the act incorporating the bar and giving it jurisdiction over the admission and disbarment of members.

**PUBLIC UTILITIES.** The Kansas legislature followed the lead of Massachusetts and New York in enacting a stringent law regulating gas and electric light companies. It forbids payment for service "without an itemized showing by the operating company of the actual cost," or the acquisition by a foreign company of "a local operating unit" without submitting to the public service

commission's jurisdiction and agreeing to keep it informed of all transactions between the two.

**REAPPORTIONMENT.** The Congressional Act of 1929, reapportioning representatives among the several States, led to many complications in those whose representation was reduced, especially where the governor and the legislature were politically opposed. In Massachusetts and Nebraska, under such a situation, the two finally came together. In New York the legislature ignored the governor and attempted reapportionment by joint resolution. This was declared inoperative by Supreme Court Justice Staley (*Koenig et al. v. Secretary of State*, November 7) whose decision is to be reviewed by the Court of Appeals. A somewhat similar situation exists in Minnesota where the State Supreme Court, on October 9, reversed an order of the district court, declaring invalid a reapportionment act which had been vetoed by the Governor and not repassed and was alleged to be "so arbitrary and unfair as to violate the provisions" of the Federal laws and Constitution. (*State v. Holm*, 238 N. W. Rep., 494.) The case was in the course of presentation to the Federal Supreme Court. In Illinois the reapportionment was pronounced unconstitutional by a *vis prius* court, on the ground of inequality in the populations of the new districts. In Missouri, the State Legislature adjourned without making a reapportionment, so that, unless a special session is called before the 1932 election, all of the representatives from that State will be chosen at large. Such a session of the Wisconsin legislature was called for November 24.

**JUDICIAL.** The Permanent Court of International Justice on February 21, promulgated amendments to 18 of its 75 rules of procedure. Among the more important changes are the commencement of ordinary sessions on February 1, instead of June 15, of each year, empowering the President of the Court to call it in extra session "whenever he thinks it desirable," requiring the judges to appear at all sessions unless on leave or prevented unavoidably, as by illness, and giving "interim measures of protection priority over all other cases." See WORLD COURT.

**THE SUPREME COURT OF THE UNITED STATES.** A number of notable decisions were rendered in 1931.

**Aeronautics.** An airplane is not a "vehicle" within the meaning of a Federal statute penalizing interstate transportation thereof, according to the opinion in *McBoyle v. U. S.*, 51 Sup. Ct. Rep., 340, which doubtless will be included in the proposed "Uniform Aeronautical Code" drafted by a committee of the American Bar Association.

**Income Tax.** On November 30, a majority of the Federal Supreme Court, in *Hooper v. Wisconsin Tax Commission*, declared unconstitutional as "contrary to due processes of law" a State statute requiring a husband to return, and pay tax on, the combined income of himself and wife. Justice Holmes wrote a dissenting opinion, in which Justices Brandeis and Stone concurred, holding it competent for the legislature to treat all of the wife's property, as at common law, as belonging to the husband.

**Indians.** Under the decision in *U. S. v. Equitable Trust Co.*, 51 Sup. Ct. Rep., 639 the property of Indians, notwithstanding the statutory restrictions upon its alienation, is subject to claims for legal services in protecting it, although rendered for one under guardianship.

**Interstate Litigation.** The clause in the original Federal Constitution (III, 2) extending the

judicial power "to controversies between two or more States" appears to have been availed of to an unusual extent during the year, though all of the cases noted relate to interstate waters. Relief in two was denied for failure to show a serious and presently threatened injury (*Connecticut v. Massachusetts*, 51 Sup. Ct. Rep., 286, Connecticut River; *Arizona v. California* Id., 522, Boulder Dam). In the latter case the Court took judicial notice that the Colorado "south of Black Canyon was formerly navigable." Again it was announced (*New Jersey v. New York*, 51 Id., 478) that a more liberal rule must be applied to such waters as those between States than to private riparian owners. "A river," said Justice Holmes, "is more than an amenity; it is a treasure." Hence a division of waters considered equitable was ordered but New York was enjoined from using daily more than 440,000,000 gallons from the Delaware. In *New Jersey v. New York City*, Id., 519, defendant was enjoined from dumping its garbage into the Atlantic Ocean, off plaintiff's coast. The case of *Vermont v. New Hampshire*, which, though a boundary dispute, likewise involves the Connecticut River, was referred to Edward F. Trabue, Esq., to take evidence. Upon his report the decision will probably be rendered.

**Naturalization.** Among the most widely discussed decisions of the year were *U. S. v. Macintosh*, 51 Sup. Ct. Rep., 570, and *U. S. v. Bland*, Id. 569, in both of which, by a bare majority, the Court denied naturalization to Canadians who were ready to take the oath of allegiance to the Constitution, but to take up arms for the United States only in a just war. The first named defendant was a Baptist minister and a professor in the Yale Divinity School; the second was a war nurse in France working among American soldiers. The Chief Justice and Justices Holmes, Brandeis, and Stone dissented, and there was much criticism of the decision, not only in the public press but in technical periodicals. (See, e.g., *Am. Bar Ass'n. Journal*, XVII, 551) President Charles A. Boston, in his annual address before that association, pointed out the exemption of conscientious objectors in the early constitutions.

**Police Power.** Another group of hotly contested cases involved, in part at least, the exercise of police power. In *State Board v. Jackson*, 51 Sup. Ct. Rep., 540, plaintiff sued to enjoin the enforcement of an act of the Indiana legislature imposing a graduated license tax upon "chain store" owners. The Federal district court granted an injunction on the ground that the act was discriminatory; but the Supreme Court, again by a bare majority, reversed the decree and upheld the statute. This time, however, it was the "liberal" group which prevailed, the dissenters being Justices Sutherland, Van Devanter, McReynolds, and Butler. The same division occurred in *Near v. Minnesota*, Id., 625, where the majority held unconstitutional a State law under which "a malicious, scandalous, and defamatory newspaper" etc. might be declared a nuisance and its publication enjoined. Likewise a conviction under the California "Red Flag Law," penalizing the display of any "sign, symbol or emblem of opposition to organized government," was reversed for repugnance to the Fourteenth Amendment to the Federal Constitution. Justice Butler dissented.

**Radio Law.** In *Jewell-LaSalle Realty Co. v. Buok*, Id., 506, the Court held that the operation of radio apparatus in a hotel, transmitting to its guests, without permission, a copyrighted musical

composition, constituted an infringement. In that connection should be noted the failure in the Senate, during the closing days of the late session, of the "Vestal Copyright Bill" which would have given the United States the full benefit of international legislation on the subject.

**Other Causes Célèbres.** In *U. S. v. Smith*, at the end of the year pending in the District of Columbia Supreme Court, the Senate majority sought to oust George Otis Smith, as chairman of the Federal Power Commission. His nomination, first confirmed on Dec. 20, 1930, was on Jan. 9, 1931, reconsidered by the Senate and on February 4 rejected by a vote of 40 to 33. Meanwhile, on Dec. 22, 1931, he had been commissioned; but a Senate rule permits reconsideration on either of the next two days of executive session and that period had not passed when the commission was issued. Two eminent counsel appear—John W. Davis for the Senate and George Wharton Pepper for the respondent—and the case promised eventually to reach the Federal Supreme Court. See LOUISIANA under *Political and Other Events*.

**The American Law Institute**, a select and endowed organization, chosen from the bench and bar, which meets annually at Washington to consider and pass upon restatement of the law with a view to eventual codification, held its ninth session from May 7-9. Tentative drafts were discussed by the full membership present on the following subjects: Agency, Conflict of Laws (final draft), Contracts, Criminal Law Administration, Property, Torts and Trusts.

**JUDICIAL SELECTIONS.** The disclosures of the Seabury Committee's investigations into the conduct of the New York judiciary drew public attention to the important though complicated subject of the selection of judges. Early in his term President Hoover announced that such selection would be made upon professional, and not upon political, recommendations and that the names of all indorsers would be published in connection with each appointment. No such publication, however, accompanied the nominations of three Americans to be justices of the Philippine Supreme Court nor of Gunnar Nordby to be Judge of the U. S. District Court in Minnesota. The former appear to have been selected, one each, by the Secretaries of State and War and Chairman Bingham of the Senate Philippine Committee, without consulting the Attorney General, and the Senate Judiciary Committee voted not to report them favorably.

The Minnesota judgeship had been recently created by Congress and the State's delegation in that body unanimously recommended for appointment thereto Ernest A. Michel, a lawyer of St. Paul. He was opposed by Attorney General Mitchell from the same State who offered no specific objections to Mr. Michel's character or professional attainments but claimed to have received letters adverse to such appointment, which, however, he declined to show even to Senators. This was declared unfair by Mr. Michel's friends as it left him, they said, under an apparent cloud and without opportunity for defense. They urged the President to give the Senate Judiciary Committee an opportunity to investigate Mr. Michel's qualifications, hearing both sides. To this the Attorney General refused to agree and when the President finally sent in the nomination of Gunnar Nordby, the Judiciary Committee voted not to report it, but after the adjournment of Congress he was

given a recess appointment and the nomination was renewed on December 16.

**JUDICIAL MILESTONES.** On March 8, Justice Holmes of the U. S. Supreme Court, reached the ripe age of ninety, after nearly a half century of judicial service, three-fifths of which have been on the Federal Supreme Court. Under the joint auspices of the *Columbia Law Review* and the *Yale Law Journal*, a commemorative observance of the occasion was conducted by radio, President Boston of the American Bar Association, speaking from New York and Chief Justice Hughes, with Justice Holmes himself, from Washington.

Justice Brandeis, of the U. S. Supreme Court, became 75 on November 13 and while his judicial career of 15 years had been briefer than that of his more venerable colleague, the former's record as a practitioner was much more conspicuous.

See paragraphs on *Legislation* in the articles on the various States of the United States; also *CRIME; ARBITRATION, INTERNATIONAL.*

**LAW ENFORCEMENT COMMISSION'S REPORT.** See *CRIME; CHILD WELFARE; PROHIBITION.*

**LAWN BOWLING.** See *BOWLING.*

**LAWN TENNIS.** See *TENNIS.*

**LAWRANCE, DORSET WILLIAM.** See *D'ORSAY, LAWRANCE.*

**LAWRENCE COLLEGE.** A coeducational institution comprising a college of liberal arts and a conservatory of music in Appleton, Wis., founded in 1846. For the autumn term of 1931 750 students were enrolled in the college and 209 in the conservatory. There were 65 members on the faculty of the college and 20 on the faculty of the conservatory. The endowment, exclusive of buildings and equipment, amounted to \$1,869,920; the income from endowment for 1931 was \$98,139. There were 53,000 volumes in the library exclusive of government documents. President, Henry Merritt Wriston, Ph.D., LL.D.

**LEAD.** Production of lead in 1931 throughout the world was 1,512,155 short tons, compared with 1,833,281 tons in 1930, according to the American Bureau of Metal Statistics.

WORLD LEAD PRODUCTION  
1931

	Short tons
United States .....	430,429
Canada .....	136,628
Mexico .....	242,050
Germany .....	116,307
Italy .....	27,153
Spain and Tunis * .....	96,220
Europe, n. e. a. * .....	199,800
Australia .....	161,463
Burma .....	88,705
Elsewhere * .....	18,400
World's total .....	1,512,155
United States .....	430,429
Elsewhere .....	1,081,726

\* Partial.

† Estimated or partly estimated.

The recoverable lead contained in ore mined in the United States in 1931 was about 397,800 short tons, a decrease of 29 per cent from the output of 558,951 tons in 1930, according to the Bureau of Mines figures. The Western States as a group showed the largest percentage decline in lead production, or 34 per cent. Output in the southeastern Missouri district, the most important lead-producing area in the United States, dropped 21 per cent. The quoted price of lead concentrates at Joplin was \$57.50 a ton for the first

week of 1931. This was the lowest price recorded for 1930 and the highest for 1931. From this point the price receded, with minor fluctuations, to \$30 a ton for the week ending May 16 through the third week in June. It then rose to \$50 a ton in the latter part of August. After September 26, the price tended downward again, with some fluctuations, closing the year at \$37.50 a ton.

The output of refined primary lead from domestic ores was 32 per cent lower than in 1930, and foreign primary output was 24 per cent lower. The total refinery output of primary lead was 31 per cent below 1930, after dropping 17 per cent in 1930, and was the smallest since 1908.

The output of primary domestic desilverized lead in 1931 was about 206,000 tons, of soft lead about 143,000 tons, and of desilverized soft lead about 41,000 tons, making a total output from domestic ores of about 390,000 tons of refined lead. Corresponding figures in 1930 were 326,801 tons of desilverized lead, 201,361 tons of soft lead, and 45,578 tons of desilverized soft lead, making a total of 573,740 tons. The output of lead smelted and refined from foreign ore and bullion was about 53,000 tons, as compared with 69,293 tons in 1930. The total primary lead smelted or refined in the United States in 1931 was thus about 443,000 tons, a decrease of about 31 per cent as compared with the total of 643,033 tons in 1930. The output of primary antimonial lead in 1931 was about 9000 tons, as compared with 13,711 tons in 1930.

The average monthly price for lead at New York (outside market) was 4.80 cents a pound, the high for 1931, during January. It dropped steadily to 3.82 cents in May, rose to 4.40 cents in July and August, and dropped steadily again to a low for the year of 3.80 cents in December, slightly below the price recorded for May.

The output of lead in Canada in 1931 was estimated at 267,850,972 pounds valued at \$7,241,000, as against 333,067,797 pounds valued at \$13,109,451 in 1930, a decrease of 20 per cent in the amount. See *METALLURGY.*

**LEAGUE OF NATIONS.** Two important gatherings were held at Geneva in January, 1931. On the 16th, representatives of 27 European states came together to study the question of European union. A few days later the 62nd session of the League Council was held. The early sessions of the first conference were marked by a heated controversy over whether the Soviet Union should be invited to participate. Italy, supported by Germany and Great Britain, approved the proposal, while France was in opposition. A compromise was finally adopted whereby the Soviet Union, Turkey, and Iceland were to be invited, through the League, to participate in the study of economic questions only.

The Pan-European committee insisted upon the importance of solving the economic problems of Europe. With this end in view, it urged the ratification of the League customs convention, and appointed three committees: (1) the wheat committee, to study means of disposing of future surpluses of Eastern Europe; (2) an agricultural credits committee; (3) a committee on future organization. These committees reported to the second session of the Pan-European conferences held in May.

Although the conference thus emphasized the necessity of solving the economic problems of Europe, it did not neglect the political factor, as indicated by the following resolution:



As a result of our discussions and conversations during the last few days concerning the problems which our governments have respectively to face, it has become plain that economic recovery is now being hindered by a lack of confidence in the course of future events due to widespread political anxiety. That anxiety has been increased by irresponsible talk in various quarters concerning the possibility of an international war.

We recognise that there are political difficulties in Europe at the present time and that these difficulties have been accentuated by the economic instability and unrest which the world economic depression has caused. The best service we can render toward the improvement of the economic position is the firm assurance of European peace.

We therefore declare, as Foreign Ministers or responsible representatives of European states, that we are more resolutely determined than ever to use the machinery of the League of Nations to prevent any resort to violence.

Although the League Council assembled in the midst of gloom, it ended its sessions on January 24 upon a note of optimism. Its most notable act was to rebuke Poland (q.v.) for its treatment of the German minority in Upper Silesia. As a result, Poland agreed to name a new governor of Upper Silesia. The Council also decided to convene the world Disarmament Conference, toward which the Preparatory Commission had been working for five years, at Geneva on Feb. 2, 1932.

The Pan-Europe movement undoubtedly exercised considerable influence in causing the League of Nations to emphasize its universality. The Council authorized the head of the League financial section, Sir Arthur Salter, to help in the reconstruction of China. Sir Arthur was already in India upon a similar task. The Council also appointed a committee containing representatives of Great Britain, France, Germany, Italy, Liberia, Spain, Venezuela, and Poland to study how the recommendations of the Liberia Slavery Commission might be carried out and how financially the public health assistance to this Negro republic might be extended. The United States agreed to participate in the work of the committee. The final indication of the League's universal interests was the fact that Sir Eric Drummond, its Secretary-General, had just completed a tour in Latin America.

The 63rd meeting of the Council held in the last week of May produced a significant result in the unanimous decision to refer the problem of the legality of the Austro-German Customs Union to the Permanent Court of International Justice. It was hoped that the Court would give its advisory opinion before the next meeting of the Council in September and this it did. (See *WORLD COURT*; *GERMANY, FRANCE, and AUSTRIA under History*.) Tension was accordingly relaxed. The Council approved a proposal to defer consideration of a report on the position of German minorities in Polish Silesia and rejected a German proposal that details of war stocks and trained reserves should be included in the information which states should be asked to furnish to the Disarmament Conference. Meetings of the Special Committee for European Federation preceded that of the Council and were notable for the presence of M. Briand, fresh from his Presidential defeat, and for an illuminating speech on the world economic situation from the Soviet delegate, M. Litvinov. He pleaded for support for a pact of economic non-aggression to which he maintained that the Soviet Union would give its full adherence (see *UNION of SOVIET SOCIALIST REPUBLICS under History*).

The German Foreign Minister chaired the Coun-

cil session. Of the 14 members, nine were represented by their Foreign Ministers, namely, Great Britain, Germany, France, Irish Free State, Italy, Norway, Poland, Spain, and Yugoslavia. Arthur Henderson, British Foreign Secretary, was appointed president of the 1932 Disarmament Conference. Other questions dealt with were the protection of minorities in Poland, relations between Poland and Danzig, Polish-Lithuanian relations, and the position of the Memel territory. The Council was able to place on record the formal accession of Great Britain, Australia, India, New Zealand, and France to the General Act for the Pacific Settlement of International Disputes, and the promise of the Italian Government to accede shortly.

The 64th session of the Council opened at Geneva on September 1, with Alejandro Lerroux, Foreign Minister of Spain, as president. The outstanding event was the news that France was preparing to give up her mandate over Syria. The Council approved the recommendations of the Permanent Mandates Commission as to the conditions under which a mandated area might become an independent member of the League and asked the commission to report in January, 1932, as to how far Iraq and Syria had progressed in these respects. The Council also took up the perennial minority troubles between Poland and Germany and Poland and Danzig. In both cases, the atmosphere was cleared somewhat. It was decided to seek advisory opinion from the World Court on the question of whether Polish warships should be allowed to anchor in the harbor of Danzig. The World Court was also asked to give an advisory opinion on the financial relations of Greece and Bulgaria as affected by the Hoover moratorium. See *BULGARIA under History*; *WORLD COURT*.

The 65th Session of the Council, held in Paris, opened on November 16 and continued into December. The agenda included the continuation of the discussion of the appeal of the Chinese Government under Article XI of the Covenant and a request of the French and the British Governments for consideration of the frontier dispute between Iraq and Syria (see *IRAQ under History*).

**THE MANCHURIAN CRISIS.** The Manchurian dispute between China and Japan came before the League Council on September 21, when China invoked Article XI of the League Covenant. Article XI declares "any war or threat of war . . . a matter of concern to the whole League" and authorizes the League to "take any action that may be deemed wise and effectual to safeguard the peace of nations." The Council's effort to restore the *status quo ante* in Manchuria continued, with several intermissions, throughout the remainder of the year, but without success.

Outstanding developments in connection with these negotiations were: Formal support of the Council's efforts by the State Department at Washington (commencing October 9); participation of the American Consul at Geneva in the deliberations of the Council (commencing October 15); the evoking of the Kellogg-Briand Pact by the Council at both Tokyo and Nanking (October 17); the Council's recommendation adopted 13 to 1, the Japanese delegate opposing, for withdrawal of Japanese troops in Manchuria by November 16 (October 24); adoption of the Council's plan to send a neutral commission of inquiry to Manchuria to suggest a basis for the



cessation of hostilities (December 9). The Chinese and Japanese representatives on the Council agreed to the appointment of the neutral commission, with the understanding that it would not participate in Sino-Japanese negotiations for a direct settlement, not interfere with military arrangements of either party. Also see JAPAN under *History*.

**THE TWELFTH ASSEMBLY.** Contrary to custom, M. Titulescu of Rumania was reflected president of the Twelfth Assembly over Count Apponyi of Hungary, the first time that any one had been president of the Assembly twice and the first time that there had been a contest for the position. The 51 nations represented voted unanimously to invite Mexico (q.v.) to become a member of the League, and the invitation was accepted.

The Twelfth Assembly adjourned on September 29 after considering a wide variety of world problems. Following the usual custom, work was divided among committees. Each country had the right to be represented on these committees where every League activity is decided upon after thorough discussion. Usually when the committee reports were presented they were accepted unanimously by the Assembly. The First Committee of the Assembly, under the chairmanship of M. Scialoja of Italy, considered legal problems that arose. Seven major matters were discussed. The committee recommended a procedure to be followed for the progressive codification of international law, profiting from the comparative failure of the codification conference at The Hague in 1930, which proved that the most careful preparation and preliminary study were necessary.

An important problem was the attempt to revise the Covenant of the League in harmony with the Kellogg-Briand pact. The pact was vague and general in its terms, where the Covenant was explicit and definite. Moreover, the Covenant had served fairly well and it was felt that it should be amended only when urgently necessary. On the other hand, most League supporters desired to overcome the weakness in the Covenant which allowed a country to go to war if all other means of settling a dispute had failed. The Assembly accepted the committee's plan for the appointment of a special committee of all members of the League to meet during the 1932 Disarmament Conference to determine a possible agreement.

A committee on the work of the League's technical organizations approved the work of the organization for communications and transit, including its work on the buoyage and lighting of coasts, and the preparations made for the scheduled conference on calendar revision. The organization was asked to give special attention to large public works the world over that might relieve unemployment. The long-talked-of convention to prevent the extinction of whales was adopted by the committee on technical organizations and opened for signature. It becomes effective when ratified by eight states, which must include Great Britain and Norway. Six countries signed immediately.

A third committee concerned with armaments and security considered the "general convention to strengthen the means of preventing war," which outlined in detail how the Council could proceed in case of a crisis. This convention was adopted by the League and was ready for sub-

mission to the nations. An armament truce was proposed by Italy and, in different form, by the Scandinavian countries, in an attempt to establish a friendly and favorable atmosphere for the Disarmament Conference. It was evident that no progress could be made without the collaboration of the non-member states, and they were invited to sit with the committee for that purpose. The United States, Costa Rica, Egypt, and Turkey accepted. An elastic agreement was finally reached, under which the Assembly asked all governments to signify by November 1 whether they were willing to enter an agreement to "refrain from any measure involving an increase in armaments." Only 25 nations out of 60 reported to the League on the conditions of their armaments, but these 25 included all the more important nations.

A fourth committee, concerned with the internal organization of the Secretariat, faced the problem of reducing League expenses to a minimum. Some countries found themselves unable to pay even their small dues. Nicaragua formally asked the League to be excused from her 1931 payments. The budget of the League for 1932 as finally adopted, including the expense of new buildings and of the Disarmament Conference, was about \$7,000,000. An unusual number of ratifications of League convention was received during the meeting of the Assembly.

**INTERNATIONAL AGRICULTURAL MORTGAGE CREDIT CONVENTION.** A committee working on the details of the International Agricultural Mortgage Credit Company completed its task and drew up a draft convention, which was approved by the European Union Commission, approved by the Council, opened for signature on May 21, and signed the same afternoon by 16 nations. The convention provided that the company, with headquarters at Geneva, would receive from the nations ratifying it, advances in proportion to their dues to the League, up to a total of \$5,000,000. Further shares might be sold to the public up to \$45,000,000. As this is received, the company was to issue bonds up to ten times the paid-in capital (a maximum of \$500,000,000), and lend the proceeds to national credit companies in each country of Europe, which, in turn, would lend it to farmers at reasonable interest as first mortgages up to 50 per cent of appraised value on their farm lands. There would be a slight profit on the transactions from which the advances of the governments would be gradually repaid. The convention was to go into effect whenever the \$5,000,000 special reserve was paid in, either from obligatory contributions coming due upon a country's ratification or from voluntary contributions which a government might make before ratification. The financial delegation which outlined the details was appointed as an organization committee to initiate the scheme. If the company was not in operation by Dec. 31, 1931, a conference was to be called to consider further action.

**ROUTINE WORK OF THE LEAGUE.** Meanwhile the important routine work of the League went on. The report of the commission which investigated charges of slavery in Liberia was published in Geneva and Washington on January 10 (see LIBERIA under *History*). The subcommittee of customs experts was asked to give technical opinions on: (1) Methods for application of tariffs according to gross weight, net weight, etc., (2) the customs régime of samples and of ad-

vertising matter, (3) the nationality of goods. The committee met at Geneva from December 8 to 18 and drew up reports on these matters designed to unify customs regulations and aid foreign trade. The Conference for the Unification of River Law finished its work and drew up three conventions, which were to become effective when ratified by three or more states.

**OPIUM CONVENTION RATIFIED.** The conference of nations meeting at Geneva in July to limit the manufacture of dangerous drugs to the medical and scientific needs of the world adopted a revised draft convention. The British "quota" plan was abandoned in favor of the Franco-Japanese "open market" proposal. Under the latter plan a country could manufacture narcotic drugs for domestic use and for export if an import certificate and actual order were received from the purchasing country. Up to 50 per cent of the preceding year's exports might be manufactured, on the supposition that orders would be received for that amount, any excess over actual orders received being added to the following year's available stocks.

Yearly estimates of each country's legitimate requirements were to be submitted for examination to a central supervisory body made up of one member selected respectively by each of the following organizations: The League's Advisory Committee on Traffic in Opium, the Permanent Central Opium Board of the League, the League's Health Committee, and the Office International d'Hygiene Publique in Paris. The estimates were to be forwarded to the Secretary General of the League for transmission to all the countries. Imports by the manufacturing countries were to be limited to the total of the amount specified in the estimates for each such country, less the amount indicated in the estimates as manufactured in that country that year. The convention also included the American delegation's proposal to limit supplies of raw material to six months' requirements or, in exceptional circumstance, to one year's requirements.

Habit-forming drugs covered by the convention were divided into three groups—"narcotic drugs," compounds from which narcotic drugs could be made, and compounds not then known to science, which might come under either of the two former classifications. The export of heroin, a derivative of opium, was prohibited, except on the definite request of a competent public department of a non-manufacturing government, with the drug always remaining under strict government control. As urged by the American delegation, codeine for the first time was placed on the list of dangerous drugs. This convention was ratified on July 13 by 28 states, six of which were from the group of "indispensable countries"—the United States, France, Great Britain, Germany, Japan, the Netherlands, Switzerland, and Turkey—of which only four were necessary. Any disputes arising may be referred to a special arbitration body agreed upon by the disputants and then, if no agreement is reached, to the World Court.

**THE LEAGUE AND INTELLECTUAL COÖPERATION.** During July the League of Nations groups were concerned with intellectual coöperation. The first group to meet was a delegation of the subcommittee of Experts for the Instruction of Young People in the Aims of the League. The delegation discussed the revision of school manuals with a view of rectifying passages detrimental to good-will among the nations, and a

special committee was appointed for this purpose. Wider distribution of publication on and of the League was recommended. The Committee of Scientific Experts, presided over by Mme. Curie-Sklodowska, met on July 17 and discussed the co-ordination of scientific bibliography, ways of facilitating scientific research, and the exchange between countries of professors and students. The Committee of Intellectual Coöperation was requested to have the Institute make a study of the possibilities for laboratory work afforded foreign professors and students and to establish a draft list of scientific laboratories. The committee further recommended technical coöperation in organizing scientific work.

Composed of so illustrious a group that it is often called the "World Academy" in Geneva circles, the Permanent Arts and Letters Committee opened its first session on July 6. Jules Destree of Belgium was appointed chairman, and among the members were John Masefield, British Poet Laureate; Thomas Mann, German winner of the Nobel Prize; Paul Valery of the French Academy; Bela Bartok, composer and conductor; Carel Capek, playwright and journalist; and Mmes. Roll-Anchor and Bacaresco. Recommendations were made to the Committee of Intellectual Coöperation that correspondence be arranged for between leaders of outstanding schools of thought, and interviews be scheduled between authorities on technical and intellectual questions and research, and that the results of such correspondence and interviews be published regularly. It was further recommended that meetings be organized to "spread knowledge of the aims, methods and results of intellectual coöperation" and that an international bibliography of translations be published as soon as possible.

These conclusions were submitted to the Committee of Intellectual Coöperation, which met in plenary session July 20, under the chairmanship of Sir Gilbert Murray of England. Dr. James T. Shotwell of Columbia University, attending the meeting in place of Dr. Robert A. Millikan, suggested the application of the methods used in the intellectual field to social, political, and economic questions, in order to further the spirit of international coöperation. In response to China's request for help in reorganizing her school system, the committee appointed a group of four experts to study the situation on the ground.

See UNITED STATES OF EUROPE; DISARMAMENT; WORLD COURT; and the articles on the member states of the League, under *History*; *Peace*.

**BIBLIOGRAPHY.** Consult *The League of Nations: Ten Years of World Coöperation* (1931), compiled by the League Secretariat and distributed in the United States by the World Peace Foundation, Boston; H. Wilson Harris, *The League of Nations* (New York, 1930).

**LEATHER.** As indicated in the table in the article LIVESTOCK, the number of cattle slaughtered in the United States in 1931, 8,107,842, was less than in the preceding year and also less than the three-year average, 1928-29-30. More calves, hogs, and sheep, however, were killed in 1931 than in 1930 or on the average for the three years previous. The price of hides declined during the year, native steers being quoted on Dec. 20, 1931, at eight cents a pound as against nine and a half cents on Dec. 1, 1930. The decline, which was practically continuous in 1930, was not halted during 1931. The production of leather also witnessed a decline and was smaller than in the

previous year in practically all fields except pig and hog skins. Sole leather from cattle amounted in 1931 to 12,755,313 backs, bends, and sides, as against 15,513,124 in 1930. The raw hides and skins worked in by American tanners in 1931 were as follows: cattle, 14,254,357; buffalo, 37,286; calf, 11,297,394; kip, 1,741,433; goat and kid, 47,905,376; cabretta, 3,049,165; sheep and lamb (including skivers), 32,727,784; kangaroo, 1,001,476.

In 1931, the imports of raw hides and skins, except furs, into the United States amounted to 271,738,179 pounds valued at \$50,302,106 as against 399,910,995 pounds valued at \$92,268,412 in 1930. Declines were registered in practically all kinds of hides, including cattle hides, calf hides, horse hides, sheep and lamb skins, and kid and goat skins. The imports of leather into the United States in 1931 were valued at \$10,595,469 as against \$23,727,904 in 1930.

The United States during the calendar year imported leather manufactured goods valued at \$22,106,985, or a decrease of 29 per cent from the value of 1930, \$31,169,901. Leather glove exports amounting to \$12,273,145 represented 55 per cent, and leather footwear valued at \$7,107,943, 32 per cent of the total. (See **BOOTS AND SHOES**.)

**LEBANON**, REPUBLIC OF. See **SYRIA**.

**LE BON**, le bôn', GUSTAVE. A French physiologist, psychologist, and ethnologist, died at Marne-la-Coquette, near Paris, Dec. 13, 1931. Born at Nogent-le-Rotrou in 1841, he studied medicine, and during the Franco-Prussian War commanded an ambulance division attached to the Army of Paris. In 1877 he published *L'Homme et les sociétés* (2 vols.) He abandoned his medical practice in 1894 to take charge of a government expedition to study the architecture of the Buddhist monuments in India. After that he went on a series of voyages and expeditions, writing books on the countries he visited. These were followed by works of distinction in physics, and his *Recherches anatomiques et mathématiques sur les lois des variations du volume du crâne* was crowned by the Academy of Sciences and the Anthropological Society of Paris. His psychological works include: *Lois psychologiques de l'évolution des peuples* (1895; Eng. trans., *The Psychology of Peoples*, 1898); *Psychologie des foules* (1895; Eng. trans., *The Crowd: A Study of the Popular Mind*, 7th ed., 1910). The series dealing with the psychological and philosophical aspects of the World War gained for him an international reputation: *Enseignements psychologiques de la guerre européenne* (1915); *Premières conséquences de la guerre: transformation mentale des peuples* (1st series, 1916; 2d series, 1917); *Hier et demain: pensées brèves* (1918); *Psychologie des temps nouveaux* (1920); *Le déséquilibre du monde* (1923); and *L'Évolution actuelle du monde: illusions et réalités* (1927).

**LEEWARD ISLANDS**. The most northerly of the British Lesser Antilles, lying to the north of the Windward group and southeast of Porto Rico, comprising Antigua, Dominica, Montserrat, St. Christopher or St. Kitts (with Nevis and Anguilla), and the British Virgin Islands. Total area, 715 square miles; population at the census of 1921, 122,242, as compared with 127,193 in 1911. The estimated population in 1929 was 124,901. The two largest islands with their area and estimated population in 1929 were: Dominica, 305 square miles and 41,482 inhabitants; Antigua, 108 square

miles, but with Barbuda and Redonda, 170 square miles, with a population of 30,974. The chief towns are Roseau (Dominica), 7042 inhabitants; St. John (Antigua), 6997 inhabitants; and Basseterre (St. Christopher), 7736. The islands are divided into five presidencies under a central government, at the head of which is a governor, who is also commander-in-chief, assisted by a Federal executive council, and a Federal legislative council. Governor in 1931, Lieut.-Col. T. R. St. Johnston.

In April, 1931, the Secretary of State for Colonies appointed Sir Sydney Armitage-Smith to study the finances of the Leeward Islands and of St. Lucia in the Windward group with a view to reducing the calls being made by them upon Imperial funds. See **BRITISH WEST INDIES**.

**Leeward Islands** is also the name of an island group in the Pacific under French sovereignty. See **OCEANIA**, **FRENCH ESTABLISHMENTS IN**.

**LEGION**, AMERICAN. See **AMERICAN LEGION**.

**LEGION**, FOREIGN, ANNIVERSARY. See **CELEBRATIONS**.

**LEGISLATION**. See **LAW**, **PROGRESS AND DEVELOPMENTS**; **UNITED STATES**, and the articles on the separate States.

**LEHIGH UNIVERSITY**. A nonsectarian institution for the higher education of men in Bethlehem, Pa., founded in 1866. The enrollment for the autumn of 1931 was 1596, distributed as follows: Arts and science, 261; business administration, 360; engineering, 806; graduate students, 128. The enrollment for the summer session of 1931 was 456. The faculty numbered 179, including 22 persons on the administration staff. The endowment amounted to \$5,333,251, while the total income for the year was \$1,319,850. There were 196,000 volumes in the library. A department of moral and religious philosophy was created in the college of liberal arts in 1931. President, Charles Russ Richards, Eng.D., LL.D.

**LEHMANN**, FREDERICK WILLIAM. An American lawyer, died in St. Louis, Mo., Sept. 12, 1931. Born in Prussia, Feb. 28, 1853, he was brought to the United States in childhood and was graduated from Tabor College, Iowa, in 1873. Admitted to the bar in 1873, he practiced in Nebraska City, Neb., until 1876, in Des Moines, Iowa, until 1890, and thereafter in St. Louis, Mo., where he was successively a member of the firms of Boyle, Priest & Lehmann and Lehmann & Lehmann. He was appointed Solicitor-General in 1910 by President Taft, serving until 1912, and represented the United States at the Mexican Mediation Conference sponsored by the "A B C" Powers (Argentina, Brazil, and Chile) at Niagara Falls, N. Y., in 1914.

**LEIPZIG**. See **EXPOSITIONS** under *Trade Fairs*.

**LELAND STANFORD JUNIOR UNIVERSITY**. See **STANFORD UNIVERSITY**.

**LEMONS**. See **HORTICULTURE**.

**LENS TESTING**. See **PHOTOGRAPHY**.

**LEONIDS**. See **ASTRONOMY**.

**LEUTZE**, REAR ADMIRAL EUGENE HENRY COZZENS, U. S. N., Ret. An American naval officer, died in Brooklyn, N. Y., Sept. 15, 1931. He was born in Düsseldorf, Germany, Nov. 16, 1847. Coming to the United States in early youth, he was graduated from the U. S. Naval Academy in 1867 and was promoted through the various grades to captain in 1901 and rear admiral in 1907. He served on the Board of Inspection and Survey (1904-05) and was commandant of the Washing-

ton Navy Yard and superintendent of the naval-gun factory (1905-10). Although retired by operation of the law in 1909, he continued in active service, being commandant of the New York Navy Yard from 1910 to 1912.

**LEWIS, COL. ISAAC NEWTON, U. S. A., RET.** An American soldier and inventor, died in Hoboken, N. J., Nov. 9, 1931. He was born in New Salem, Pa., Oct. 12, 1858, and on graduation from the U. S. Military Academy in 1884 was commissioned in the Second Artillery. By successive promotions he rose to the rank of colonel Aug. 27, 1913, and was retired for disability in line of duty the following September. Colonel Lewis invented numerous devices in connection with ordnance and particularly with coast defense, including a time-interval clock and bell system of signals for coast defense batteries, quick-reading mechanical verniers, and a rapid-fire field gun and mount. His chief fame, however, rests on the invention of the Lewis machine gun, of which during the World War more than 100,000 were used by the Allies. He presented this invention to the Ordnance Department in Washington in 1912, but it failed of acceptance.

The gun, however, was adopted by the British government and was used not only in field service but as airplane armament. In the U. S. Army the Lewis gun was employed as an aircraft weapon and functioned satisfactorily. Other inventions by Colonel Lewis included a device for lighting railroad trains electrically by means of a self-regulatory dynamo operating from car axles and a method of providing electric power for rural homes by windmill-driven generators.

**LEXICOGRAPHY.** See **PHILOLOGY, MODERN.**

**LIBERIA.** A Negro republic on the west coast of Africa, extending from the British colony of Sierra Leone on the west to the French Ivory Coast on the east, with about 350 miles of coast line. Area, about 43,000 square miles; population, estimated at 2,000,000 to 2,500,000, most of whom live in the interior. They belong to about 40 tribes and speak as many languages. The civilized inhabitants, reported at about 60,000, live along the coast and speak English. Whites in the country number about 250. Capital, Monrovia, with 10,000 inhabitants (including Krutown). In 1929, there were 10,250 pupils in 127 schools (63 Government and 64 mission schools).

**PRODUCTION AND TRADE.** Agriculture, mining, and industry are comparatively undeveloped. Cacao and cotton are produced in small quantities, but the staple product is native coffee. Other products are piassava fibre, palm oil, palm kernels, chillies, and beniseed. In 1930 over 30,000 acres of the 1,000,000-acre Firestone rubber concession, granted in 1926, had been planted to rubber trees.

**FINANCE.** Budget operations have resulted in a deficit every year since 1926-27. In the fiscal year 1928-29, revenue totaled \$1,028,123 and expenditure \$1,098,152. Revenue for 1930-31 was estimated at about \$700,000. A \$5,000,000 loan floated in the United States in 1927 is secured by a first lien on customs revenues and head moneys, and supervision of Liberian finances by agents of the American bankers was provided for.

**COMMUNICATIONS.** Means of transport and communication are severely limited, there being no railway, telephone, or telegraph service. Along the coast are 150 miles of roads passable for light motor traffic but native porters carry all goods in the interior.

**GOVERNMENT.** The constitution, modeled on that

of the United States, vests executive power in a president, assisted by a cabinet of eight, and legislative power in a legislature of two houses. Suffrage is restricted to Negroes owning land. English is the official language. President in 1931, Edwin Barclay.

**HISTORY.** Charges of slavery and forced labor in Liberia were substantiated by the report of an international commission of inquiry made public by the League of Nations and by the U. S. Department of State on Jan. 11, 1931. The contents of the report, which had been submitted in September, 1930, to the Governments of Liberia and the United States, were forecast by the resignations of President King and Vice President Yancey of Liberia in December following receipt of a sharp note from Secretary of State Stimson.

As summarized by the *Baltimore Sun* of Jan. 7, 1931, Mr. Stimson's note virtually threatened the severance of diplomatic relations with Liberia unless the Liberian Government took more active steps to abolish slavery and punish the high officials responsible.

The resignations of the President and Vice President left Edwin Barclay, Secretary of State, as Provisional President. In May, 1931, the Liberian Legislature elected Barclay constitutional President and James S. Smith Vice President. The American Minister at Monrovia was instructed to withhold formal recognition of the new régime until slavery reforms and sanitary improvements had been satisfactorily carried out. The Legislature had taken preliminary steps in December, 1930, by passing laws incorporating some of the recommendations of the commission of inquiry. The laws provided for the freeing of all domestic slaves, the abolishment of the "pawn" system, and the prohibition of the recruiting of contract labor for foreign employment. The President was authorized to engage two persons of European or American nationality to submit recommendations for the reorganization of the hinterland. Trade restrictions in the hinterland were removed and the creation of a public-health and sanitation service was provided for.

The report of the commission of inquiry was considered by a special committee of the League of Nations, commencing Feb. 27, 1931. To assist the Liberian Government in putting into effect the recommendations of the international commission of inquiry, the League sent to Liberia shortly afterward Dr. Melville D. MacKenzie of the League's health section; Henri Brunot, a French administrative officer and former Governor of the Ivory Coast; Mynheer Lighthart, a Dutch financial expert; and Dr. Howells, a British health officer from the Gold Coast. At the suggestion of the League Council, Liberia ratified in 1931 the forced-labor convention adopted by the International Labor Conference in 1930. See **LEAGUE OF NATIONS.**

**LIBIA, lib'i-ä.** An Italian possession on the north coast of Africa between Egypt and Tunis, transferred from Turkey to Italy by the treaty of Oct. 18, 1912. It is divided into the administrative districts of Tripolitania and Cyrenaica (q.v.), with capitals at Tripoli and Benghazi, respectively.

**LIBRARY ASSOCIATION, AMERICAN.** The official organization of librarians in the United States and Canada, founded for the purpose of promoting library service and librarianship. In 1876 its membership was 103; in 1931 it reached

15,000. The activities of the association are carried on by its officers; by more than 60 voluntary committees and boards, engaged in studying such problems as book buying, book selection, cataloguing, and library work with the blind and with the foreign born; by hundreds of volunteer workers; and by the members of the headquarters staff, which numbered about 60 in 1931, including the executive assistants to the Board of Education for Librarianship, the Board on the Library and Adult Education, and the Library Extension Board.

The association issues various books and pamphlets for libraries and in the interest of library progress. Important publications of the year included: Charles B. Shaw, *List of Books for College Libraries*; Edna A. Hester, *Books for Junior Colleges*; a list of *Recreational Reading for Young People*; Douglas Waples and Ralph W. Tyler, *What People Want to Read About* (published jointly with the University of Chicago Press); *Handbook for Teacher-Librarians*; Ethel F. McCollough and Maud van Buren, *Essentials in Library Administration*; *Catalogers and Classifiers' Yearbook*, No. 2; *Children's Library Year Book* No. 3; *School Library Yearbook*, No. 4; and *College and Reference Library Yearbook*, No. 3. *Reading with a Purpose* courses, published by the association during 1931, were: Avrahm Yarmolinsky, *Russian Literature*; J. D. Condliffe, *The Pacific Area in International Relations*; Sir J. Arthur Thomson, *Evolution*; Clarence Poe, *Farm Life*; and James G. McDonald, *Latin America*.

The association issues three periodicals also: *Bulletin of the American Library Association*, a monthly which includes the annual reports, the conference proceedings, and the yearly handbook, and which in 1931 included also a quarterly section devoted to adult education; *The Booklist*, published monthly as a guide to the selection and purchase of current books; and *Subscription Books Bulletin*, a quarterly which presents critical estimates of subscription books and sets sold currently by canvassing agents.

The fifty-third annual conference, which ranked first in point of attendance in the history of the association, was held June 22-27, 1931, in New Haven, Conn., with more than 3200 librarians present. On this occasion, the John Newbery Medal, given annually by the section for library work with children, for the most distinguished children's book of the year, was awarded to Elizabeth Coastworth for her book, *The Cat Who Went to Heaven*. The council of the association went on record as favoring the entrance of the United States into the International Copyright Union, the abrogation of the requirement that books be manufactured in this country if they are to have copyright protection here, and abolition of the restrictions which hamper libraries and individuals in importing foreign books for use. The council also adopted a resolution calling public attention to the fact that economic depression, with its accompanying unemployment, had increased the demands upon library facilities and urged that no reduction should be made in library appropriations. At the same time, a Federal appropriation as an equalizing and stimulating fund for rural public library service was approved.

The officers elected for 1931-32 were: President, Josephine Adams Rathbone, vice director,

Pratt Institute School of Library Science, Brooklyn, N. Y.; first vice president, Charles E. Rush, associate librarian, Yale University Library, New Haven, Conn.; second vice president, Beatrice Winsor, librarian, Public Library, Newark, N. J.; treasurer, Matthew S. Dudgeon, librarian, Public Library, Milwaukee, Wis. Gratia A. Countryman, librarian, Public Library, Minneapolis, Minn., and Sydney B. Mitchell, director, University of California school of librarianship, Berkeley, Calif., were elected members of the executive board. The headquarters of the association are at 520 North Michigan Avenue, Chicago, Ill.

**LIBRARY ASSOCIATION, THE.** An organization of libraries and librarians in Great Britain, founded in 1877 and incorporated by Royal charter 1898. Its membership includes libraries throughout the United Kingdom. It publishes the *Library Association Record* (monthly), *The Subject Index to Periodicals* (annual), *The Year's Work in Librarianship* (annual), and other works appropriate to the conduct of libraries of various types. It maintains a professional register consisting of Fellows (F.L.A.) and Associates (A.L.A.). President at the end of 1931, Lt. Col. J. M. Mitchell, Secretary of Carnegie United Kingdom Trust, Dunfermline; secretary, P.S.J. Welsford, F.I.S.A. The association maintains headquarters at 26-27 Bedford Square, W. C. 1, London.

**LIBRARY PROGRESS.** Notwithstanding the economic situation, library development continued during 1931, and, largely on account of the business depression and consequent unemployment, the reported circulation of public library books showed a marked increase throughout the United States. State library extension agencies received increased appropriations in 16 States, and county-wide library service was established in eight counties. In an area composed of parts of three Vermont counties—Chittenden, Franklin, and La Moille—a regional library experiment was begun, 28 small town libraries in the section receiving aid through loans of books and the advisory visits of a regional librarian. The project was being conducted under the auspices of the Vermont Commission on Country Life, financed by a special grant. The Fraser Valley (British Columbia) rural library demonstration had successfully completed its first year, and the British Columbia Library Commission opened a district office in Prince George in order to provide better library service for the large North Central District. In Maine, rural library service was being given from well established city libraries, seven of these district libraries being in operation.

The Southern States were showing an increased appreciation of the library as an essential service agency. The committee on reading of the South Carolina Teachers Association, in a recently published report, urged the founding of county and other public libraries as a step to promote wider reading among the people of the State. The American Library Association's regional field agent for the South was assisting in a study of economic and social conditions and problems of the Southern Appalachian highlands.

**CIRCULATION.** Circulation figures for all libraries were not available, but 41 libraries in cities of more than 200,000 population reported in 1931 a total circulation of 134,103,005 for



1929-30, as compared with a circulation of 124,016,051 for 1928-29. The total number of libraries, in the continental United States, possessing collections of 3000 or more volumes, was 6429, and the total number of books which they own was approximately 162,000,000—an increase of 33,500,000 in the six years from 1923 to 1929, according to figures published in 1931 by the U. S. Office of Education. These statistics show further that there is one library to every 11,226 persons in the United States.

**LEGISLATION.** Florida adopted permissive county library legislation in 1931, and Michigan went on record as the first State to pass a law permitting regional library establishment. A law providing State aid for county libraries was passed by the Pennsylvania Legislature. Complete revision of the Arkansas municipal library law was a step forward. The reorganization of State departments in Maine resulted in bringing the State library into the department of education. In Alabama, a bill carrying an appropriation for the establishment of a State library commission passed the legislature, but was vetoed by the governor. In Washington, a permissive county library law met a similar fate.

**NATIONAL CONFERENCE.** A report on children's reading was presented to the White House Conference on Child Health and Protection, and one on library service to home builders, home owners, and home-makers to the President's Conference on Home Building and Home Ownership. Recommendations of the committee on reading of the White House Conference emphasized the need of adequate library service for children everywhere.

**ADULT EDUCATION.** Readers' advisory service was inaugurated in six public libraries in 1931, making a total of 42 libraries which offer this service. In the field of alumni education, many universities and colleges were vigorously engaged in a variety of experimental projects, undertaken in response to the interest of their graduates, as first expressed at the meeting of the American Alumni Council in Columbus, Ohio, in 1926. The alumni reading lists of the University of Michigan, issued in 1931 by the Michigan Library Extension Service in coöperation with the Bureau of Alumni Relations, illustrated one method of developing a programme in continuous education for the American college graduate. Similar lists are distributed by more than 40 other universities and colleges. The board on the library and adult education of the American Library Association, approved a proposal to study books and libraries in their relation to the changing curricula of institutions of higher learning, and voted to coöperate with an advisory committee of university and college librarians in an effort to coördinate the college education with the whole educational life of the individual.

Several publications of special interest to workers in adult education appeared during the year. In *What People Want to Read About*, by Douglas Waples and Ralph W. Tyler, the Graduate Library School of the University of Chicago made, as one of its first contributions to library research, a study of the reading interests and habits of adults. In *University Extension and the Library*, a survey was made of the need of extension students for better book service and the means of supplying it, published

jointly by the National University Extension Association and the American Library Association. In *The Education of Adult Prisoners*, by Austin H. MacCormick, published by the National Society of Penal Information, the present educational work of libraries in adult penal institutions has been surveyed, and an expanded programme has been suggested by John M. Chancellor, supervising librarian of the U. S. Bureau of Prisons. For new *Reading with a Purpose* courses, see **LIBRARY ASSOCIATION, AMERICAN.**

Libraries throughout the United States continued and increased their coöperation with educational radio programmes, such as those of the National Advisory Council on Radio in Education, the National League of Women Voters, and the American School of the Air. In *The Broadcaster and the Librarian*, published by the National Advisory Council on Radio in Education, Francis K. W. Drury has summarized the actual and proposed activities of libraries along this line.

**LIBRARY SCHOOLS.** The opening of five new library schools in the United States in the autumn of 1931 left no large section of the United States unprovided with a centre of training for librarianship. The new schools have been established at the University of North Carolina, the University of Denver, Louisiana State University, Our Lady of the Lake College (San Antonio, Tex.), and the College of William and Mary. The last two offer courses in school library work only. In 1930-31 the 25 accredited schools enrolled 1394 students; five other library schools had a total enrollment of 235 students.

In December, 1930, the Association of Colleges and Secondary Schools of the Southern States adopted standards for the training of librarians and teacher-librarians to be employed in high school libraries for which the association had adopted standards the previous year.

**BIBLIOGRAPHICAL WORK.** Project "B," financed by a Rockefeller grant of \$50,000 annually for five years, includes several different undertakings which have as objective the increasing of the bibliographical apparatus of the Library of Congress, in the aid of research. Work on the Union Catalogue of the Library of Congress had reached its first goal—the location of 6,000,000 titles in American libraries, representing four years' labor. Additions were made to the Union List of Special Collections until at the end of 1931 it included 7500 collections.

Printing of the preliminary edition of all but three of the national lists to be included in the *List of Serial Publications of Foreign Governments* was announced in 1931. The lists for Great Britain, Canada, and Russia were still to appear. The *Supplement to the Union List of Serials* was past its first stage. Cards submitted by coöperating libraries to show important changes in holdings and new acquisitions make up the *Supplement*.

**INTERNATIONAL COÖPERATION.** At the meeting of the international committee of the International Federation of Library Associations, held at Cheltenham, England, in August, 1931, Dr. William Warner Bishop of the American Library Association was elected president of both the committee and the federation. Action was taken to facilitate international loans of books between libraries and to further the study of statistics on the national production of books.



Tentative plans for publishing the *Union Catalogue of the Libraries of Prussia* and the completion in print of four of the six volumes of *Transactions of the Library and Bibliographical Congress*, held in Rome and Venice in 1929, were announced.

The American Library in Paris, organized to promote the closer acquaintance of European scholars with American literature, institutions, and thought, reported in 1931 that it had 3189 registered borrowers and a normal daily attendance of about 600 persons. The book collection totals more than 49,000 active volumes, or an increase of 4941 during the year. J. Mark Baldwin presented 1000 volumes on scientific subjects to the library, and an anonymous donor gave 16,000 volumes, chiefly current fiction and biography, for lending to Americans removed from their ordinary sources of reading matter. Books are circulated by mail to distant countries, as well as to points near at hand. Another project in international coöperation was the collection of printed cards of all the books in Spanish and on Spanish subjects which were being gathered at the Library of Congress for donation to the library of the Centro de Estudios Históricos at Madrid, Spain.

**FUNDS AND ENDOWMENTS.** The Pratt-Smoot Bill, appropriating \$100,000 annually for books for the adult blind, was passed by Congress in 1931. The grants voted by the Carnegie Corporation during the fiscal year 1929-30 included \$729,750 to be spent in the interest of library progress. More than half of this sum was appropriated for the purchase of books by college libraries. A study of rural school libraries and county library service to schools was being made by Edith A. Lathrop of the U. S. Office of Education, with a grant-in-aid from the Carnegie Corporation. Graduate study was being carried on by more than a dozen librarians under library fellowships provided by grants from the corporation. Other gifts to libraries made during the year included: \$3,500,000 for erection of a new library building at Columbia University (to be completed in 1933), presented by Edward S. Harkness; \$375,000 given to the library of Mount Holyoke College by the General Education Board; \$300,000 for erection of a new library at Atlanta University, Atlanta, Ga., granted by the General Education Board; \$200,000 left to the public library in Morristown, N. J., in the will of Grinnell Willis (who had previously given \$100,000 to erect the library building), half of the bequest to be added to the library's endowment fund created by Mr. Willis and half to be known as the Grinnell Willis Book Fund; and \$150,000 granted by the Carnegie Corporation to endow the college librarianship at Lafayette College, Easton, Pa.

**NEW BUILDINGS.** The University of Chicago was planning to spend \$6,000,000 within a five-year period, beginning in 1931, in reorganizing its libraries and housing in a single new building the books at present in the general library (Harper Memorial Library) and scattered in departmental collections in a number of other buildings. Among library buildings in course of construction, or completed, during 1931 were: the 42-story Library Tower in Brooklyn, N. Y., costing \$7,000,000; the new home of the Enoch Pratt Free Library, Baltimore, Md., costing \$1,198,000; the main public library in Long Beach, Calif., costing \$1,000,000; the main public li-

brary in Berkeley, Calif., costing \$300,000; the central library in Evansville, Ind., costing \$300,000; the James E. Morrow Library at Marshall College, Huntington, W. Va., costing \$225,000; the library at East Texas State Teachers College, Commerce, Tex., costing \$200,000; the library at Tuskegee Normal and Industrial Institute, Tuskegee, Ala., costing \$200,000; and the public library at Highland Park, Ill., costing \$150,000. The University of Kentucky, Lexington, Ky., dedicated its new library building in October, and James Millikin University held dedicatory ceremonies for the Orville B. Gorin Library (costing \$150,000) in November.

**LIBYA.** See *LIBIA*.

**LIECHTENSTEIN**, Ik'tén-shtIn. One of the smallest independent European states. Liechtenstein is a principality lying between the Austrian province of Vorarlberg and the Swiss cantons of St. Gallen and Graubünden. Area, 65 square miles; population at the census of 1930, 10,213, of whom 9492 were Roman Catholics. Capital, Vaduz (population, 1715). Reigning Prince, Francis I.

**LIFE.** See *ZOOLOGY*.

**LIFE AND WORK MOVEMENT.** See *INTERNATIONALISM*.

**LIFE INSURANCE.** See *INSURANCE*.

**LIGHT.** See *PHYSICS*.

**LIGHTHOUSES.** The annual report of the U. S. Commissioner of Lighthouses George R. Putnam for the fiscal year 1930-31 stated that 12 new radio beacons had been installed during that period and that two major lighthouses were under construction, while plans had been made for the immediate rebuilding of an important lighthouse in Alaska. A number of primary lights were increased in candlepower, more modern types of fog signal apparatus were installed at stations where the old equipment had reached the limit of usefulness, and additional minor lights constructed at points requiring effective marking. The use of compressed acetylene gas for automatic unattended lights continued to increase, and electric lights operated by dry cells, primary cells, and storage batteries, were also finding more extensive application. A new aid to navigation, was the synchronization of air fog signals and radiobeacon signals, for distance finding purposes.

The report showed that the total number of aids to marine navigation on June 30, 1930 was 20,273, an increase over the previous year of 711. Appropriations for the maintenance of the Lighthouse Service totaled \$10,090,075 for the fiscal year, and for special works \$1,424,000. This money was expended for the maintenance of navigational aids in 21 States having ocean coastlines, in eight bordering the Great Lakes, and an additional six States bordering upon important navigable rivers. The allotment made by the Aeronautics Branch of the Department of Commerce for the prosecution of airways activities amounted to \$7,785,600.

One of the major lighthouses completed and placed in commission on November 10 was that at Detour, Mich., in Lake Huron, at the mouth of the St. Marys River which connects that lake with Lake Superior. The first light to be erected in this vicinity was built in 1848, but upon the shore and nearly a mile from the edge of the deep water channel used by the present lake vessels. The new lighthouse was built out in the water, close to the lanes of traffic, where it is of

most service. Detour Lighthouse, 74 feet high with a 100,000 candlepower light, in common with other recently constructed lighthouses in the Great Lakes built on submarine sites, is an engineering project of considerable importance, owing to the construction problems involved, for in no other part of the country is the problem of ice action upon lighthouse structures so serious a one. The other lighthouse of major rank under construction, was at Anacapa Island, Calif. The extremely rocky shore at this point, and the difficulties of landing materials, made this a project that would require another year for its completion. One of the outstanding lights established during the year, because of its exceptional height above the sea, was that at Lehua, in the Hawaiian Islands. An unattended light was placed at the highest point of this small island, over 700 feet above the water. This light is entirely automatic in operation, a single charge of acetylene gas being sufficient for several months' operation.

During the fiscal year three new lightships were completed and placed on station. One of these went to Frying Pan Shoals, N. C., one to Fenwick Island, Del., and another to Nantucket Shoals, off the coast of Massachusetts.

density in restricted waters, the Lighthouse Service was called upon to provide many new aids. Extensive dredging and improving of channels was under way in the St. Marys River, connecting Lakes Superior and Huron, and these works necessitated the relocating of many aids to navigation, the improvement of others and establishment of new aids. A noteworthy improvement was the establishment of double sets of range lights, a continuance of work begun in the previous year. These lights separate up and down bound traffic and provide ranges on each course, both ahead and astern.

**AIRWAYS FACILITIES.** The lighting of airways, landing fields, and the provision of signaling and communication systems—was further extended. Lights were established on about 2283 additional miles of airways. The additional radio facilities provided included 13 communication stations, 45 radio range beacons, a number of radio marker beacons, and telephone-typewriter circuits totaling over 3000 miles. Because of several changes in the routing of air mail and passenger-carrying lines, considerable airway reconstruction was undertaken. More direct courses were laid out and larger landing fields provided.

#### SUMMARY OF AIDS TO NAVIGATION AND CHANGES DURING FISCAL YEAR IN THE UNITED STATES

Class	Estab- lished	Discon- tinued	1931		Total, June 30—	
			Increase	Decrease	1930*	1931
Lighted aids:						
Lights (other than minor) .....	105	51	54	...	2,382	2,436
Lightship stations .....	...	...	...	...	44	44
Lighted buoys .....	102	65	37	...	632	669
Lighted buoys, with whistles or bells .....	82	2	80	...	402	482
Minor lights .....	357	244	113	...	3,549	3,662
Float lights .....	8	52	...	44	179	135
Total lighted aids .....	604	414	190	44	7,188	7,378
Fog signals:						
Radiobeacons ..	10	...	10	...	79	88
Sound fog signals (in air) .....	13	8	5	...	560	565
Submarine fog signals ..	...	1	...	1	31	30
Lighted buoys, with whistles or bells .....	82	2	80	...	402	482
Whistle buoys, unlighted ..	1	6	...	5	76	71
Bell buoys, unlighted .....	15	7	8	...	267	275
Total fog signals .....	71	24	47	6	1,415	1,461
Unlighted aids:						
Buoys .....	566	365	201	...	8,052	8,253
Daymarks .....	397	93	304	...	3,309	3,613
Total .....	963	458	505	...	11,361	11,866
Grand total <sup>b</sup> .....	1,606	894	712	...	19,562	20,278
Aids to air navigation .....	...	...	...	...	1,850	1,853 <sup>c</sup>

\* Differences from statistics published in 1930 report

<sup>b</sup> Lighted buoys with whistles and bells are counted

<sup>c</sup> Not included in further statistics of this report. The beacon stations, radio communication stations, point to were also 8720 boundary lights and 1571 obstruction

are due to minor discrepancies in previous count.

only once in the grand total.

number of aids shown includes beacon lights, radio-point radio stations, and radio marker stations. There lights in operation June 30, 1931.

The system of radiobeacons, on June 30, 1931 included ninety stations under the jurisdiction of the Lighthouse Service. These radiobeacons, while few in number compared with the primary lighthouses, cover both coasts of the United States and the Great Lakes in an effective manner. They enable navigators to obtain bearings on known points at distances up to 200 miles, and are equally as effective in fog as in clear weather. The Lighthouse Service published *Radiobeacons and Radiobeacon Navigation*, by George R. Putnam.

With the substantial increases in traffic upon the Great Lakes, involving deeper channels, new harbor works, and a general increase in traffic

**LIGHTING.** See ELECTRIC LIGHTING.

**LIGHTNING EFFECTS, LIGHTNING ARRESTERS, ETC.** See ELECTRICAL TRANSMISSION AND DISTRIBUTION.

**LIGHTSHIPS.** See LIGHTHOUSES.

**LIGHT STUDIES.** See ASTRONOMY; PHYSICS.

**LIGNITE.** See COAL.

**LIME.** The sales of lime in 1931 produced in the United States amounted to 2,710,000 short tons, valued at \$18,506,000, according to preliminary estimates of the U. S. Bureau of Mines, Department of Commerce. This was a decrease of 20 per cent in quantity and 28 per cent in value as compared with sales of 3,387,880 tons, valued at \$25,616,486 in 1930, and followed a decrease of

21 per cent in quantity and 23 per cent in value in 1930 as compared with 1929. Sales of lime in 1931 for construction were estimated at 970,000 tons compared with 1,204,614 tons in 1930, a decrease of 19 per cent. Sales of lime for chemical uses were estimated at 1,460,000 tons, a decrease of 21 per cent from 1930 (1,840,155 tons). The sales of lime for agricultural use were estimated at 280,000 tons, a decrease of 18 per cent in 1931 from 1930 (343,111 tons) and following an increase of 1 per cent in 1930 from the 1929 figures. All the States producing lime except two, Florida and Massachusetts, showed decreases from the 1930 production ranging from 5 to 75 per cent in quantity and 8 to 60 per cent in value.

**LINDBERGH, COL. CHARLES A.** See **AERO-NAUTICS**.

**LINDSAY, (NICHOLAS) VACHEL.** An American poet, died Dec. 5, 1931, in Springfield, Ill., where he was born Nov. 10, 1879. He attended Hiram College, O. (1897-1900), the Art Institute, Chicago (1900-03), and the New York School of Art (1904-05). In the winters from 1905 to 1909 he lectured for the Y. M. C. A. and in 1909-10 for the Anti-Saloon League. He made several long tramping trips during the summers, the first of which in 1906 was through the Southern States. His longest trip was in 1912 when he walked from Illinois to New Mexico. On these trips he gained notice by paying his way with recitation and distribution of his verse, on the analogy of the troubadours and strolling players of the Middle Ages. With the publication of his works in the *Village Magazine* after 1910, he became not only one of the leading figures in American poetry but one of the strongest forces in the development of the epic of the West. His chief works are: *The Tramp's Excuse* (1909); *Rhymes To Be Traded for Bread* (1912); *General William Booth Enters Heaven and Other Poems* (1913); *The Congo and Other Poems* (1914); *Adventures while Preaching the Gospel of Beauty* (1914); *The Art of the Moving Picture* (1915); *A Handy Guide for Beggars* (1916); *The Chinese Nightingale and Other Poems* (1917); *The Golden Whales of California and Other Poems* (1920); *The Golden Book of Springfield* (1920); *Going to the Sun* (1923); *Collected Poems* (illustrated by himself, 1925); *Going to the Stars* (1926); *The Candle in the Cabin* (1926); *Johnny Appleseed and Other Poems for Children* (1928); *The Litany of Washington Street* (1929); *Every Soul Is a Circus* (1929); and *Selected Poems* (Modern Readers' Series, 1930).

**LINGUISTICS.** See **PHILOLOGY, MODERN**.

**LINSEED OIL.** See **FLAX**.

**LIONS CLUBS, INTERNATIONAL ASSOCIATION OF.** An organization of business and professional men's clubs united in one association for the purpose of promoting good government and good citizenship, encouraging efficiency, and promoting high ethical standards in business and in the professions.

The number of Lions Clubs had grown by Dec. 1, 1931, to approximately 2600, with a membership in round numbers of 82,000. At the international convention of 1931 in Toronto, Canada, Julien C. Hyer of Fort Worth, Texas, was elected president and Charles H. Hatton of Wichita, Kan., Roderick Beddow of Birmingham, Ala., and Vincent C. Hascall of Omaha, Neb., vice presidents. Melvin Jones of Chicago has been secretary-treasurer since the International Association was founded. The official magazine is *The Lion*,

Charles Lee Bryson, managing editor. Headquarters are at 332 South Michigan Avenue, Chicago.

**LIPPE, H'p'è.** A state of the German Republic. See **GERMANY under Area and Population**.

**LIPTON, SIR THOMAS JOHNSTONE.** A British merchant and yachtsman, died in London, Oct. 2, 1931. He was born in Glasgow May 10, 1850, of Irish parentage. Coming to the United States when 15 years old, he worked in New York City as a clerk for a short time, and then for about two years in the South—on plantations in Virginia and South Carolina and in the rice fields of Louisiana. He returned to Glasgow and in 1876 opened a grocery store where he put into practice the advertising technique he had acquired in America. From this small beginning his business expanded and came to include hundreds of stores in London, Liverpool, Manchester, and other British cities, as well as tea, coffee, cocoa, and rubber plantations in Ceylon, and a large pork-packing establishment in Chicago. In 1898 his business was converted into a limited liability company. From boyhood he was an enthusiastic sailor, and in his later years he became famous for his repeated challenges to win back the *America's* cup, spending more than \$5,000,000 on the attempts of the five *Shamrocks* in 1899, 1901, 1903, 1920, and 1930. He was knighted in 1898, and in 1901 was made a Knight Commander of the Royal Victorian Order and in 1902 a Baronet.

**LIQUOR, LIQUOR LAWS.** See **PROHIBITION; FINLAND under History**.

**LITERATURE.** See **FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LITERATURE, ENGLISH AND AMERICAN; PHILOLOGY, MODERN; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE**.

**LITERATURE, ENGLISH AND AMERICAN.** Although no conspicuous publishing houses had financially failed during the year, it was known that many were finding their course difficult, and a few yielded identity through mergers during 1931. Bookstores were decreasing in number and those remaining carried depleted stocks. To meet the depression, tinkering with book prices was as usual proposed, but the failure of the dollar-book plan (see 1930 YEAR BOOK) warned American publishers against it, and little reduction in prices could be discerned. In England, however, one publisher promised new short novels at 9d. each. And English publishers made much play with "omnibus" books, huge volumes containing, for instance, three novels at the price of one, or a cross section of an author's work in various forms, or a collection of ghost or detective stories. The most remarkable of the omnibus books was *The Outline of Modern Knowledge*, edited by William Rose, one volume of 1100 pages, written by the foremost English authorities, and selling for 8s. 6d. The same book in America cost \$5. In America, production was not even slackened, the figures at the end of the year, compiled by the *Publishers' Weekly*, showing the total number of new books published during the year to be 10,307, an increase of 280 over 1930. Titles classed under sociology and economics showed the greatest increase, 632 being published, an increase of 109 over the previous year. In medicine and hygiene, there were 419 titles, an increase of 101, and books for children numbering 1018 increased by 83 titles over 1930. The record for fiction, 2103 new books in 1930 declined to 1942 in 1931, and biog-

raphy from 792 to 775. The *Publishers' Weekly* states

In the span of ten years the most marked increases have been in fiction, which has risen from 68 to 1272; children's books, 482 to 873; biography from 297 to 699; religion, from 460 to 788; sociology, 855 to 580; education, from 11 to 242; science, from 227 to 367; medicine and hygiene from 169 to 818. The classifications which show little change over such a period are business books, history, law, agriculture, while technical books have shown a decrease.

In Great Britain according to the *Publishers' Circular and Booksellers' Record* there were published in 1931, 14,688 books as against 15,393 in 1930 or a decrease of 705 titles.

FICTION. The success of the year was Pearl S. Buck's *The Good Earth*, about Chinese peasants, acclaimed both in England and America. A Scotch melodrama, *Hatter's Castle*, by A. J. Cronin, had commanding vitality. Virginia Woolf told a story in soliloquies, *The Waves*. Depths of depravity were coolly exposed in *Sanctuary*, by William Faulkner, who was rising to high position in American fiction. Edna Ferber's *American Beauty*, about immigrants in New England, maintained her reputation. *Two People*, by A. A. Milne, dealt sweetly with marriage. W. Olaf Stapledon's *Last and First Men* was an extraordinary piece of scientific prophecy. John Galsworthy's *Maid in Waiting* was not about the Forsytes, and not so highly praised. David Garnett's *The Grasshoppers Come* was delicate irony.

Historical novels made a distinguished group: Evelyn Scott's *A Calendar of Sin*, several generations in America; Willa Cather's *Shadows on the Rock*, old Quebec; Naomi Mitchison's *The Corn King and the Spring Queen*, laid in ancient Egypt, Greece, and Macedonia; George Moore's *Aphrodite in Aulis*, ancient Greece; Maurice Baring's *In My End is My Beginning*, about Mary Queen of Scots; Ludwig Lewisohn's *The Last Days of Shylock*, continuing Shakespeare; Joseph Hergesheimer's *The Limestone Tree*, old Kentucky; T. S. Stripling's *The Forge*, Civil War Alabama.

Novels centring in a family continued their vogue, such as: Clemence Dane's *Broome Stages*, generations of actors; Storm Jameson's *A Richer Dust*, last of a trilogy; Hugh Walpole's *Judith Paris*, second of his Herries saga; Mazo de la Roche's *Finch's Fortune*, third of the Whiteoaks series; Edith Olivier's *Dwarf's Blood*. Satirical novels included: Tiffany Thayer's *The Greek*, and Eric Linklater's *Juan in America*, satirizing this country; Richard Aldington's *The Colonel's Daughter*, attacking rural England; Margaret Kennedy's *Return I Dare Not*, against literary exhibitionism; Robert Nathan's *The Orchid*, against the city. Fantasies were few, but Bruce Marshall's *Father Malachy's Miracle* and John Erskine's *Unfinished Business* should be named. Romances were more numerous, as: Stella Benson's *Tobit Transplanted*, borrowed from the Apocrypha; Roark Bradford's *John Henry*, a legendary negro; Mary Austin's *Starry Adventure*, and Robert Reynolds' *Brothers in the West*, both western; Anne Green's *Reader, I Married Him*, about Paris; Eleanor Smith's *Flamenco*, gypsy stuff; Elizabeth Madox Roberts' *A Buried Treasure*; Michael Arlen's *Men Dislike Women*.

Novels whose interest was psychological included: V. Sackville-West's *All Passion Spent*, a woman through with action; Edward Sack-

ville-West's *Simpson*, a child's nurse; Fannie Hurst's *Back Street*, an over-generous woman; "Elizabeth's" *Father*, who remarried; Katharine Brush's *Red-Headed Woman*, a leech; Sheila Kaye-Smith's *Susan Spray*, who never grew up; Susan Glaspell's *Ambrose Holt and Family*; Ford Madox Ford's *When the Wicked Man*, an Englishman in America; Margaret Ayer Barnes' *Westward Passage*, a woman in a triangle. Mystery stories included: Kenneth MacGowan's *Sleuths*, an "omnibus"; Ben Ames Williams' *An End to Mirth*; Raoul Whitefield's *Death in a Bowl*; Anthony Berkeley's *The Second Shot*; Lawrence Sanders' *The Columnist Murder*; Dorothy Sayers' *The Five Red Herrings*; Freeman Crofts' *Mystery in the English Channel*; and many more.

Either sober realism or escaping classification were: *S. S. San Pedro*, by James Gould Cozens; *Sparks Fly Upward*, by Oliver La Farge; *The Man Who Died*, by D. H. Lawrence, about Jesus after the crucifixion; *This Our Exile*, by David Burnham; *Hunger and Love*, by Lionel Britton; *Endless River*, by Felix Riesenberg; *Morning Tide*, by Neil M. Gunn; *In Krusac's House*, by Thames Williamson; *Half a Loaf*, by Grace Hegger Lewis.

Short story books included: *These Thirteen*, by William Faulkner; various authors on the same *Mr. Fothergill's Plot*; *The Night Visitor*, by Arnold Bennett; *Basque People*, by Dorothy Canfield; *First Person Singular*, by W. Somerset Maugham; *Most Women*, by Alec Waugh; *Hope against Hope and Other Stories*, by Stella Benson; *Our Gods are Not Born*, by Charles R. Walker; *Guys and Dolls*, by Damon Runyon; *Oklahoma Town*, by George Milburn; *White-gates*, Scotch stories, by Orgill Mackenzie; *The Road to Canaan*, about Negroes, by Pernet Patterson; *Guests of the Nation*, Irish stuff, by Frank O'Connor.

POETRY. A sequence of love sonnets by Edna St. Vincent Millay, *Fatal Interview*, was perhaps the most highly praised and best selling poetry of 1931. John Masefield's *Minnie Maylow's Story* contained narrative poems in his early most successful manner. Ogden Nash, with strange rhymes and sophisticated humor, won many buyers and probably more imitators for his *Hard Lines* and *Free Wheeling*. Edwin Arlington Robinson reworked the vein of psychological narrative in *Matthias at the Door*. Dorothy Parker's *Death and Taxes* was acridly humorous. Sylvia Townsend Warner's *Opus 7* was the story, gracefully told, of a drunken woman flower-grower. Alice Duer Miller treated the triangle situation in *Forsaking All Others*. Conrad Aiken's two books, *Preludes for Memnon* and *The Coming Forth by Day of Osiris Jones*, were darkly pessimistic. A.E.'s *Enchantment and Other Poems* was highly praised, as was *Strict Joy*, by his compatriot James Stephens. Difficult "modern" verse was represented by Robert Graves' *To Whom Else?* and E. E. Cummings' *VV (Viva)*. Joseph Auslander made a highly regarded translation of *The Sonnets of Petrarch*.

Other books of poetry were: *The Flowering Stone*, by George Dillon; *The Georgiad*, by Roy Campbell; *Jonathan Gentry*, a long narrative by Mark van Doren; *The Heart's Unreason*, by Edward Davison; *Eden Tree*, by Witter Bynner; *The Cicadas and Other Poems*, by Aldous Huxley; *Naked Heel*, by Leonora Speyer; *Green River*, by James Whaler; *Ballads and Poems*,

1915-1930, by Stephen Vincent Benét; *Jane Matthew and Other Poems*, by Eda Lou Walton; *Jaabo Brown*, by Du Bose Heyward; *Snow*, by Humbert Wolfe; and *Godbey*, by Edgar Lee Masters.

Among the anthologies were: *American Poetry from the Beginnings to Whitman*, by Louis Untermeyer; *The Pleasures of Poetry*, by Edith Sitwell; and—strange apparition at this date—*Imagist Anthology 1930*, by Ford Madox Ford and Glenn Hughes.

DRAMA. The long Greek melodrama by Eugene O'Neill, *Mourning Becomes Electra*, takes first place among dramas of 1931. Paul Green's *The House of Connelly* dealt with a decaying Southern family. Noel Coward's *Post-Mortem* showed a British soldier revisiting the post-war world. In *The Anatomist*, *Tobias and the Angel*, *The Amazed Evangelist*, James Bridie showed himself a promising playwright. Philip Barry's *Tomorrow and To-morrow* used the good old triangle plot. William Bolitho's *Overture 1920* dealt with the post-war world, as did Hans Chlumberg's *Miracle at Verdun*, translated by Julian Leigh.

Among anthologies were: four volumes of *Contemporary Drama*, by E. Bradlee Watson and Benfield Pressey; *Dramas of Modernism*, by Montrose J. Moses; *Plays of the Restoration and Eighteenth Century*, by Dougald MacMillan and H. M. Jones; and *Modern American and British Plays*, by S. M. Tucker.

ESSAYS. *If, or History Rewritten*, by various authors, told what might have happened if—. *The Mirrors of 1932 and Washington Merry-Go-Round*, both anonymous, were political gossip, as Rebecca West's *Ending in Earnest* was literary gossip. W. C. Sellar and R. J. Yeatman spoofed English history in *1066 and All That*, and Richard Dark did likewise for English literature in *Shakespeare and That Crush*. Other humorous essayists included Frank Sullivan with *Broccoli and Old Lace*; Will Cuppy with *How to Tell Your Friends from the Apes*; Stephen Leacock with *Wet Wit and Dry Humor*; George S. Chappell with *Dr. Traprock's Memory Book and The Gardener's Friend and Other Pests*. The serious thinkers included: Irwin Edman with *The Contemporary and His Soul*; Benjamin N. Cardozo with *Law and Literature and Other Essays and Addresses*; Julian Huxley with *What Dare I Think?*; Sir J. G. Frazer with *Garnered Sheaves*. Will Durant's *Adventures in Genius* was biographical. J. Brooks Atkinson reminisced in *East of the Hudson*; Max Eastman attacked some contemporaries in *The Literary Mind*. Others were: *Come to Think of It*, by G. K. Chesterton; *Out of Soundings*, by H. M. Tomlinson; *The Balconinny*, by J. B. Priestley; *Adventures in Solitude*, by Ray Stannard Baker; *A Conversation with a Cat and Others*, by Hilaire Belloc; *Music at Night and Other Essays*, by Aldous Huxley; *Apocalypse*, by D. H. Lawrence; *Skyscrapers and Other Essays*, by L. B. Namier; *Visibility Good*, by E. V. Lucas.

CRITICISM AND LITERARY HISTORY. Edmund Wilson's *Axel's Castle*, demonstrating the influence of French symbolism upon many types of later work, was fresh and well done. Philo M. Buck's *The Golden Thread* followed the course of the grand tradition in letters. Lewis Mumford's *The Brown Decades* dealt critically with the period 1865-1895 in American arts. Constance Rourke's *American Humor, a Study of*

*the National Character*, and Russell Blankenship's *American Literature as an Expression of the National Mind*, followed the principles of Professor Parrington's *Main Currents in American Thought*. Henry Seidel Canby's *Oclassio Americans* was temperate and judicious.

There was much interesting and valuable writing about Shakespeare, such as: Leslie Hotson's *Shakespeare versus Shallow*, reporting his annual discovery; Lily B. Campbell's *Shakespeare's Tragic Heroes. Slaves of Passion*; J. W. Mac-kail's *The Approach to Shakespeare*.

Concerned with other dramatists and the theatre were: Allardyce Nicoll's *Masks, Mimes, and Miracles*; J. M. Robertson's *Marlowe*; D. Crane Taylor's *William Congreve*; Rosamund Gilder's *Enter the Actress*; Harley Granville-Barker's *On Dramatic Method*; volumes v, vi, and vii of George C. D. Odell's *Annals of the New York Stage*; Frank W. Chandler's *Modern Continental Playwrights*; Newell W. Sawyer's *The Comedy of Manners from Sheridan to Maugham*.

About poets and poetry: *Wordsworth*, by C. H. Herford; *Chaucer*, by John Masefield; *Imagism and the Imagists*, by Glenn Hughes; *Swinburne*, by William R. Rutland; *Landscape in English Art and Poetry*, by Laurence Binyon; *The Greek View of Poetry*, by E. E. Sikes; *Poetry and the Criticism of Life*, by H. W. Garrod. About novelists: Arthur McDowell's *Thomas Hardy: a Critical Study*; John Bailey's *Introduction to Jane Austen*; F. C. Green's *French Novelists from the Revolution to Proust*; Stuart Gilbert's *James Joyce's Ulysses*; H. Douglas Thomson's *Masters of Mystery: a Study of the Detective Story*.

*Fashion in Literature*, by E. E. Kellett; *Vulgarity in Literature*, by Aldous Huxley; *The Romantic Quest*, by Hoxie N. Fairchild; volume ii of *Scrutinies*, by various authors; volume x of *Essays by Divers Hands*, edited by Sir Francis Younghusband; *A Survey of Burlesque and Parody in English*, by George Kitchin; *Seven Types of Ambiguity*, by William Empson, ranged widely over the literary fields. And Percy H. Boynton's *The Rediscovery of the Frontier*; Bliss Perry's *Emerson Today*; and John Jay Chapman's *Plato and Lucian* were important.

BIOGRAPHY. Even in times of depression the value and popularity of biography continued undiminished. As charming and thoughtful a work as the year showed was *The Autobiography of Lincoln Steffens*, a former newspaper reporter and editor who had exposed many political and civic ills. Volumes iii and iv of *The Life and Letters of Woodrow Wilson*, by Ray Stannard Baker, carried him up to the World War. John J. Pershing's *My Experiences in the World War* revealed his struggle for independent command. *Newton D. Baker: America at War*, by Frederick Palmer, showed the home side of the same conflict, as did *Crowded Years*, autobiography by William Gibbs McAdoo, helped by W. E. Woodward. Roosevelt was done twice, in *Theodore Roosevelt*, by Walter F. McCaleb, and *Theodore Roosevelt*, by Henry F. Pringle. Other Americans of political importance were written about in *Lincoln the Man*, an attack by Edgar Lee Masters; *George Washington*, by Bernard Fay; *The Rise of U. S. Grant*, by A. L. Conger; *Light Horse Harry Lee*, by Thomas Boyd; *Master of Manhattan* (Richard Croker) by Lothrop Stoddard.

Delightful in every way was *Ellen Terry and Bernard Shaw: a Correspondence*, edited by



Christopher St. John. Shaw was done again in Frank Harris's *Bernard Shaw*. About other English literary figures were: J. Middleton Murry's *Son of Woman*, about D. H. Lawrence; Evan Charteris' *Life and Letters of Sir Edmund Gosse*; C. Archer's *William Archer*; George O'Neill's *Special Hunger*, about Keats; Gaius Glenn Atkins' *Life of Cardinal Newman*; R. Brimley Johnson's *Jane Austen*; Michael Sadleir's *Bulwer*; Malcolm Elwin's *Charles Reade*; Mona Wilson's *Sir Philip Sidney*; Sidney Dark's *Robert Louis Stevenson*; John Drinkwater's autobiography *Inheritance*; Eric Linklater's *Ben Jonson and King James*; J. Y. T. Grieg's *David Hume*; Ernest Rhys' *Everyman Remembers*; and Catherine Carswell's largely fictional *Life of Robert Burns*.

Wellington, by Philip Guedalla, was written with his customary brilliance. Sir Robert Walpole was done twice: in volume ii of *The Endless Adventure*, by F. S. Oliver, and *Robert Walpole and His Age*, by G. R. Stirling Taylor. Other books about English political personages were: *Lord Rosebery*, by the Marquis of Crewe; *Cranmer*, by Hilaire Belloc; *Nelson*, by Clennell Wilkinson; *King Charles II*, by Arthur Bryant; volume ii, series iii, of *The Letters of Queen Victoria*, edited by G. E. Buckle; volume iii, *Dawes to Locarno*, of Viscount D'Abernon's *Diary of an Ambassador*; Denis Gwynn's *Traitor or Patriot?* about Sir Roger Casement; Henry Harrison's *Parnell Vindicated*; Bernard M. Allen's *Gordon and the Sudan*.

Lytton Strachey published a mélange of essays, *Portraits in Miniature*. Edith Gittings Reid described Sir William Osler in *The Great Physician*; and Gertrude M. Williams, Annie Besant in *The Passionate Pilgrim*. Other Englishmen were treated in: *Turner*, by Walter Bayes; *Men and Memories*, by Sir William Rothstein; *John Wesley*, by C. E. Vulliamy.

Theodore Dreiser's *Dawn* was autobiography, as was Hamlin Garland's *Companions of the Trail*, Christopher Morley's *John Mistletoe*, Owen Davis's *I'd like to Do It Again*, and Arthur Train's *Puritan's Progress*. Few American writers were written about, but there was *The Caliph of Bagdad* (about O. Henry), by R. H. Davis and A. B. Maurice, and *James Fenimore Cooper*, by Henry Walcott Boynton. Other Americans included: *The Life and Times of Lydia E. Pinkham*, by Robert Collyer Washburn; *The White King of La Gonave*, by Faustine Wirkus and Tanev Dudley; *Plain Anne Ellis*, by Anne Ellis; *My United States*, by Frederic Jessup Stimson; *Bedford Forrest and His Critter Company*, by Andrew Nelson Lytle; *Incredible Carnegie*, by John K. Winkler; *Wyatt Earp*, by Stuart N. Lake; *Whistler*, by James Laver; *Sister Aimee*, by Nancy Barr Mavity; four lives of Knute Rockne. And volumes vi and vii of the *Dictionary of American Biography*, edited by Allen Johnson and Dumas Malone.

The Russians were of absorbing interest, as in every field this year. Lenin had three books: D. S. Mirsky's *Lenin*; George Vernadsky's *Lenin, Red Dictator*; Ferdinand A. Ossendowski's *Lenin, God of the Godless*. Other Russians included: *Stalin*, by Isaac Don Levine; *Dostoevsky*, by Edward Hallett Carr; *Maxim Gorki and His Russia*, by Alexander Kaun; *The Education of a Princess*, by the Grand Duchess Marie.

About speakers of French were: *Memoirs of Marshal Foch*, translated by T. B. Mott, and

Liddell Hart's *Foch*; R. Macnair Wilson's *Germaine de Staël*; Agnes Repplier's *Mère Marie of the Ursulines*; Percy Waxman's *The Black Napoleon*, about Toussaint L'Ouverture; Jean Plattard's *Life of François Rabelais*; C. E. Vulliamy's *Rousseau*; André Mourois' *Lyautey*; L. V. Jacks' *La Salle*.

Other Europeans were described in: Frederico Nardelli and Arthur Livingston's *Gabriel the Archangel*, about D'Annunzio; Fritz Wittels' *Freud and His Times*; H. S. Ede's *Savage Messiah*, about Gaudier-Brzeska; Faith Compton Mackenzie's *The Sibyl of the North*, about Queen Christina of Sweden; Francis Toye's *Giuseppe Verdi*; *Memoirs of Prince von Bulow*, translated by F. A. Voight; *Cervantes*, by T. R. Ybarra; D. B. Wyndham Lewis's *Charles of Europe*, about Charles V; Ernest Newman's *Fact and Fiction about Wagner*. Asians were few: *Noguchi*, by Gustav Eckstein; and *Mahatma Gandhi at Work*, edited by C. F. Andrews.

THE FINE ARTS. These boasted a best-seller, Thomas Craven's *Men of Art*, about painters from Giotto to Cézanne. Their characters and characteristics were vigorously exhibited. Robert Byron and David T. Rice, in *The Birth of Western Painting*, ascribed that birth to the Byzantines. The new Whitney Museum fathered an American Artists Series, biographical-critical works: *Arthur B. Davies*, and *Guy Pène du Bois*, by Royal Cortissoz; *Maurice Prendergast*, by Margaret Breuning; *John H. Twachtman*, by Allen Tucker; *George Bellows*, by George Eggers; *Kenneth Hayes Miller*, by Alan Burroughs; *Robert Henri*, by Helen A. Read; *William Glackens*, *John Sloan*, and *Edward Hopper*, by Guy Pène du Bois; *George Luks*, by Elisabeth Luther Cary; *Eugene Speicher*, by Frank Jewett Mather, Jr.; *Henry Lee McFee*, by Virgil Barker.

Frank Lloyd Wright's *Modern Architecture* will no doubt become gospel to modernists in that field. *The Sculptor Speaks*, Joseph Epstein to Arnold L. Haskell, will probably have similar authority. Others on sculpture: *The Art of Carved Sculpture*, by Kineton Sparks; *Medieval Sculpture in France*, by Arthur Gardner. National studies included: René Grousset's *The Civilization of the East*; *The Art of Egypt through the Ages*, edited by Sir E. Denison Ross.

RELIGION. Generally, the tone of the bulk of the religious writing of the year was non-controversial. But Lewis Browne's *Since Calvary*, a history of Christianity written from the point of view of a Jew, was scarcely sympathetic to its subject. And Herbert Parrish's *What is There Left to Believe?* expressed disillusionment. But there were more books devoted to straight theology, such as: *The Growth of the Idea of God*, by Shailer Matthews; *The Holy and the Living God*, by M. R. Willink; *The Kingdom of God*, by Ernest F. Scott; *The Natural and the Supernatural*, by John Oman; *God and the Universe, a Symposium*, by S. C. Carpenter, M. C. D'Arcy, and B. Lee Woolf, edited by J. Lewis May; *Jesus—Lord or Leader?* by Frank Lenwood; *Jesus and the Gospel of Love*, by Charles Raven; *The World and the New Testament*, by T. R. Glover.

Dealing especially with ethical problems were: Justin Wroe Nixon's *The Moral Crisis in Christianity*, and John Laird's *Morals and Western Religion. Founders of Great Religions*, by Millar Burrows, and *The Historic Jesus*, by James Mackinnon, were biographical. The fol-



lowing were mainly historical: *The Origin and Growth of Religion*, by W. Schmidt; *Religion on the American Frontier: the Baptists, 1788-1830*, by William Warren Sweet; *Religion Follows the Frontier*, by Winfred Ernest Garrison. *A Country Parson Looks at Religion*, by H. Adye Prichard, and *Which Way Religion*, by Harry F. Ward, were devoted to the problems of the churches. And *Religious Realism*, essays by fifteen American Professors, described carefully present-day trends in religious thought.

**SOCIOLOGY.** An impressive work of survey and synthesis was R. H. Tawney's *Equality*. Eleanor Rowland Wembridge provided fascinating case-studies in *Life Among the Lowbrows*. Mary R. Beard's *On Understanding Women* showed that social history was too exclusively masculine. Sherwood Anderson's *Perhaps Women* appealed to them to take charge of civilization. Other important works on women, love, and marriage were: Mary Day Winn's *Adam's Rib*; Marie C. Stopes' *Married Love*; Havelock Ellis' *More Essays of Love and Virtue*; E. B. Reuter and Jessie R. Runner's *The Family*. Gina Lombroso, in *The Tragedies of Progress*, pled for a revival of handicraft. *Men of Earth*, by Russell Lord, dealt with the necessities of the farmers. The anthropological origins of civilization were considered in: *The Making of Man*, edited by V. F. Calverton; *Man's Own Show*, by George A. Dorsey; and *Robots or Gods*, by Alexander Goldenweiser. George S. Counts, in *The Soviet Challenge to America*, made a comparison of social conditions. Margaret Wilson's *The Crime of Punishment*, John G. Gillin's *Taming the Criminal*, and Ernest Jerome Hopkins' *Our Lawless Police*, were outstanding works in criminology. Robert Gessner's *Massacre* exposed the United States treatment of the Indians. Katherine Mayo continued *Mother India* in *Volume Two. The Public Pays*, by Ernest Gruening, exhibited the workings of public utility propaganda.

Confining their attention to America: Salvador de Madariaga in *Americans*; Jay Franklin in *What This Country Needs*; and *Behold America!* edited by S. D. Schmalhausen; Louis Adamic's *Dynamite: the Story of Class Violence in America*, and Heywood Broun and George Brett's *Christians Only*, about anti-Jewish prejudice, deserve mention. General works included: Jerome Davis' *Contemporary Social Movements*; C. DeLisle Burns' *Modern Civilization on Trial*; *A Systematic Source Book in Rural Sociology*, edited by Pitirim A. Sorokin, Carl C. Zimmerman and C. J. Galpin; and volumes iv and v of *The Encyclopædia of the Social Sciences*, edited by E. R. A. Seligman.

**EDUCATION.** L. P. Jacks' *The Education of a Whole Man* was perhaps the most favorably reviewed non-technical work in this field. Two books appeared on English universities: the anonymous *The Government of Oxford*, and Ernest Barker's *Universities in Great Britain*. George Sarton's *The History of Science and the New Humanism* used the history of education as a basis for prophecy. Other works were: *This New Education*, by Herman H. Horne; *Education as a Social Force*, by M. V. Marshall; and *Creative Mind*, by C. Spearman.

**POLITICS AND INTERNATIONAL.** The great topics this year were Russia and Peace. About the first: M. Ilin's *New Russia's Primer*, translated by G. S. Counts and N. P. Lodge; Bruce

Hopper's *Pan-Sovietism*; William C. White's *These Russians*; Sherwood Eddy's *The Challenge of Russia*; Edmund A. Walsh's *The Last Stand*; Louis Fischer's *Why Recognize Russia*; Maurice Hindus' *Red Bread*; and many others. About Peace: Esmé Wingfield-Stratford's *They That Take the Sword*; Frank H. Simonds' *Can Europe Keep the Peace?*; Sir Leo Chiozza Money's *Can War Be Averted?*; A. C. F. Beales' *The History of Peace*; Florence G. Tuttle's *Alternatives to War*. Among general works appeared the second H. G. Wells's *What Are We to Do with Our Lives?*; volume i of Leonard Woolf's *After the Deluge*; G. Young's *The Pendulum of Progress*; *Social and Political Ideas of the Revolutionary Era*, edited by F. J. C. Hearnshaw; and Charles Hodges' *Background of International Relations*.

Concerned with particular nations were: C. Walter Young's *Japan's Special Position in Manchuria*; Harold G. Moulton and Junichi Ko's *Japan: an Economic and Financial Appraisal*; W. R. Crocker's *The Japanese Population Problem*; Sherwood Eddy's *The Challenge of the East*; E. M. Gall's *Facets of the Chinese Question*; Younghill Kang's *The Grass Roof*, about Korea; H. N. Brailsford's *Rebel India*; Julian Huxley's *Africa View*; John O. Crane's *The Little Entente*; *Dictatorship on Trial*, edited by Otto F. de Battaglia; *England the Unknown Isle*, by Paul Cohen-Portheim; *England's Crisis*, by André Siegfried; *America Hispana*, by Waldo Frank; *Mexico*, by Stuart Chase; *America the Menace*, by Georges Duhamel; *America, We Need You*, by E. Mueller-Sturnheim.

**ECONOMICS.** Happy the nation that has no economics. Russia and the depression made this field interesting to the general reader as almost never before. H. G. Wells explained and propagated ideas in *The Work, Wealth, and Happiness of Mankind*. Various authors, in *Economic Behavior*, described the wealth-getting and wealth-consuming processes. Hartley Withers did the same in *Everybody's Business*. Concerned with our immediate distresses were: Wallace Brett Donham's *Business Adrift*; Norman Thomas' *America's Way Out*; James D. Mooney's *Wages and the Road Ahead*; P. W. Martin's *The Problem of Maintaining Purchasing Power*; James Harvey Rogers' *America Weighs Her Gold*; Charles Albert Collman's *Our Mysterious Panics, 1830-1930*; Paul H. Douglas and Aaron Director's *The Problem of Unemployment*. Three books dealt with combinations: Frank Albert Fetter's *The Masquerade of Monopoly*; H. A. Marquand's *The Dynamics of Industrial Combination*; and Harry W. Laidler's *Concentration in American Industry*. John T. Flynn attempted to prove *Graft in Business*. A. E. Feaveryear, in *The Pound Sterling*, showed its variable value. *The End of Reparations*, by Hjalmar H. G. Schacht, translated by Lewis Garnnett, revealed Germany's economic troubles.

Out of the many books explaining Russian economics, these may be mentioned: Calvin B. Hoover's *The Economic Life of Soviet Russia*; Ethan T. Colton's *The X Y Z of Communism*; *Soviet Foreign Trade, Menace or Promise?* by J. S. Budish and S. S. Shipman; *The Success of the Five-Year Plan*, by V. M. Molotov; *Piateletka—Russia's Five-Year Plan*, by Michael Farbman; *The Red Trade Menace*, by H. R. Knickerbocker; and *Red Villages*, about Russian agriculture, by Y. A. Yakolov (trans. by A. L. Strong).

**HISTORY.** A most amusing, though carefully documented, work was Walter Millis' *The Martial Spirit*, about the Spanish-American War. *The Epic of America*, by James Truslow Adams, was brilliant social history. George Fort Milton published *The Age of Hate*, about 1864-1869, a favorite period of late. Frank Lawrence Owsley's *King Cotton Diplomacy*, Donaldson Jordan and Edwin J. Pratt's *Europe and the American Civil War*, and Clarence E. Macartney's *Lincoln and His Cabinet*, were concerned with the Civil War period. *The Course of Empire*, a collection of first hand accounts of the California Gold Rush, edited by Valeska Bari, and *Westward: the Romance of the American Frontier*, by E. Douglas Branch, had similar themes.

Other works in the history of the United States were: *The Populist Revolt*, by John D. Hicks; *Slave Trading in the Old South*, by Frederic Bancroft; *The Correspondence of Sir Thomas Gage with the Secretaries of State, 1763-1775*, edited by Clarence Edwin Carter; *America's Siberian Adventure*, by General William S. Graves; and *Only Yesterday*, about the 1920's, by Frederick Lewis Allen.

A fresh general history of England was J. A. Williamson's *The Evolution of England*. Other works in English history were scattered: Volume iv of Hilaire Belloc's *The History of England*; *The English Revolution, 1603-1714*, by I. Deane Jones; *The Foreign Policy of Castlereagh, 1812-1815*, by C. K. Webster; *A Second Elizabethan Journal*, by G. B. Harrison; *Georgian England*, by A. E. Richardson. But there was much valuable work done about the World War, including: Winston S. Churchill's *The Unknown War*, about the various eastern theatres; volume v of *Naval Operations*, of the British *Official History of the War*, by Sir Henry Newbolt; volume iii, *The Growing Antagonism, 1898-1910*, selected and translated from *German Diplomatic Documents, 1871-1914*, by E. T. S. Dugdale; *The German Submarine War*, by R. H. Gibson and Maurice Prendergast; and *Liaison 1914*, by General E. L. Spears.

In European history appeared: Sir J. A. R. Marriott's *A History of Europe from 1815 to 1923*; R. B. Mowat's *The Concert of Europe*; G. P. Gooch's *Studies in Modern History*; and James Westfall Thompson's *The Middle Ages, 300-1500*. Two studies of the French revolution were: Meade Minnegerode's *The Magnificent Comedy* and J. Mills Whitham's *A Biographical History of the French Revolution*. Frederick B. Artz published *France Under the Bourbon Restoration*. In early history: *Early Man*, by G. Elliot Smith, Sir Arthur Keith, and others; *Ancient Civilizations of the Andes*, by Philip Armesworth Means; *The Architect of the Roman Empire*, Augustus, by T. Rice Holmes; and *Viking Civilization*, by Axel Olrik. Histories of particular nations: volume ii of Eleanor Hull's *A History of Ireland*; D. S. Mirsky's *Russia: a Social History*; T. W. Atchley's *Finland*; and F. A. Kirkpatrick's *A History of the Argentine Republic*.

**SCIENCE.** Among the general books of popular science, Bertrand Russell's *The Scientific Outlook* attacked the conclusions of some recently successful writers for the public; Edward R. Weirlein and William A. Hamor, in *Science in Action*, showed its relation to industry; *The Degradation of Science*, by T. Swann Harding, complained of the profit economy which governed

scientific effort; F. S. C. Northrup's *Science and First Principles* explained the relation of recent results in physics to other fields. John O'Hara Cosgrave discussed the ends of science in *The Academy for Souls*. Peter D. Ouspensky projected *A New Model of the Universe*.

The great effort of the year in biology was either *The Science of Life*, by H. G. Wells, Julian Huxley, and G. P. Wells, or *Life*, by J. Arthur Thompson and Patrick Geddes. And J. S. Haldane wrote about *The Philosophical Basis of Biology*; Lancelot Hogben about *The Nature of Living Matter*; E. S. Russell about *The Interpretation of Development and Heredity*; and various authors, under the editorship of Edward M. East, about *Biology in Human Affairs*.

The physicists produced: *Beyond Physics*, by Sir Oliver Lodge; *The New Conception of Matter*, by C. G. Darwin; and *Amber to Amperes*, by Ernest Greenwood. A history was: *Two Thousand Years of Science*, by R. J. Harvey Gibson. Others: Henry Smith Williams' *The Biography of Mother Earth*, supporting the theory of continental drift; W. G. Kendrow's *Climate*; Charles R. Stockard's *The Physical Basis of Personality*, physiology; T. C. Bridges and H. H. Tiltman's *Master Minds of Modern Science*; and Sir Arthur Keith's *New Discoveries Relating to the Antiquity of Man*.

**TRAVEL AND OUT-OF-DOORS.** Africa was a favorite subject, as shown by: William B. Seabrook's *Jungle Ways*, which tried hard to be sensational; Janet Miller's *Jungles Preferred*, quiet and impressive; Paul L. Hoefler's *Africa Speaks*; Ronald A. Monson's *Across Africa on Foot*; Sidney Spencer Broomfield's *Kachalola, or Mighty Hunter*.

The Irishman Liam O'Flaherty published *I Went to Russia*, and Vladimir Zenzonoff and Isaac Don Levine wrote *The Road to Oblivion* about Siberia. Arnold J. Toynbee made *A Journey to China*, and Llewelyn Powys *A Pagan's Pilgrimage to the Holy Land*. Alfred Batson found Nicaragua *Vagabond's Paradise*, and Julian Duguid thought the upper reaches of the Amazon *Green Hell*. Robert Lee Eskridge visited *Manga Reva: the Forgotten Islands*, and Hendrik de Leeuw the *Crossroads of the Java Sea*. Douglas Goldring wrote about *Sardinia*; Bertram Thomas about *Alarms and Excursions in Arabia*; Michael Terry about *Hidden Wealth and Hidden People*, in the Australian deserts; and Alfred F. Loomis about *Hotspur's Cruise in the Aegean*. Carleton Beals' *Mexican Maze*; R. W. Thompson's *Argentine Interlude*; and Mrs. Basil Hall's *The Aristocratic Journey, to America in 1827*, edited by Una Pope-Hennessy, were notable.

About sailing appeared *Windjammer*, by Ken Attiwill; *Sail Ho!* by Gordon Grant; *Under the North Pole*, by Sir Hubert Wilkins and others; and *The Wreck of the Dumaru*, by Lowell Thomas. Perhaps *Nudism in Modern Life*, by Maurice Parmelee, fitly concludes. See **PHILOLOGY, MODERN**.

**LITERATURE STUDIES.** See **PHILOLOGY, MODERN**.

**LITHUANIA**, lith'ú-á'n'á. A Baltic republic established Feb. 16, 1918, from territories of the former Russian Empire; bounded by Latvia on the north, Poland on the east, and Poland and East Prussia on the south and southwest. Capital, Kovno, although Vilna, which was transferred to Poland by the Council of Ambassadors in 1923, was still claimed by Lithuania as its capital.

**AREA AND POPULATION.** Poland retains possession of approximately 10,000 square miles of territory claimed by Lithuania. The actual area under Lithuanian sovereignty in 1931 was 21,490 square miles, and the population on Jan. 1, 1931, was 2,367,000, as compared with 2,316,615 on Jan. 1, 1929. The birth rate per 1000 of population in 1929 was 27.2 and the death rate, 17. The chief cities are Kovno (Kaunas), 96,535; Memel (Klaipėda), 36,633; and Shavli (Siauliai), 22,560. Lithuania also claims Gardinas (Grodno), population 61,600, and Suvalkai (Suvalki), population 31,600, which are in Polish hands.

**EDUCATION.** According to the 1923 census, 35.9 per cent of all males and 38.8 per cent of all females over five years of age were illiterate. In 1930, there were 2386 primary schools, with 155,238 pupils, and 101 secondary schools, with 18,595 pupils. The University of Kovno in 1930 enrolled 4025 students.

**PRODUCTION.** Lithuania is predominantly rural, agriculture and lumbering being the chief support of the population. About 50 per cent of the total area is arable land, 25 per cent meadow and pasture land, 16 per cent forests, and 9 per cent waste land. Production of the chief crops in metric tons in 1930 was: Rye, 682,500; wheat, 286,890; barley, 219,440; oats, 384,205; potatoes, 1,852,900; peas, 66,940; flax fibre, about 34,000; flax-seed, about 43,640. Livestock in the same year included 1,170,100 cattle, 1,097,000 sheep, 1,136,000 swine, and 559,000 horses. Mineral resources are small. About 88,000 tons of peat were produced in 1929. There is considerable manufacturing.

**COMMERCE.** In 1930, as in the previous year, Lithuania was the only Baltic state to report an export surplus and also the only one to increase its trade. Exports totaled 333,800,000 lits (1 lit or litas equals \$0.10 at par) in 1930, compared with 329,800,000 lits in 1929, while imports amounted to 312,400,000 lits, as against 306,400,000 lits in 1929. The favorable balance of trade was 21,400,000 lits in 1930 and 23,400,000 in the previous year. According to preliminary returns, imports in 1931 were valued at 277,900,000 lits (\$27,790,000) and exports at 273,100,000 lits (\$27,310,000).

**FINANCE.** For the fiscal calendar year 1930 actual receipts amounted to 347,694,000 lits (\$34,769,000) and actual expenditures to 320,627,000 lits (\$32,063,000). The previous year, also showed a surplus, with receipts of 338,541,000 lits (\$33,854,000) and expenditures of 269,960,000 lits (\$26,996,000). The external public debt on Jan. 1, 1931, totaled 103,494,000 lits (\$100,349,000), of which \$6,235,000 was due the United States government. The internal debt was negligible.

**COMMUNICATIONS.** Railways in operation in March, 1930, totaled 1048 miles, of which 737 miles were broad-gauge lines. Highways extended about 27,543 miles, of which 752 miles were macadam and 7903 improved earth.

**GOVERNMENT.** According to the constitution as amended May 25, 1928, executive power is vested in the President of the Republic, elected for seven years, who acts through a responsible ministry; and legislative power is in a diet elected for five years by universal, equal, direct, and secret suffrage. No elections had been held up to 1931, however, and government remained in the hands of a small nationalist intelligentsia, with legislation being enacted by presidential decrees. President in 1931, Antanas Smetona; Prime

Minister and Minister of Finance, Juozas Tubelis.

**HISTORY.** The continuance during 1931 of the disputes with Poland over Vilna and with Germany over Memel served effectively to prevent improvement in the inherently unstable internal political situation. The Tubelis Government, in which Foreign Minister Dovas Zaunius remained the most influential figure, took no steps toward the holding of elections and the restoration of parliamentary government. The dictatorship under Voldemaras—deposed in 1929—had alienated the national minorities and this factor, together with the conflict between the dictatorship and the Roman Catholic Church, made its defeat virtually certain had it permitted elections. Instead the Government strove to widen its support by improving agricultural conditions and cultivating foreign markets for the benefit of the commercial classes.

The trial of former Premier Voldemaras and 22 other defendants, on charges of high treason arising from his alleged conspiracy of 1930 for his return to power, was begun behind closed doors at Kovno Aug. 17, 1931. General Plehavičius on August 19 testified that Voldemaras had sought his aid in engineering a coup d'état. The trial ended with the acquittal of Voldemaras and the codefendants, except for minor penalties for assault imposed upon several students. President Smetona was unanimously reelected President by the board of electors on Dec. 11, 1931, for a seven-year term.

The conflict between the dictatorship and the Roman Catholic Church, which led to the severance of diplomatic relations with the Vatican, was in many respects similar to that between the Vatican and the Fascist Government in Italy (see ITALY under *History*). There had been continuous difficulties since the *modus vivendi* of 1928. As Roman Catholicism was the state religion, the 1928 agreement had provided for the continuance of disbursements from the treasury to the clergy. Both the Vatican and the Lithuanian Government, however, insisted upon complete control of these disbursements. The Government, retaining control of the appropriations; had favored the lower clergy, who in general were in sympathy with Lithuanian nationalism. The higher clergy, who were believed sympathetic to Poland, were discriminated against. Late in 1930, as a result of alleged efforts of the higher clergy to organize the theological students against the Government, the President decreed the dissolution of the student (Catholic Action) clubs. The bishops retaliated early in 1931 by ordering the lower clergy to sever their connection with the Government. Thereupon the Government interned certain prelates and the secular leaders of the Christian Democratic party. Broadcasting of church services was also forbidden. The uncompromising stand of both the Government and the Church in the subsequent negotiations resulted in the expulsion of the Papal Nuncio to Lithuania on June 6. Diplomatic relations were reported to have been broken off August 24.

Of considerable importance, in view of the strained relations between Lithuania and Poland, was the renewal for five years on May 6, 1931, of the non-aggression pact of 1926 between Lithuania and the Soviet Union. To the new agreement was annexed an affirmation by the Soviet Government of its recognition of Lithuania's right to Vilna—a recognition originally affirmed in the Soviet-Lithuanian treaty of 1920. See POLAND.

Consult Malbone W. Graham, "Stability in the Baltic States," *Foreign Policy Reports*, May 27, 1931, vol. vii, no. 6.

**LITTLE ENTENTE.** A designation applying to the three countries of Czechoslovakia, Rumania, and Yugoslavia, whose governments in 1920 concluded a defensive alliance aimed at the maintenance of the status quo in central Europe as established by the Treaties of Versailles, St. Germain, and Trianon. The treaties of alliance were renewed in 1929. At the biannual meeting of the Little Entente Foreign Ministers at

The numbers of cattle, calves, hogs, and mutton slaughtered under Federal Inspection in the United States during 1931, as shown in the following table, were not materially different from 1930. The total dressed weight of slaughtered cattle, calves, and mutton was, however, in excess of the three-year average as a result of the cheap feed prices.

The cattle population in the United States was 2.4 per cent larger in 1931 than 1930; the numbers moving into the feed lots during the normal marketing period, from July to October, inclu-

MEAT SLAUGHTERED AND STORED UNDER FEDERAL INSPECTION IN THE UNITED STATES IN 1931, WITH COMPARISONS

	Cattle	Calves	Hogs	Sheep and lambs
Number slaughtered				
1931 .....	8,107,842	4,716,560	44,771,981	18,070,875
1930 .....	8,170,873	4,595,046	44,265,694	16,696,570
3-year average * .....	8,320,583	4,587,988	47,501,902	14,736,034
Total dressed weight of slaughtered animals				
1931—lbs. ....	4,278,467,000	473,004,000	7,831,136,000	687,634,000
1930—lbs. ....	4,245,408,000	458,908,000	7,717,718,000	649,738,000
3-year average —lbs. ....	4,261,804,000	457,831,000	8,242,441,000	572,593,000
In storage on December 31				
1931—lbs. ....	53,199,000 <sup>b</sup>	.....	614,530,000 <sup>c</sup>	2,318,000
1930—lbs. ....	75,285,000 <sup>d</sup>	.....	572,626,000 <sup>e</sup>	4,677,000
3-year average —lbs. ....	92,694,000 <sup>f</sup>	.....	676,988,000 <sup>g</sup>	5,206,000

\* Average for the same period of 1928, 1929, and 1930.

<sup>b</sup> 37,812,000 lbs. fresh, and 15,387,000 lbs. cured beef.

<sup>c</sup> 141,758,000 lbs. fresh, 421,548,000 lbs. cured pork, and 51,224,000 lbs. lard.

<sup>d</sup> 55,649,000 lbs. fresh, and 19,836,000 lbs. cured beef.

<sup>e</sup> 122,994,000 lbs. fresh, 398,198,000 lbs. cured pork, and 51,434,000 lbs. lard

<sup>f</sup> 69,977,000 lbs. fresh, and 22,717,000 lbs. cured beef.

<sup>g</sup> 139,961,000 lbs. fresh, 464,111,000 lbs. cured pork, and 72,916,000 lbs. lard.

Bucharest May 3-5, 1931, a resolution was adopted strongly condemning the projected Austro-German Customs Union and endorsing the demand of France and Great Britain that the proposal be submitted to the World Court (see AUSTRIA, GERMANY, and FRANCE under *History*). The conference also reached full agreement with regard to the participation of the Little Entente in the 1932 Disarmament Conference and their position on proposals for adjusting the Kellogg-Briand Peace Pact to the covenant of the League of Nations.

See also CZECHOSLOVAKIA, RUMANIA, and YUGOSLAVIA under *History*. Consult John O. Crane, *The Little Entente* (New York, 1931).

**LITTLE THEATRE MOVEMENT.** See THEATRE.

**LITTMANN, MAX.** A German architect, died in Munich, Sept. 21, 1931. He was born in Chemnitz, Jan. 3, 1862, and studied there and in Dresden. After traveling in Italy he became a resident of Munich in 1888. In 1892 with the engineer, Jacob Heilmann, he established the firm of Heilmann and Littmann which designed, among other notable buildings in Munich, the Hofbrauhaus, Schack Gallery, and Prince Regent Theatre. This firm also designed the Schiller Theatre in Charlottenburg, National Theatre in Weimar, Court Theatre in Stuttgart, and Municipal Theatres in Hildesheim and Posen.

**LIVESTOCK.** In 1931 livestock products, like other agricultural commodities, were marketed under adverse conditions as a result of the reduced domestic and foreign demand. The price of meat animals declined rather steadily during the year, but the relationship between feed prices and meat animal prices made the relative economic position of the industry as compared with that of most of the alternative agricultural enterprises, as favorable as when prices were higher. See AGRICULTURE under *Federal Farm Board*.

sive, were smaller than the movement for that period in 1930 and considerably below the five-year average for the period. Short feed and water supplies in some of the range States resulted in some forced marketing of cattle during the summer and autumn, but feed supplies in a few of the range States were sufficient to permit holding the cattle over to be marketed in 1932. While prices of feeder cattle were lower, the ratio of feed grain and fat-cattle prices were higher, and feed supplies in most of the principal cattle-feeding States were larger, the scarcity of credit and the heavy losses from feeding operations in the years 1929 and 1930 tended to discourage farmers from feeding cattle.

The numbers of hogs on farms and the supplies of hog products in storage in the United States were larger than they were in 1930, but were smaller than the five-year average. The numbers of hogs slaughtered and the total dressed weight of slaughtered animals was slightly greater in 1931 than in 1930. The upward trend in European hog production was shown by the fact that there was an increase of 12.3 per cent in total hog numbers in Denmark, an increase of 8.2 per cent in numbers in Germany, and evidence of substantial increases in The Netherlands, Poland, and the Baltic States. A survey in June, 1931, showed a marked increase in the number of sows to farrow in the fall of 1931 in the United States. The per capita consumption of federally inspected pork and lard was 4.1 per cent smaller in 1931 than in 1930.

Increased hog production in European countries and decreased purchasing power of European consumers caused the export of hog products from the United States to be the smallest in more than 30 years. The principal export product, lard, dropped from 642,486,396 pounds during 1930 to 568,708,208 pounds in 1931. Germany increased her imports of lard from

the United States by 21,550,558 pounds, and the United Kingdom by 11,888,069 pounds during 1931, but there was a material reduction in amounts exported to other European and Central American countries. Other pork products exported by the United States that decreased in 1931, as compared with 1930, were as follows: Cured hams and shoulders, 84,817,944 pounds in 1931, and 120,169,842 pounds in 1930; bacon 36,711,507 pounds in 1931, and 90,686,964 pounds in 1930; pickled pork 15,769,477 pounds in 1931, and 30,628,424 pounds in 1930; and fresh pork 9,614,222 pounds in 1931, and 17,573,008 pounds in 1930.

The sheep industry apparently reached the peak of a production cycle with a 1931 lamb crop, estimated by the U. S. Department of Agriculture, at 31,684,000 head, an increase of about 8 per cent over the 1930 lamb crop. The large lamb crop, together with poor range and feed condition in the range States and restricted credit, caused many range sheepmen to market more than the usual proportion of their lambs. In the native sheep States there was apparently little tendency for farmers to reduce their breeding flocks. There was an increase of 5.6 per cent in the per capita consumption of federally inspected lamb and mutton in 1931 as compared with 1930, but the larger market supplies and a weakened demand were jointly responsible for the lower level of sheep and lamb prices.

The poultry industry was in relatively favorable position in the fall of 1931. The number of poultry on farms had decreased, there was an increase in current market receipts of poultry over 1930, and the stocks of poultry in storage was above both 1930 and the five-year average, while stocks of eggs in storage were much less than during the previous year but only slightly less than the five-year average. During 1931 poultry feed prices showed a greater decline than either poultry or egg prices.

**TRENDS IN RESEARCH.** Studies of economic methods of feeding, nutrition, management, and breeding claimed the attention of investigators during 1931. A knowledge of the needs and uses of minerals in the animal body is of special interest in the field of nutrition. Fluorine, an ingredient of certain minerals commonly fed to livestock, inhibited growth when fed to rats at the Illinois Agricultural Experiment Station. At high levels fluorine salts lowered the percentage of calcium that would normally have been retained by the body. Both the soluble sodium and the insoluble calcium salts were equally effective in bringing about the characteristic abnormalities of the teeth caused by flourine.

The addition of as small an amount of cottonseed meal as 0.5 pound to a ration of wheat straw at the New Mexico Agricultural Experiment Station not only increased the consumption of roughage, but changed the nitrogen balance of the animals from negative to positive, and also increased the rate of gains in body weight. The added proteins of the cottonseed meal were almost solely responsible for the increase in total digestible nutrients of the ration, indicating that protein was probably the most important single nutrient among the total digestible nutrients.

The New Hampshire Agricultural Experiment Station found that the energy requirements of sheep during growth were greater than those of adult sheep. Since sheep mature earlier than larger domestic animals, their metabolism is

higher in proportion to the faster growth rate.

As swine production becomes more intensive and concentration of breeding animals increases, nutritional anemia of young pigs becomes a serious problem. The Illinois Agricultural Experiment Station found that while the addition of iron salts to the feed of young pigs was not effective for preventing anemia, brushing the sow's udder with a solution of iron and copper salts prevented anemia during the entire suckling period. At the New York Cornell Agricultural Experiment Station no anemia was apparent among pigs that received a daily dose of a solution of ferric sulphate, or those which had dried ferrous sulphate mixed with their feed, or those whose dams' udders were painted daily with a concentrated solution of ferric phosphate.

A study of the factors influencing the quality and palatability of meat was the subject of co-operative investigations between several State agricultural experiment stations and the U. S. Department of Agriculture. In studying the age problem in beef, the Missouri and Iowa Agricultural Experiment Stations found that more desirable beef was produced by two-year-old and yearling steers than by calves. While the meat of calves was lighter in color than that of older animals, the latter produced carcasses that were more satisfactorily marbled, and their beef ripened better than the beef of calves. Studies of the influence of sex on the quality of beef at the Missouri, Illinois, and Nebraska Agricultural Experiment Stations revealed that heifer carcasses carried more internal and external fat than steer carcasses of the same age. Steers made more rapid and economical gains than heifers but did not carry as much finish and cut a smaller percentage of hind quarter.

A study of the formation of the hen's egg was made partly at the University of British Columbia, Canada, and partly at the Wisconsin Agricultural Experiment Station to determine the normal functioning of the hen's oviduct and to ascertain how it could be influenced. It was found that the vagina does not take part in the formation of the eggs and that the position of the uterus and its attachment to the ligaments has little if any influence on the muscular or secretory activity of the uterus. Removal of half of the isthmus did not prevent the remainder from forming normal shell membranes, and it was also capable of influencing the shape of the egg and the pigmentation of the shell. Further work indicated that the general shape of the egg is determined by the amount of albumen secreted in the albumen part, which to some extent is dependent upon the size of the bird and the size of the oviduct; by the calibre of the lumen of the albumen part and isthmus; and by the muscular activity of the walls of these parts.

**CHANGE IN PERSONNEL.** Dr. W. A. Lippincott, professor of poultry husbandry at the University of California, died Jan. 5, 1931. Dr. Lippincott, as one of the leading poultrymen of this country, and as a recognized authority on the subject throughout the world, made valuable contributions, especially in the field of breeding, toward the ever increasing knowledge in this phase of the livestock industry. Prof. G. R. Henderson was appointed to succeed Prof. E. J. Maynard, at the Colorado Agricultural Experiment Station, the latter resigning to become head of the animal and poultry husbandry department at the Utah Agricultural Experiment Station, where he succeeded



Dean K. C. Ikeler who was made general manager of the Ogden Livestock Yards. At the Iowa Agricultural Experiment Station, Prof. C. C. Culbertson was appointed chief of beef cattle, swine, and sheep production, and Prof. B. H. Thomas was made chief in animal chemistry and nutrition. Prof. H. E. Reed, of the Kansas Agricultural Experiment Station, resigned to accept a position in the foreign service of the U. S. Bureau of Agricultural Economics, and was succeeded by Prof. A. D. Weber of Nebraska. Prof. W. C. Skelley, of the New Jersey Agricultural Experiment Station, was appointed professor of animal husbandry vice F. G. Helyar who was to devote his entire time to directing resident teaching.

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See also **FOOD AND NUTRITION; VETERINARY MEDICINE; AGRICULTURE; DAIRYING.**

**LIVESTOCK DISEASES.** See **VETERINARY MEDICINE.**

**LIVONIA.** See **LATVIA.**

**LOAD LINE CONVENTION, INTERNATIONAL.** See **SHIPPING.**

**LOANS.** See **BANKS AND BANKING.**

**LOCKOUTS.** See **STRIKES AND LOCKOUTS.**

**LOEB CLASSICAL LIBRARY.** See **PHIOLOGY, CLASSICAL.**

**LOGIC.** See **PHILOSOPHY.**

**LONDON WHEAT CONFERENCE.** See **AGRICULTURE, WHEAT.**

**LONE SCOUTS.** See **BOY SCOUTS OF AMERICA.**

**LONGWORTH, NICHOLAS.** An American public official, died in Aiken, S. C., Apr. 9, 1931. He was born in Cincinnati, O., Nov. 5, 1869, and was graduated from Harvard in 1891. He was admitted to the Ohio bar in 1894, after having received the LL.B. degree from the Cincinnati Law School, and served in the State Legislature of Ohio from 1899 to 1903. During 1903-13 he was a member of Congress and was reelected to the 64th to 72nd Congresses (1915-33) as representative from the 1st Ohio District. He was Republican floor leader of the House of Representatives, 1923-25, and speaker of the 69th, 70th, and 71st Congresses (1925-31). In 1906 he married Alice, daughter of President Theodore Roosevelt.

**LOS ANGELES.** See **AQUEDUCTS.**

**LOS ANGELES ANNIVERSARY.** See **CELEBRATIONS.**

**LOUCHEUR, LOUIS.** A French politician, died in Paris, Nov. 22, 1931. He was born in Roubaix, Aug. 12, 1872, and attended the École Polytechnique in Paris. As an engineer he was interested in industrial enterprises, especially railroad development. He did not come to the fore

as a politician until the World War, when he became Under-Secretary of State for war industries in December, 1916, and for coal supply in March, 1917. He held the portfolio of armaments in Clémenceau's cabinet (1917-20), the ministry being known after the Armistice as that for industrial reconstruction of the liberated regions. He was also consulted in the drafting of the economic sections of the Versailles Treaty. In 1919 he entered the Chamber as deputy of the Nord Department, becoming one of the leaders of the radical left. He again became Minister for Reconstruction of the liberated regions under Briand (January, 1921, to January, 1922), negotiating with Walter Rathenau, the German Minister for Reconstruction, the so-called Wiesbaden agreement. He served as Minister of Labor in Poincaré's cabinet (November, 1928, to July, 1929), in Briand's cabinet (July to October, 1929), and in Tardieu's cabinet (October, 1929, to December, 1930). His last portfolio was that of commerce in the short-lived Steeg cabinet (December, 1930, to January, 1931). He had also represented France at the League of Nations Assembly since 1924 and at the World Economic Conference at Geneva in 1927. He was proprietor of *Le Petit Journal*, a Parisian daily newspaper.

**LOUISE VICTORIA ALEXANDRA DAGMAE, PRINCESS ROYAL OF ENGLAND.** Widow of the Duke of Fife and eldest sister of King George V, died Jan. 4, 1931, in London where she was born Feb. 20, 1867. She was married in 1889 to the Earl of Fife, who was created by Queen Victoria, in honor of the occasion, Duke of Fife and Marquis of Macduff. On the death of the Duke in 1912 she went into semi-retirement. She was declared Princess Royal by her father, King Edward VII, in 1905.

**LOUISIANA. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1931, was 2,101,593; in 1920, 1,789,509. The white population increased to 1,318,160 (1930), from 1,096,611 (1920). The Negro population increased also, to 776,326 (1930), from 700,257 (1920). But as its rate of increase was less rapid, the Negro population receded to 36.9 (1930), from 38.9 (1920), in its percentage relation to the entire population. Of the whites, 34,910 (1930) were foreign-born. Other groups contributed 7107 to the population of 1930. The chief of these groups were Mexicans, first classified apart from foreign whites in 1930, when they numbered 4552. Indians numbered 1536.

Of the 815,725 persons listed as gainful workers, in 1930, 297,239 were in agriculture, 146,836 in manufacturing and mechanical industries (including 26,666 in the building industry and 26,918 in the saw and planing mills), 77,507 in transportation and 98,709 in trade. New Orleans had 458,762 inhabitants (1930), 387,219 (1920); Shreveport, 76,655 (1930), 43,847 (1920); Baton Rouge, the capital, 30,729 (1930), 21,782 (1920).

**AGRICULTURE.** The table on page 478 shows the acreage, production, and value of the principal crops for 1931 and 1930.

**MINERAL PRODUCTION.** After previous diminution the production of petroleum tended upward in 1930, rising to 23,107,000 barrels for that year, from 20,554,000 barrels for 1929; the product rose in value also, to \$26,300,000 (estimated) for 1930, from \$25,700,000 for 1929. The extraction of natural gas was on the increase in 1929, the latest year for which official figures



Crop	Year	Acresage	Prod. Bu.	Value
Cotton .....	1931	1,920,000	865,000*	.....
	1930	2,111,000	715,000*	.....
Rice .....	1931	471,000	17,192,000	10,831,000
	1930	491,000	19,149,000	14,553,000
Corn .....	1931	1,287,000	20,952,000	9,678,000
	1930	1,119,000	12,809,000	11,447,000
Sweet potatoes	1931	72,000	5,400,000	2,700,000
	1930	60,000	4,200,000	3,780,000
Hay, tame ..	1931	166,000	279,000*	2,455,000
	1930	152,000	187,000*	2,524,000
Potatoes ...	1931	48,000	3,986,000	1,968,000
	1930	34,000	2,346,000	3,167,000
Sugar cane .	1931	188,000	2,760,000*	9,948,000
	1930	187,000	3,101,000*	11,051,000

\* Bales.    \* Tons.

were at hand. There were produced, in 1929, 261,138,000 M. cub. ft., as against 227,821,000 M. cub. ft. in 1928; by value, \$26,505,000 for 1929 and \$20,279,000 for 1928. It would appear from the quantity of natural gas gasoline extracted in 1930 that in that year also the natural gas industry was active. There were obtained, in 1930, from natural gas, 70,200,000 gallons of such gasoline, as against 64,957,000 in 1929; by value, \$3,600,000 for 1930 and \$4,010,000 for 1929, when higher prices for the gasoline ruled. The total value of the mineral production of 1929 was \$62,725,997; for 1928, the total was \$56,810,403.

**MANUFACTURES.** Federal Census data gathered in 1930 to cover the year 1929 rendered the number of the State's manufacturing establishments as 1986, which was about 23 per cent more than for 1927. The establishments of 1929 employed 87,511 wage earners, or 0.2 per cent more than had worked in 1927; and paid these wage earners \$83,990,368, or 4.4 per cent more than the wage bill of 1927. Materials for manufacture, plus fuel and purchased electricity, cost \$441,979,590 in 1929, or 3.3 per cent above the 1927 figure. The manufactured product of 1929 was valued at \$684,885,999, and exceeded that of 1927 by 7.3 per cent. The value added to goods by manufacture in 1929 was estimated at \$242,906,409.

**FINANCE.** State expenditures of the year ended Dec. 31, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$23,799,274 (of which \$5,451,625 was for local education); for interest on debt, \$1,701,422; for permanent improvements, \$21,299,267; total \$46,863,331 (of which \$25,594,072 was for highways, \$5,187,564 being for maintenance and \$20,407,108 for construction). Revenues were \$33,209,952. Of these, property and special taxes formed 31.8 per cent; departmental earnings and remuneration to the State for officers' services, 5.2; sale of licenses, 51.1 (including gasoline sale taxes amounting to \$7,334,713). The State's funded debt outstanding on Dec. 31, 1930, was \$37,537,703; \$22,640,000 was for highways. Net of sinking-fund assets, debt was \$37,355,879. On a property valuation of \$1,746,869,796 were levied in the year taxes of \$10,044,501.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 4654.13. In the course of the year preceding, 108.58 miles of line had been given up. No building of additional line or trackage in 1931 was reported.

**EDUCATION.** For the academic year 1930-31, the numbers of the educable school-age population were reported as: White, 399,999; Negro, 263,170; total, 663,169. There were enrolled as pupils 282,337 whites and 154,772 Negroes—in

all, 437,109. Of these, 228,781 whites and 147,915 Negroes were in common schools or elementary grades; in all, 376,896. Those enrolled in high schools numbered 53,556 whites and 6857 Negroes—in all, 60,413. The year's expenditures for public-school education totaled \$17,062,854. Salaries of teachers, by the year, averaged \$1130 for the whites and \$463 for the colored. Two constitutional amendments were adopted by popular vote in 1931, the one requiring the State to furnish support to public schools at the rate of \$12 for each child of school age and the other creating a State equalization fund to be nourished by a tax of one-half cent a gallon on gasoline.

**LEGISLATION.** Governor Long, who advocated the most radical of a number of schemes of cotton restriction proposed in the cotton-growing States as a consequence of the year's collapse in the market for this staple, called the Legislature in special session in August. Conforming to his recommendation on the subject, the Legislature enacted a statute prohibiting entirely the planting of cotton in 1932. The measure was to become operative in January of that year, but only on condition that States supplying three-fourths of the country's cotton crop should previously have adopted similar measures. Under this act a fine of from \$100 to \$500 or imprisonment of from 10 to 60 days was to be the penalty for any person planting cotton within the limits of the State in 1932. The authority was granted to the Commissioner of Agriculture to destroy any cotton found growing in that year. The ginning of cotton was prohibited also.

**POLITICAL AND OTHER EVENTS.** A deficiency of revenue receipts depleted the Treasury in March and compelled the State Treasurer to refuse to honor warrants presented. The sale of bonds that had been authorized in 1930 was nevertheless successful in April, and the State obtained temporary accommodation for its current needs, through loans contracted by the State Board of Liquidation. The statute prohibiting the cultivation of the marihuana plant, used locally as a narcotic drug, was sustained by the Supreme Court of the State on May 26, in a decision affirming a conviction under the law. John H. Overton of Alexandria won the Democratic nomination to the Federal House of Representatives, to succeed the late James B. Aswell, in the March primaries, and was thus assured of election. A party of Acadians from the Maritime Provinces of Canada, 138 in number, visited the Acadian region of Louisiana in April and were the guests of New Orleans.

Lieutenant Governor Paul Cyr, acting on the theory that Governor Long, by his election to be Senator in November of 1930, had become the holder of another office and had therefore ceased to be constitutionally qualified as Governor of the State, attempted to assume the office on October 13. He had himself sworn in at Shreveport. Long rejoined by ordering the National Guard to keep Cyr and his followers out of the Capitol and the executive mansion. Cyr demanded that the troops be disbanded and the dispute submitted to the courts for determination. His suit to be declared Governor was denied in a lower court in November, and he appealed.

The Sage Foundation, which had donated Marsh Island to the State, applied on December 22 for an injunction against the State Conservation Commission, to restrain it from issuing fur-

ther permits to trap on the island; it was alleged that seven men high in State politics had derived considerable sums from the trappers thus favored with special rights on the 500,000-acre wild-life preserve.

**OFFICERS.** Governor, Huey P. Long; Lieutenant-Governor, Paul N. Cyr; Secretary of State, Alice Lee Grosjean; Treasurer, H. B. Conner; Auditor, L. B. Bayard, Jr.; Attorney-General, Percy Saint; Superintendent of Education, T. H. Harris.

**JUDICIARY.** Supreme Court: Charles A. O'Neill, Chief Justice; Associate Justices, Ben C. Dawkins, Winston Overton, John St. Paul, Wynnee G. Rogers, John R. Land, H. F. Brunot, Fred. M. Odom.

**LOUVRE.** See ART MUSEUMS.

**LÜBECK, lü'bék.** A state of the German Republic. See GERMANY under *Area and Population*.

**LUBRICANTS.** See CHEMISTRY, INDUSTRIAL.

**LUCAS MALET.** See HARRISON, MARY ST. LEGER.

**LUIGGI, LUIGI.** An Italian engineer, died in Rome, Feb. 1, 1931. Born in Genoa in 1856, he played an important part in the commercial development of his native city, having charge from 1882 to 1892 of the construction of the breakwaters in the harbor of Genoa. He was also engaged from 1896 to 1905 as consulting engineer to the Argentine government. He was professor of hydraulic and maritime engineering at the Royal University of Rome, inspector general of the Royal Corps of Civil Engineers, a member of the international advisory board for the Suez Canal, a director of the State railways of Italy, and a member of the Italian Senate.

**LUMBER.** See FORESTRY.

**LUNDIE, JOHN.** An American consulting engineer, died in New York City, Feb. 9, 1931. He was born in Arbroath, Scotland, Dec. 14, 1857. Following his graduation from the University of Edinburgh in 1880, he came to the United States and was engaged in railroad engineering in Oregon and Washington until 1884, in municipal work in Chicago until 1890, and in bridge construction until 1893. He then took up private practice, and at the time of his death was president of the Lundie Engineering Corporation in New York City. He assisted in the electrification of the Illinois Central Railroad, the Boston, Brooklyn, and Manhattan Elevated Railroads, and the London Underground lines. In addition to designing the combined electric hoist and traveler known as the "telfer," he designed the Lundie rheostat, tie plate, and duplex rail anchor, and developed the Lundie formula for train resistance. He was at one time an officer in charge of the Birmingham Southern Railroad Company and vice president and general manager of the Panama-American Corporation in Panama.

**LUTHERAN CHURCH.** A church made up of groups of religious bodies, acknowledging "the Holy Scriptures . . . as the only source and infallible norm of all church doctrine and practice" and declaring the unaltered Augsburg Confession and Luther's Small Catechism to be "a pure exposition of the Word of God." Its membership is chiefly in central and northern Europe and in the United States and Canada. The following organizations in the United States bear the Lutheran name: United Lutheran Church in America; American Lutheran Conference; Evangelical Lutheran Church (Eielsen Synod); Church of the Lutheran Brethren of

America; Danish Evangelical Lutheran Church of America; Icelandic Lutheran Synod of North America; Finnish Evangelical Synod in America (Suomi Synod); Finnish Evangelical Lutheran National Church; Finnish Apostolic Lutheran Church; and the Evangelical Lutheran Synodical Conference of North America.

During 1931 the American Lutheran Conference completed its organization by the appointment of working commissions and committees (see 1930 YEAR BOOK). There also was organized in Pittsburgh, Pa., Nov. 26, 1931, a conference of Hungarian Lutherans in the United States and Canada, with a view to uniting all Hungarian Lutheran churches and societies. The Lutheran Church of Europe, especially Germany and Sweden, celebrated on Sept. 17, 1931, the three hundredth anniversary of the Battle of Breitenfeld, as well as honored the memory of Gustavus Adolphus, the savior of the cause of Protestantism in Germany. On Dec. 18, 1931, Prof. Erling Eidem of Lund University was appointed Archbishop of Upsala and Primate of Sweden, succeeding the Most Rev. Nathan Söderblom (q.v.).

Statistics showing the general growth of the church in the United States and Canada during 1930-31 were as follows: Pastors, 11,953; congregations, 16,532; baptized members, 4,350,002; confirmed or communicant members, 2,908,702. Church schools numbered 19,741, with 148,899 officers and teachers and 1,637,181 pupils; catechumens numbered 105,623. Church property was valued at \$378,575,685, while congregational expenses amounted to \$44,901,614, congregational benevolences to \$11,496,585, and total congregational expenditures to \$56,398,199. It was estimated that throughout the world there were 75,000 Lutheran congregations, with 50,000 pastors and a baptized membership of 82,180,000.

In 1931 the Lutheran organizations in the United States maintained 34 theological seminaries, 36 colleges, and 93 academies, with a total enrollment of 38,294 students, 2217 instructors, endowment amounting to \$16,486,837, and property valued at \$39,994,773. An outstanding event in the educational field was the accrediting of the Lutheran Theological Seminary at Gettysburg, Pa., by Queen Wilhelmina of the Netherlands, one of 30 institutions accredited in the United States and the only Lutheran institution so honored. Lutheran inner-mission institutions, such as deaconesses' homes, hospitals, old-people's homes, orphanages, immigrants' and seamen's homes, numbered 400, with an endowment of \$4,466,180 and a property value of \$42,568,002; during the year they sheltered or ministered to 6156 children and 431,689 men and women. The Lutheran Federation of Charities was organized in New York City Mar. 3, 1931, by inner-mission work representatives of the Evangelical Lutheran Synodical Conference of North America.

The work of the churches in fields outside of the United States and Canada was carried on principally in India, Africa, Japan, China, New Guinea, Argentina, and British Guiana. Baptized converts in 3867 congregations numbered 314,511; confirmed members, 203,449; and communing members, 189,102. The total value of the property of these congregations was \$5,886,787. The United Theological Seminary, established by the United Lutheran Church of

America in Madras, India, was opened on July 18, 1931. Fifteen Lutheran congregations in the Kilimandjaro, the Meru, and the Para Mountain districts in East Africa held their first church conference in August, 1930. The Board of American Missions, after lengthy negotiations with the Suomi Synod, took over all of the Finnish work in Canada and assumed the full support of that work so far as support was necessary.

The church maintains 25 publishing houses with a total property value of \$5,663,798. Official periodicals are the *Lutheran* (United Lutheran Church), *Lutheran Standard* (American Lutheran Church), *Lutheran Companion* (Augustana Synod), *Lutheran Herald* (Norwegian Lutheran Church), *Lutheran Witness* (Missouri Synod), *Northwestern Lutheran* (Wisconsin Synod), *Ansgar Lutheran* (United Danish Church), *Lutheran Men* (American Federation of Lutheran Brotherhoods), and *National Lutheran* (National Lutheran Council). Headquarters of the National Lutheran Council, in which the United Lutheran Church in America and the American Lutheran Conference cooperate, are at 39 East 35th Street, New York City, the executive director being the Rev. Ralph H. Long.

**LUXEMBURG (LUXEMBOURG)**, lûks'em-bûrg. A small state of western Europe, bounded by Germany, France, and Belgium and linked economically to Belgium by a customs union effective May 1, 1922. Area, 999 square miles; population at the census of 1930, 300,748. Capital, Luxembourg, with a population in 1930 of 52,126; ruler in 1931, Grand Duchess Charlotte.

Agriculture engages only 32 per cent of the population, the 394,000 acres under cultivation being devoted principally to oats and potatoes. Mining and metallurgical industries predominate. Production of iron ore (1930) totaled 6,610,088 metric tons; pig iron, 2,473,735 metric tons; steel, 2,269,910 metric tons. In 1929, there were 47 blast furnaces and seven steelworks in operation. The brick, printing, leather, and glass industries are relatively important. Figures for foreign trade are included in those for Belgium. In the budget for 1931, revenue was estimated at 505,641,000 Luxembourg francs and expenditure at 461,586,000 francs (1 Luxembourg franc equals \$0.139 at par). The funded debt in 1930 stood at 456,908,531 francs and the floating debt at 64,101,980 francs.

Executive power is vested in the sovereign, who appoints the Cabinet, and legislative power is vested partly in the sovereign and partly in the Chamber of Deputies of 52 members elected by direct suffrage for six years. The Council of State of 15 members, chosen by the sovereign for life, acts as a Senate. Premier in 1931, Joseph Bech (Catholic-Conservative), who is assisted by three director-generals. See **BELGIUM**.

**LYNCHINGS.** Tuskegee Institute found that 13 lynchings had occurred during the year 1931, as compared with 21 in 1930, 10 in 1929, 11 in 1928, and 16 in 1927. Of the victims of mob rule, 10 were taken from law officers or were presumably under the protection of the law. Twelve of the lynched persons were Negroes; one was a white. The alleged offenses with which the murdered men had been charged were as follows: murder, 5; attempted rape, 5; wounding man, 3. The States in which the lynchings occurred were: Alabama, 1; Florida, 2; Louisiana, 1; Maryland, 1; Mississippi, 3; Missouri, 1; North

Dakota, 1; Tennessee, 1; West Virginia, 2. It was significant to note that attempted lynchings had been prevented by officers of the law in 57 instances, 7 occurring in Northern and Western States and 50 in Southern States. In 45 of these cases, the prisoners were removed or the guards about the jails augmented. In the 12 other cases, the would-be lynchers were repelled by force. A total of 88 persons were thus saved from the hand of the mobs, of whom 18 were whites and the others Negroes.

The Southern Commission on the Study of Lynching, whose establishment was described in the 1930 YEAR BOOK, submitted an elaborate report during the year which severely condemned the continuance of this form of mob rule in the Southern States. The Commission was headed by George Fort Milton, editor of the *Chattanooga News*, and included the following other prominent Southern persons: Julian Harris, of the *Atlanta Constitution*; Dr. John Hope, president of Atlanta University (for Negroes); Dr. Benjamin F. Hubert, president of Georgia State College; Dr. Charles S. Johnson, of Fisk University (for Negroes); Dr. W. P. King, book editor of the Methodist Episcopal Church, South; Dr. W. J. McGlothlin, president of Furman University and of the Southern Baptist Convention; Dr. R. R. Moton, principal of Tuskegee Institute (for Negroes); and Dr. Howard W. Odum, University of North Carolina. The Commission's study of the lynchings perpetrated in 1930 indicated that 2 of the 21 victims in that year were innocent and 11 others were probably so. In some cases the Commission found reasons to suspect that victims had been deliberately killed for purposes of concealment or revenge.

Among the more important findings of the Commission the following were to be noted: (1) Ignorance is to be directly correlated with and in large part may be held responsible for lynchings. Of the 21 victims in 1930, only 1 had gone as far as high school. The same charge is true of the mobs participating. The greatest frequency of lynching occurred in the rural areas. (2) There was a direct correlation between poverty and lynching. Low economic status was characteristic of both offenders and jobs. (3) The influence of bigotry was undeniable. (4) Sex offenses counted for less than one-fourth of all the lynchings. Of the 3693 lynchings perpetrated since 1892, 77 per cent were for non-sexual offenses, real or alleged. (5) Lynching was not necessary for the protection of white women. The Commission went on record as believing that lynching actually increased the jeopardy of white women and led Negroes to believe that only lynching mobs were ready to protect or avenge southern womanhood. (6) Men were not infrequently lynched for non-criminal acts, such as political differences. (7) Mob leaders go unpunished in most cases and are rarely indicted despite the fact that their identification can be established without difficulty. (8) An important reason for public indifference is that Negroes do not vote in areas where the most lynchings occur and hence the lack of sensitivity on the part of the law officers.

**LYTTELTON, GEN. SIR NEVILLE (GERALD).** A British soldier, died in London, July 6, 1931. He was born in Hagley, Worcestershire, Oct. 28, 1845. After attending Eton, he entered the Rifle Brigade in 1865, and three years later was appointed aide-de-camp to Lord Spencer, Viceroy

of Ireland, serving until 1873. During 1883-85 he was military secretary to Sir John Adye, Governor of Gibraltar, and during 1885-90 to Lord Reay, Governor of Bombay. He was made assistant adjutant general at the War Office in 1895 and assistant military secretary in 1897. He had also participated in the Fenian Rebellion in Canada (1866), the Jowaki Expedition (1877), the Egyptian Campaign (1882), and the Nile Expedition (1898).

During the Boer War he commanded the 4th Brigade, 2d and 4th Divisions, and from 1902 to 1904 was commander of the forces in South Africa. On his return to England he was made Chief of the newly organized General Staff and first military member of the Army Council created to perform the functions of a commander-in-chief in time of peace. In 1908 he became commander-in-chief of the forces in Ireland, retiring in 1912.

**MACAO, makä'ô.** An island at the mouth of the Canton River, in China, which with the two adjacent islands of Taipa and Colôane, constitutes a province of Portugal. Area, 4 square miles; population, according to the census of 1927, 157,175 (including 3946 Portuguese, and 152,738 Chinese). The trade is chiefly in transit and is mainly in the hands of the Chinese. In 1929-30, revenues were estimated at 4,871,492 patacas and expenditures at 4,658,272 patacas (1 pataca equals approximately \$0.48). In 1929, imports were valued at 21,423,000 patacas and exports at 9,742,000 patacas.

**MCCULLOUGH, ERNEST.** An American civil engineer, died in Long Island City, N. Y., Oct. 1, 1931. He was born in Staten Island, N. Y., May 22, 1867, and attended the Institute of Technology, Chicago, and the Van der Naillen School of Engineering, San Francisco, being graduated from the latter in 1887. While engaged in engineering practice in San Francisco he edited *Engineer and Contractor* during 1893-96. He also practiced in Lewiston, Idaho, from 1898 to 1903 and then removed to Chicago where he remained until 1917. During the World War he served successively in France as lieutenant colonel in the Chemical Warfare Service and as chief engineer of the American Red Cross, and in 1919-20 was director of the Chemical Warfare Service Officers' school at Lakehurst, N. J. He resumed his practice in Syracuse, N. Y., in 1920-21 and then came to New York City where during 1925-28 he edited *Building Age and National Builder*. His writings include *Farm Drainage* (1892); *Municipal Public Works* (1894); *Vrooman Act—Treatise on California Street Laws* (1896); *Engineering Work in Towns and Cities* (1906); *Reinforced Concrete* (1908); *Engineering as a Vocation* (1911); *Practical Surveying* (1915); *Practical Structural Design* (1917); *Everybody's Money* (1923); and *Class Warfare* (1927).

**MACDONALD, J. RAMSAY.** See GREAT BRITAIN under *History*.

**MACEDONIA.** A stretch of territory in the Balkan peninsula, included in European Turkey until the outbreak of the Balkan Wars (1912-13) and since the World War divided between Greece and Yugoslavia to the exclusion of Bulgaria. See BULGARIA and YUGOSLAVIA under *History*.

**MCGILL UNIVERSITY.** A coeducational institution of higher learning in Montreal, Quebec, Canada, founded in 1821. The enrollment

for the autumn session of 1931 was distributed as follows: Faculties of arts and science, 1040; medicine, 408; engineering, 337; dentistry, 32; law, 91; music, 149; and graduate studies, 251; and schools or departments of agriculture, 124; architecture, 47; commerce, 266; household science, 89; graduate nursing, 38; physical education, 34; social service, 16; pharmacy, 3; library administration, 18; and teachers' training school, 194. The registration in the French summer school of 1931 was 220 and in the summer library school, 10. The number of members on the teaching staff was 551.

The endowment of the university amounted to \$18,566,463; the income for the year was \$2,480,911. The library contained 400,000 volumes. The department of pharmacy and the school for social workers were discontinued in 1931. The faculty of applied science was changed to the faculty of engineering, granting the B.Eng. and M.Eng. degrees. The library school also was made a graduate school, requiring a bachelor's degree for entrance, the course leading to a B.L.S. degree. A grant of \$110,000 was received from the Rockefeller Foundation for social research. Principal, Sir Arthur William Currie, G.C.M.G., K.C.B., LL.D.

**MCINTOSH, WILLIAM CARMICHAEL.** A British zoologist, died Apr. 1, 1931, in St. Andrews, Scotland, where he was born Oct. 10, 1838. He was educated at Madras College, St. Andrews, and at the universities of St. Andrews and Edinburgh. After practicing medicine for a short time he devoted himself to zoology, being professor of natural history at St. Andrews from 1882 to 1917. He was also director of the University Museum and the Gatty Marine Laboratory and a pioneer in the scientific investigation of sea fisheries.

He was elected a Fellow of the Royal Society in 1877; was president of the biological section of the British Association for the Advancement of Science in 1885; and received the gold medals of the Edinburgh Fisheries Exhibition (1882) and of the London Exhibition (1883), the royal medal of the Royal Society (1899), and the Linnean gold medal (1924). His extensive publications, many of which were illustrated by his own drawings, include *Observations and Experiments on the Shore Crab* (1861); *Monograph of British Annelids* (4 vols., 1874-1923); *The Marine Invertebrates and Fishes of St. Andrews* (1875); *Life Histories of British Marine Food Fishes* (with Arthur T. Masterman, 1897); and *The Resources of the Sea* (1899).

**MACKENNAL, SIR BERTRAM.** A British sculptor, died in Torquay, Devonshire, Oct. 10, 1931. Born in Melbourne, Australia, in 1863, he received his art training in London and Paris, where his early work attracted attention by its imaginative power and originality. In later years, however, he showed more conformity to British conventions in art, being described as a classical realist. His first great success was a statue of "Circe" made in 1893. Among his other works are the equestrian statue of Edward VII in Trafalgar Square, London, and other memorials to that monarch in Calcutta, Melbourne, and Adelaide, as well as the memorial tomb in St. George's Chapel, Windsor; statues of Queen Victoria for India and Australia; the pediment of the government buildings at Westminster; the national memorial to Gainsborough; and the war memorial at Islington.

**MACKENTY, JOHN EDMUND.** An American laryngologist, died in New York City, Dec. 11, 1931. Born in Richmond, Quebec, Canada, he attended Ottawa and McGill Universities, obtaining the M.D. degree from the latter in 1894. After further study in Europe he established himself in New York City, where he became professor of otology at the New York Polyclinic. At the time of his death he was senior surgeon at the Manhattan Eye, Ear, Nose, and Throat Hospital.

**MACKENZIE.** See NORTHWEST TERRITORIES.

**MACKENZIE, JAMES CAMERON.** An American educator, died in Dongan Hills, New York, May 10, 1931. He was born in Aberdeen, Scotland, Aug. 15, 1852, and came to the United States when a boy. He was graduated from Lafayette College in 1878, and after studying theology at Princeton was ordained to the Presbyterian ministry in 1885. He was organizer and head master of the Lawrenceville (N. J.) School for boys (1882-99); director of the Jacob Tome Institute, Port Deposit, Md. (1899-1901); and director of the Mackenzie School, which he founded at Dobbs Ferry and later removed to Monroe, N. Y. (1901-26). At the World's Columbian Exposition in 1893 he served as chairman of the International Congress of Secondary Education.

**McMILLAN, MARGARET.** A British welfare worker, died in Harrow, Mar. 29, 1931. She was born in New York City in 1861 and was educated at the Inverness (Scotland) Academy and at schools in Geneva and Lausanne, Switzerland. While serving on the Bradford school board during 1894-1902 she became convinced of the importance, among elementary school children, of medical examination and treatment, and in 1904, with her sister Rachel, drew up the first scheme of a health centre or school clinic. Parliamentary sanction for this scheme was obtained in 1907, and the first experimental school clinic was opened at Bow in 1908.

In 1910 the Deptford Health Centre, the largest in England, was founded, followed four years later by the first open-air nursery school. On the death of Rachel McMillan in 1916 there was established, as a memorial to her work, the Rachel McMillan College for "training students in the theory and practice of dealing with young children." Miss McMillan was the author of *The Child and the State* (1911); *The Camp School* (1917); and *Life of Rachel McMillan* (1927).

**MACNAMARA, THOMAS JAMES.** A British educator and politician, died in London, Dec. 4, 1931. He was born in Montreal, Quebec, Canada, Aug. 23, 1861, but was removed to England in childhood. After attending the Borough Road Training College for Teachers in London, he taught from 1876 to 1892 in Exeter, Huddersfield, and Bristol. He was editor of the *Schoolmaster*, the organ of the National Union of Teachers, from 1892 to 1907, and was also in 1896 president of that organization. From 1894 to 1903 he served on the London School Board. Elected to Parliament as Liberal member for North Camberwell in 1900, he represented that constituency (which became Northwest Camberwell in 1918) until 1924. He was made a Privy Councillor in 1911, and during 1920-22 held the first portfolio of labor in Lloyd George's coalition cabinet.

**MACVEAGH, CHARLES.** An American lawyer and diplomat, died near Santa Barbara, Calif., Dec. 4, 1931. He was born in West Chester, Pa.,

June 6, 1860, and was graduated from Harvard University in 1881. After receiving the LL.B. degree from Columbia University in 1883, he was admitted to the bar and practiced in New York City. After 1901 he was general solicitor and assistant general counsel of the U. S. Steel Corporation. In October, 1925, he was appointed American Ambassador to Japan, resigning from this post four years later.

**MADAGASCAR.** An island belonging to France, separated from the southeast coast of Africa by the Mozambique Channel, which is 240 miles wide at its narrowest point. The area is 241,094 square miles and the population at the census of 1926 was 3,621,342 (including the Mayotte and Comoro Islands), of whom 3,591,943 were Malagasy, 18,040 French, and 11,359 foreigners. In 1929, the population was estimated at 3,853,300. Capital, Tananarive, with 92,998 inhabitants in 1929.

Other leading towns, with their populations in 1929 were: Antsirabe, 8253; Fianarantsoa, 13,162; Tamatave, 16,380; and Majunga, 19,072.

**PRODUCTION.** Cattle breeding and agriculture are the chief occupations, the principal crops being rice, sugar, coffee, manioc, cotton, cacao, vanilla, tobacco, beans, cloves, rubber, and mulberry trees. The forests contain valuable woods and gums. Phosphate, graphite, and mica are mined. In 1929, 12,500 metric tons of phosphate were produced. Local industries included rice milling, sugar grinding, and meat packing.

**COMMERCE.** The balance of foreign trade has been unfavorable since 1925. In 1930 exports were valued at 369,669,000 francs, compared with imports of 602,783,000 francs (1 franc equals \$0.0302 at par). Trade is chiefly with France. In 1930, exports to France totaled 257,172,000 francs (367,423,000 in 1929) and imports from France were 240,704,000 francs (407,346,000 in 1929). Exports were principally vanilla, hides and skins, raffia fibre, coffee, graphite, and manioc.

**FINANCE.** In the budget for 1929, revenue was estimated at 412,077,000 francs and expenditure at 396,225,000 francs. Closed accounts showed a surplus of 14,368,000 francs. The 1930 budget and the 1931 budget proposals balanced at 295,647,000 francs and 301,452,000 francs, respectively. The public debt on Jan. 1, 1930, stood at 127,128,000 francs (131,142,000 francs on Jan. 1, 1929).

**COMMUNICATIONS.** With 430 miles of line in operation in 1929, the Government-owned railways carried 1,254,000 passengers and 282,000 metric tons of freight. In 1931, the railways were working on large-scale electrification projects. There were about 1800 miles of highway. A total of 5732 vessels of 3,279,427 tons entered the ports in 1929 and 5756 vessels of 3,253,380 tons cleared.

**GOVERNMENT.** The colony is under a governor-general assisted by a consultative council. A delegation of 24 French citizens and 24 natives meets once a year to examine budget proposals. Governor-General in 1931, Leon Cayla, appointed Feb. 10, 1930.

**MADEIRA, mǎ-de-rá.** A group of islands in the North Atlantic, with an area of 314 square miles and a population estimated at 185,000 in 1929, politically an integral part of Portugal. Funchal, the capital (population about 25,000), lies 535 miles southwest of Lisbon and 360 miles



west of the African coast. See **PORTUGAL** under *History* for an account of the insurrection in 1931.

**MADOERA** (MADEIRA). See **NETHERLAND EAST INDIES**.

**MAGNETIC EYE**. See **CHEMISTRY, INDUSTRIAL**.

**MAGNETISM**. See **PHYSICS**.

**MAHE**. See **FRENCH INDIA**.

**MAINE**. **POPULATION**. According to the Fifteenth Census the population of the State on Apr. 1, 1931, was 797,423; in 1920, 768,014. Native whites, increasingly predominant, numbered 694,815 (1930); 658,346 (1920). Foreign-born whites totaled 100,368 (1930), having decreased from 107,349 (1920). The Negroes numbered only 1096 (1930) and the members of other races 1144 (1930). Of the 308,003 persons reporting gainful occupations in 1930, 40,514 were factory laborers, 31,162 farmers, 16,826 paid farm laborers, and 10,208 retail dealers. Portland, the chief city, had 70,810 inhabitants (1930), 69,272 (1920); Lewiston, 34,948 (1930), 31,791 (1920); Augusta, the capital, 17,198 (1930), 14,114 (1920).

**AGRICULTURE**. The accompanying table shows the acreage, production, and value of the principal crops for 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Potatoes . . . .	1931	196,000	50,960,000	\$10,192,000
	1930	181,000	45,250,000	29,412,000
Hay, tame . . . .	1931	962,000	947,000*	9,875,000
	1930	977,000	868,000*	9,461,000
Oats . . . . .	1931	118,000	3,776,000	1,473,000
	1930	120,000	4,740,000	2,465,000
Apples . . . . .	1931	.....	1,310,000	1,048,000
	1930	.....	2,170,000	1,410,000

\* Tons.

**MINERAL PRODUCTION**. Stone, which supplied not much less than half of the total by value of the State's mineral production for 1929, was produced in that year to the quantity of 354,500 short tons, or distinctly less than the 413,960 of 1928. By value, on the other hand, the production was considerably higher, totaling \$2,902,603 for 1929 as against \$2,579,523 for 1928. The total value of the mineral products of the State was \$6,748,799 for 1929; for 1928, \$5,922,729.

**MANUFACTURES**. Federal Census data gathered in 1930 to cover the year 1929 stated the number of the manufacturing establishments of Maine as 1557, which was nearly 10 per cent more than for 1927. Wage earners in such establishments numbered in 1929, 69,593 (2.1 per cent more than in 1927) and received \$73,601,093 (slightly less than 1 per cent short of the wage total for 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$218,984,735 (about 5 per cent more than for 1927). The manufactured product was valued at \$392,096,124 (5.4 per cent more than the total for 1927). The value added by manufacture in 1929 was estimated at \$173,111,389.

**FINANCE**. State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$13,118,197 (of which \$2,244,894 was for local education); for public service enterprises, \$109,929; for interest on debt, \$955,738; for permanent improvements, \$8,383,834; total, \$22,567,698 (of which \$11,387,162 was for highways, \$3,487,826

being for maintenance and \$7,899,336 for construction). Revenues were \$21,562,775. Of these, property and special taxes formed 37.1 per cent; departmental earnings and remuneration to the State for its officers' services, 8.4; sales of licenses, 44.7 (including taxes of \$3,784,932 on sales of gasoline). The State's funded debt outstanding on June 30, 1930, was \$21,911,680, of which \$15,137,500 was for highways. Net of sinking fund assets, it was \$21,809,555. On property bearing an assessed valuation of \$757,289,579 were levied, in the year, State taxes of \$5,861,010.

**TRANSPORTATION**. The total number of miles of railroad line under operation on Jan. 1, 1931, was 2193.00. There had been abandonment of 3.94 miles of line during the year preceding, and no considerable offsetting addition. No building of new line or trackage in 1931 was reported.

**EDUCATION**. Measures were passed by the Legislature that, according to State Superintendent Packard, in the *Journal* of the National Education Association, would render it possible to require higher standards in the certification of teachers. A revision of the elementary curriculum, with the aid of members of the faculty of New York University, was effected during the year.

**LEGISLATION**. The regular session of the eighty-fifth Legislature, convened in January, ended on April 3. Its most notable work was a reorganization of the State's administrative government under five departments, to replace 28 separate State administrative units. The five were departments, respectively, of Finance, Health, and Welfare, Sea and Shore Fisheries, Education, and Audit. The last-named was to be headed by a certified public accountant, to be elected by the Legislature. Among agencies abolished or merged were: State assessors, budget committee, superintendent of printing, commissioner of health and his separate department, public health council, prison commissioners, trustees of reformatories and juvenile institutions, hospital trustees, department of welfare, public welfare commission, commissioner of wrecks and shipwrecked goods. This measure was rendered subject to approval by a popular referendum held on November 9. The popular vote then cast adopted the new administrative code by a majority of some 7500.

The law on Standard Time was amended to permit towns and cities to adopt daylight saving. Reports of expenditures in primary and in referendum elections were made compulsory. A reapportionment of the districts for the election of Federal Representatives reduced the number of such districts to three, from four. Expenditure of \$1,000,000 over three years, half by the State and half by railroads, was authorized, to eliminate grade crossings. The registration of all those, save religious denominations, professing the "healing arts" was required. It was made legal to form rural electric companies to buy current from larger companies for retail distribution at rates to be set by the public utilities commission. The prohibition against the exhibition of pictures of boxing bouts was repealed. Issue of \$6,000,000 of highway bonds was authorized. Municipal courts obtained special jurisdiction in cases of delinquents under the age of 15 years. Bears acquired the status of game animals. A tract on Mount Katahdin, the gift of ex-Governor Baxter, was accepted for a State Park. Appropriations for the ensuing two years totaled about \$27,000,000.



The laws on banking and securities were rendered more stringent. The limit of a trust company's loans to one borrower was lowered to the proportion of 20 per cent of the company's capital, surplus and undivided profits. The minimum of capital for new banks was raised to \$50,000, paid in, plus a 50 per cent surplus, also paid in. The top limit of \$1,000,000 for a bank's capital stock was removed. Banks were allowed to issue their shares at other par values than \$100. Savings banks gained permission to establish branches in their own or adjoining counties. Circulation of false reports as to banks or trust companies was made punishable. Registration fees for dealers in securities were raised to \$50, and dealers were required to file bond in proof of responsibility.

**OFFICERS.** Governor, William Tudor Gardiner; Secretary of State, Edgar C. Smith; Treasurer, William S. Owen; Auditor, E. D. Hayford; Attorney-General, Clement F. Robinson; Commissioner of Education, Bertram E. Packard.

**JUDICIARY.** Supreme Judicial Court: Chief Justice, William R. Pattangall; Associate Justices, Charles J. Dunn, Frank G. Farrington, Guy H. Sturgis, Sidney St. F. Thaxter, Charles P. Barnes. Superior Court: Justices, James H. Hudson, George L. Emery, Herbert T. Powers, William H. Fisher, George H. Worster.

**MAINE, UNIVERSITY OF.** A coeducational State institution of higher learning in Orono, founded in 1865. The enrollment for the autumn of 1931 was 1882 and for the summer session of 1931, 490. There were 177 members on the faculty. The productive funds of the university amounted to \$895,858, and the income for the year was \$1,628,972. The library contained 103,000 volumes. Merrill Hall, the new home economics building, was dedicated in October, 1931. President, Harold Sherburne Boardman, C.E., D.Eng., LL.D.

**MAITLANDITE.** See MINERALOGY.

**MAIZE.** See CORN.

**MALACCA.** One of the Straits Settlements. Consult that article.

**MALAYA, BRITISH.** See BRITISH MALAYA.

**MALAY STATES.** See BRITISH MALAYA, FEDERATED MALAY STATES, NON-FEDERATED MALAY STATES, STRAITS SETTLEMENTS, BRITISH NORTH BORNEO, BRUNEI, SARAWAK.

**MALDIVE ARCHIPELAGO.** See CEYLON.

**MALTA.** An island in the Mediterranean Sea, which, with the adjacent islands of Gozo and Comino, was annexed by Great Britain in 1814. Situated 58 miles south of Italy and 180 miles from the African coast, it is an important link in British Imperial communications and the base of the British fleet in the Mediterranean. Area of Malta, 95 square miles; total area with Gozo and Comino, 122 square miles. The civil population increased from 224,680 at the census of 1921 to 232,832 on Jan. 1, 1930. There is a garrison of about 10,000 troops. Valletta, the capital, is the chief town and port (population, 48,240). The people generally speak a Maltese dialect, but English and Italian are the official languages.

In 1929-30, there were 156 public elementary schools, with 24,478 pupils, besides several secondary institutions and a university with 115 students. About 40 per cent of the population is illiterate. The Church owns one-third of all the land. Cereals, vegetables, cotton, and fruit are the leading crops. Fishing and the manufacture of lace, cotton, filigree, beer, and cigarettes

are other industries. Imports in 1929 totaled £4,041,926, and exports £585,870, including bullion and specie. Revenue of the Government in 1929-30 totaled £932,097 and expenditure £930,113.

**GOVERNMENT.** Under the Constitution of 1921, suspended temporarily in 1930, local affairs were controlled by a legislature, consisting of the senate of 17 members, 10 of whom are appointed, and a legislative assembly of 32 elected members. There was a responsible ministry for local affairs. A governor, appointed by the King, controls the naval, military, and air forces, Imperial interests, external relations and trade, coinage, immigration, and may veto local legislation. He is assisted by an appointed executive council and a nominated council, consisting of the Lieutenant-Governor, a legal adviser, and three officers of the military forces. Governor and Commander-in-Chief in 1931, General Sir David Campbell, who succeeded General Sir John Du Cane on June 30, 1931.

**HISTORY.** No settlement was reached in 1931 of the dispute involving the relations of Church and State in Malta, which resulted in the suspension of the Maltese Constitution on June 24, 1930, and the virtual severance of diplomatic relations between the British Government and the Vatican (see 1930 YEAR BOOK). A deputation representing the pro-British Constitutional and Labor parties, headed by the former Prime Minister of Malta, Lord Strickland, left the island on Feb. 18, 1931, to present their case before the Imperial Government. On the day of their arrival in London (February 23) the British Government announced the appointment of a Royal Commission to investigate the possibility of re-establishing constitutional government in Malta.

The Royal Commission, consisting of Lord Askwith, Sir Walter Egerton, and the Count de Salis, arrived in Malta toward the end of April and conducted hearings through May and June before returning to London. All parties favored the restoration of constitutional government, with a larger measure of autonomy, according to the testimony before the commission. The Constitutional and Labor parties requested the abolition of Italian as the official language of the courts, a proposal which was vigorously opposed by the Nationalists. The Nationalist leaders also objected to the continuance in office of the pro-British Ministry after the suspension of the Constitution. They demanded that any changes in the Constitution should be made by the Maltese alone.

**MAMMALS.** See ZOÖLOGY.

**MAN, EARLY HISTORY OF.** See ANTHROPOLOGY.

**MANAGER PLAN.** See MUNICIPAL GOVERNMENT.

**MANAGUA EARTHQUAKE.** See NICARAGUA; EARTHQUAKES.

**MANCHURIA,** man-chō'ŕé-á. A vast region comprising one of the Chinese Outer Territories, extending from the Amur River south to China proper and from the Khingan Mountains on the west to Korea and the Ussuri River. Area, about 363,610 square miles; population, estimated at 26,643,000 in 1930. Capital, Mukden, with about 250,000 inhabitants. Antung (72,500), Changchun (80,000), and Newchwang (65,600) are other leading cities.

Manchuria is divided into the three Provinces of Fengtien or Liaoning (area, 56,000 square miles; population, about 15,233,000; capital,





Mukden), Kirin (105,000 square miles; population, about 7,635,000; capital, Kirin), and Heilungkiang (area, 203,900 square miles; population, about 3,775,000; capital, Tsitsihar). Due to improved conditions in Shantung Province of China proper and economic depression in Manchuria, the number of Chinese permanent settlers in Manchuria fell to 293,183 in 1930, compared with 424,294 in 1929 and with 1,677,848 for the three years 1927 to 1929. The population is overwhelmingly Chinese, there being about 200,000 Japanese.

With its vast areas of rich soil attracting thousands of settlers from China, Manchuria is one of the most rapidly developing frontier regions in the world. The economic conflicts arising from the convergence there of the expanding interests of Japan, China, and Soviet Russia have long been recognized as one of the principal dangers to world peace. By the Russo-Japanese War of 1905, Japan secured from Russia the lease of Port Arthur and Dairen (Dalny), the southern extremity of the Liaotung peninsula known as Kwantung (q.v.), and the South Manchuria Railway. In March, 1915, the Chinese Government was forced to agree to extend the lease on these territories to 99 years. They include a narrow strip on each side of the South Manchuria and Antung-Mukden Railways, totaling 109 square miles, in which Japan was authorized by treaty to maintain about 15,000 soldiers to protect the railway until order was established. By 1931, the Japanese had invested about \$1,000,000,000 in Manchuria, principally in the leased territories, and had contributed greatly to the opening up of the country. They had under exploitation the great Fushun open-strip coal deposits, 22 miles east of Mukden, where in an area of 15 square miles were about 1,200,000,000 tons of bituminous coal covered by approximately 5,000,000,000 tons of oil shale. The South Manchuria Railway Company, early in 1930, placed in operation a plant for the reduction of oil shale. Iron ore deposits were estimated at 738,000,000 metric tons, with an iron content of 259,000,000 metric tons.

Railways in operation in 1931 totaled about 3736 miles, of which China controlled 1800 miles, Russia 1096 miles, Japan 700 miles, and Japan and China jointly 140 miles. The main line of the South Manchuria Railway runs from Dairen north through Mukden to Changchun (438 miles), with branch lines to Port Arthur, Newchwang, the Fushun coal mines, Yentai, and Antung. The Russian lines, in which China also has an interest, include the Chinese Eastern running from Manchuli on the Siberian border across north Manchuria through Harbin to Vladivostok, with a branch line south from Harbin to join the South Manchuria Railway at Changchun. The most important of the purely Chinese railways are the Manchurian branch of the Peiping-Mukden railway (392 miles within Manchuria), and the Mukden-Hailungcheng line with its branches linking Hailungcheng and Kirin, Tsitsihar and Koshanchen, Tsitsihar and Anganchi, and Harbin and Hailun. There were in addition some 111 miles of narrow-gauge line and about 833 miles under construction. Of the Chinese lines, however, several were built with Japanese capital, including the Ssuningkai-Taonan Railway and the Taonan-Anganchi Railway. The Kirin-Changchun and Kirin-Tunhua lines were joint Sino-Japanese enterprises.

Primarily an agricultural land, Manchuria's chief products are soya beans, millet, wheat, and rice. In 1930 5,351,000 short tons of soya beans were harvested from 7,000,000 acres, 5,136,000 tons of kaoliang from 3,060,000 acres, 3,692,000 tons of millet from 2,890,000 acres, and 1,552,470 tons of wheat from 2,125,000 acres. Sugar beet and silk cultivation and livestock raising are expanding. Forests cover about 28,756,000 acres. Industries are confined to the larger cities and consist mainly of flour mills, bean-oil mills, soap works, sugar refineries, saw mills, distilleries, glass factories, and tanneries. There are rich mineral deposits of coal, iron, gold, silver, lead, and cement.

About 65 per cent of the foreign trade of Manchuria passed through the port of Dairen in the Japanese leased territory of Kwantung previous to 1931. In that year, however, recently constructed Chinese Government railways diverted part of this traffic to the Chinese-controlled port of Newchwang. The aggregate foreign trade for the first half of 1931 at Dairen amounted to \$79,106,700, compared with \$127,400,000 in the same period of 1930 and with \$163,448,000 in the first half of 1929. Trade in Manchuria was virtually suspended following the Sino-Japanese clashes of October, 1931, and the inauguration of a boycott of Japanese goods by the Chinese.

The actual ruler of Manchuria during the first half of 1931 was Gen. Chang Hsüeh-liang, son of the late war lord, Chang Tso-lin, although the Nationalist (Nanking) Government retained nominal control. With the Sino-Japanese outbreaks in September all semblance of civil authority disappeared and the attention of the world was focused upon one of the most serious threats to world peace since the World War (see JAPAN, CHINA, and UNION OF SOVIET SOCIALIST REPUBLICS under *History*; LEAGUE OF NATIONS).

**BIBLIOGRAPHY.** For an analysis of trade rivalries in the region, consult Dr. Herbert Feis, "The International Trade of Manchuria," *International Conciliation* (April, 1931).

**MANDATES.** See LEAGUE OF NATIONS; IRAQ; PALESTINE; SYRIA.

**MANGANESE.** Of the world deposits of manganese ore, estimated at more than 500,000,000 metric tons, the Soviet Union is believed to have over 200,000,000 tons or the most extensive deposits of any one country. The largest of these are in the Transcaucasia where the world-famed Chiaturi mines are situated, while a more recent development are the mines in the Nikopol district in the Ukraine, both fields being convenient to Black Sea ports and connected by railroad. In 1927 the Soviet Union had a total output of 1,302,700 tons, or about 40 per cent of the world production, and in 1930 the output was 1,561,000 tons.

The Soviet Union was the main source of supply of manganese in the world markets, and in 1930 out of total imports into the United States of 585,568 long tons of ore valued at \$6,476,802, Soviet Russia supplied 225,888 tons valued at \$2,445,871. In 1931 the United States imported 502,518 gross tons of ore containing 245,910 tons of metallic manganese, valued at \$5,104,570. Of the total ore imported in 1931, 39 per cent was from Soviet Russia, 27 per cent from Brazil, 10 per cent from India, and 17 per cent from British West Africa (Gold Coast). The

manganese content of manganese alloys imported was 17,764 tons in 1931, equivalent to 22,000 tons of ferromanganese.

The U. S. Bureau of Mines reported for 1931 shipments of manganese ore containing 35 per cent or more of metallic manganese from domestic mines of approximately 39,000 gross tons, valued at \$699,400, as compared with 67,035 tons, valued at \$1,437,465, in 1930. The shipments of metallurgical and miscellaneous ores in 1931 amounted to about 31,000 gross tons, valued at \$417,900, as compared with 55,278 tons, valued at \$1,004,797, in 1930. Battery ore shipments from Montana and Virginia decreased from 11,757 gross tons, valued at \$432,668, in 1930, to about 8000 tons, valued at \$281,500, in 1931. Manganese ore was shipped from Arizona, Arkansas, California, Georgia, Montana, New Mexico, Tennessee, Texas, Virginia, and West Virginia in 1931 in quantities ranging from a carload each in Arizona, California, and West Virginia to about 25,800 tons in Montana.

**MANITOBA**, măn'î-tô'bă. The easternmost of the Prairie Provinces of Canada, situated west of Ontario and Hudson Bay and east of Saskatchewan. Capital, Winnipeg.

The area is 251,832 square miles and the census population in 1931 was 700,139, compared with 610,118 in 1921. The chief cities, with the population in 1931, were: Winnipeg, 217,587 (179,087 in 1921); Brandon, 17,082 (15,397); St. Boniface, 16,305 (12,821). In 1920, births totaled 14,236; deaths, 5808; marriages, 5269. The public-school enrollment in the same year was 150,517. In 1929-30, 2844 full-course students registered at the University of Manitoba at Winnipeg.

Agriculture, mining, and manufacturing are the leading industries. In 1930, the area under field crops was 6,794,700 acres (6,687,163 in 1929) and the value of production was \$52,463,000 (\$78,919,000 in 1929). The acreage sown to the chief crops in the spring of 1931 was 5,676,722, compared with 5,756,610 at the census of 1921. The total value of all agricultural production in 1929 was estimated at \$119,472,000 (\$155,452,000 in 1928). The 1931 wheat crop of about 26,000,000 bushels was the lowest in 23 years. Mineral output in 1930 declined slightly to \$5,326,568 (provisional figure) from \$5,423,825 in the previous year. Gypsum, gold, and copper are the principal minerals produced. The 1929 fish catch was valued at \$2,745,205. In the same year there were 923 manufacturing establishments, with a capital investment of \$173,152,948, 26,318 employees, and a gross value of production of \$164,909,127 (net value, \$75,750,746).

Provisional returns for the fiscal year ending April 30, 1930, showed provincial receipts of \$13,922,135 (\$12,150,490 in 1928-29) and expenditures of \$13,802,934 (\$12,344,493). The provincial funded debt on April 30, 1929, stood at \$87,701,771; the estimated assets were \$136,875,364. Railway mileage in 1929 aggregated 4294 miles of line. The highway building programme for 1931 called for the expenditure of \$2,628,000, in addition to \$1,025,000 for maintenance. Government is administered by a lieutenant-governor and a legislative assembly elected for five years. The Province is represented in the Dominion Parliament by six members in the Senate and 17 in the House of Commons. Lieutenant-Governor in 1931, J. D. McGregor; Premier, President of

the Council, and Provincial Treasurer, John Bracken.

**HISTORY.** Manitoba was hard hit by the economic depression and drought in 1931. On April 9, the provincial Legislature passed a law designed to protect farmers and home owners from foreclosure. It provided for the appointment of a debt-adjustment commissioner, who, upon application of a debtor, was empowered to issue a certificate holding up legal actions or cancellations, foreclosure, and mortgage-sale proceedings. In June, due to the depression, the Government postponed until 1932 the provincial elections scheduled to be held in 1931 and on August 20 Premier Bracken announced that salaries of all civil servants, from Cabinet Ministers down, were to be reduced.

Although two test shipments of grain via the recently-completed Hudson Bay railway and Port Churchill were made successfully in September, 1931, the provincial Minister of Mines and Natural Resources announced that the opening of Port Churchill for settlement would be postponed until the summer of 1932. The Minister said that the entire town-site of Port Churchill would remain permanently in possession of the Province. No land was to be sold; instead long-term leases were to be issued subject to revision at five-year intervals. The cost of the Hudson Bay route to May, 1931, totaled \$46,168,000, of which \$30,997,000 represented the cost of the railway and the remainder the cost of terminal facilities at Port Churchill.

A provincial Hydro-electric Power Commission, with powers sufficient to enable it to construct, purchase, and operate hydro-electric plants and transmission facilities was established by the 1931 session of the Legislature. See CANADA.

**MANN**, LOUIS. An American actor and playwright, died Feb. 15, 1931, in New York City where he was born Apr. 20, 1865. After attending the University of California he joined the McCullough and Barrett Stock Company in San Francisco and later appeared with Booth, Salvini, Marie Prescott, and Lewis Morrison in all their repertoires. He also toured during the '90s with his own company in *Lady Audley's Secret* and other plays and co-starred with Clara Lipman, who later became his wife, in *The Laughing Girl*, *The Girl from Paris*, *The Telephone Girl*, and *The Girl in the Barracks*. His important rôles on the New York stage included Gustave Muller in *The Bubble* (co-author, 1915); and Karl Pfeiffer in *Friendly Enemies*, his greatest success (1918-20). He later appeared in *The Unwritten Chapter* (1920); *The Whirl of New York* (1921); *Nature's Nobleman* (1922); *Give and Take* (1923); *Milgrim's Progress* (1924); and *That French Lady* (1927).

**MANNING**, RICHARD IRVINE. An American capitalist and ex-governor of South Carolina, died in Columbia, S. C., Sept. 11, 1931. He was born on Homesley Plantation, Sumter Co., S. C., Aug. 15, 1859, where he was later engaged in farming. His political career began in 1892 when he was elected a member of the South Carolina House of Representatives. He also served during 1898-1906 in the State Senate. He was twice elected governor, in 1914 and 1916.

**MANUFACTURING.** See BUSINESS REVIEW; CENSUS; UNITED STATES, and section *Manufactures* under the various States.

**MANURES.** See FERTILIZERS.

**MAPLE SUGAR.** See SUGAR.

**MAPPING.** See EXPLORATION under *North America*.

**MARIETTA COLLEGE.** A nonsectarian, co-educational institution in Marietta, Ohio, founded in 1835. The total registration for the autumn term of 1931 was 354, of whom 210 were men and 144 women. The faculty numbered 34. The endowment amounted to \$1,382,422, and the income for the year to \$150,366. The library contained 99,000 volumes. President, Edward Smith Parsons, L.H.D., LL.D.

**MARINE CORPS, U. S. N.** See NAVAL PROGRESS.

**MARINE DISASTERS.** See SAFETY AT SEA.

**MARINE ENGINES.** See INTERNAL COMBUSTION ENGINES; SHIPBUILDING.

**MARITAL STATUS.** See MARRIAGE AND DIVORCE; LAW, PROGRESS AND DEVELOPMENTS.

**MARITIME PROVINCES.** The three most easterly Provinces of Canada—Prince Edward Island, Nova Scotia, and New Brunswick. The population of the three Provinces was 1,009,105 at the census of 1931, compared with 1,000,328 in 1921. See CANADA and separate articles on each province.

**MARKETS, MARKETING.** See AGRICULTURE; AGRICULTURE, U. S. DEPT. OF; COÖPERATION.

**MARQUESAS ISLANDS.** See OCEANIA, FRENCH ESTABLISHMENTS IN.

**MARQUETTE UNIVERSITY.** An institution of higher education for men and women, under Roman Catholic direction, in Milwaukee, Wis., organized as a college in 1881 and chartered as a university in 1907. In the autumn of 1931 there was a grand total of 3455 enrolled in the university, excluding 472 students registered in the high school. The registration for the 1931 summer session was 843. The faculty in the autumn numbered 362 members, excluding 30 high school instructors. Endowment funds amounted to \$2,858,839, excluding Jesuit service endowment estimated at \$1,315,000. The income for the year was \$1,129,302. The library had 59,000 volumes. During 1931 a new building for the school of medicine, costing \$500,000, was under construction. President, the Rev. William M. Magee, S.J., A.M., LL.D.

**MARQUIS, JOHN ABNER.** An American clergyman and educator, died in New York City, July 5, 1931. He was born in Dinsmore, Pa., Dec. 27, 1861, and was graduated from Washington and Jefferson College in 1885 and from the Western Theological Seminary in 1890. Following his ordination to the Presbyterian ministry in 1891, he served as pastor in Greensburg, Pa. (1892-1902), Redlands, Calif. (1902-05), and Beaver, Pa. (1905-09). He was also associate editor of the *Presbyterian Banner* from 1899 to 1909. In 1909 he was elected president of Coe College, holding that office until 1920. In 1916 he served as moderator of the General Assembly of the Presbyterian Church in the United States of America. He was also general secretary of the Board of Home Missions of that denomination from 1917 to 1923 and general secretary of the Board of National Missions from 1923 to 1930.

**MARRIAGE AND DIVORCE.** The Bureau of the Census of the U. S. Department of Labor announced that in 1930 there were 1,128,180 marriages performed in the United States representing a decrease of 104,379 or 8.5 per cent over

the year 1929. In 1930, there were also granted 191,630 divorces, representing a decrease of 9838 or 4.9 per cent over the year 1929. There were 4333 marriages annulled in 1930 as compared with 4408 in 1929. The marriage rate per 1000 of the population was 9.2 in 1930; the divorce rate per 1000 of the population, 1.56 in 1930. In 1930, 5.9 marriages for each divorce were reported, as compared with 6.1 in 1929. The District of Columbia and New York State, each having but one cause for absolute divorce, reported 57.5 and 24.5, respectively; the rates in the other States ranged from 12.9 marriages to each divorce in Georgia to 2.3 marriages to each divorce in Nevada. The rate of marriages per 1000 of the population ranged from 4.6 in North Carolina and 4.7 in Delaware to 20.5 in New Mexico and 67.0 in Nevada. The ratio of divorces per 1000 of the population in individual States in 1930 ranged from 0.19 in the District of Columbia and 0.38 in New York to 3.22 in Oklahoma and 28.07 in Nevada. The tables on pages 488 and 489 give the marriages and divorces for all of the States in the Union.

**ATTITUDE OF THE CHURCHES.** Pope Pius XI, in his Encyclical on Christian marriage, delivered in January, denounced all loosenings of the marriage bond, the use of birth control methods, and all forms of trial marriage. The Encyclical declared that "chaste wedlock is the principle and foundation of domestic society and, therefore, of all human intercourse," and that "the family is more sacred than the State and men are begotten not for the earth but for heaven and eternity." Therefore, the Encyclical concluded, marriage is a "perpetual and indissoluble bond which cannot be dissolved by civil law." The Encyclical raised particular objection to sterilization of mental defectives and criminal persons by civil authorities, easier divorce, birth control and the loose morals at the present time to be found in romantic fiction, the movies, and the like. On the question of birth control the Encyclical declared that "no reason, however grave, may be put forward by which anything intrinsically against nature may become conformable to nature and morally good. Since, therefore, the conjugal act is destined primarily by nature for the begetting of children, those who in exercising it deliberately frustrate its natural power and purpose sin against nature and commit a deed which is shameful and intrinsically vicious."

However, the Pope was prepared to recognize that the State had a function to perform as regards marriage. On this point the Encyclical said: "Such social and economic measures must be set up as will enable every head of a family to earn as much as, according to his station in life, is necessary for himself, his wife, and for rearing his children, for the 'laborer is worthy of his hire.'"

The Protestant Episcopal Church of the United States at its Fiftieth General Convention, held in Denver in Sept., 1931, adopted a new Canon (No. 43) of the Solemnization of Matrimony, which while retaining practically all of the former Canon made to it certain definite additions. In the new Canon section I requires all ministers of this Church to give instruction on the nature of Christian marriage. Section II requires those in marital trouble to turn to the minister for help. Section III provides that no Minister of this Church shall solemnize any marriage before the



TABLE I—MARRIAGES IN THE UNITED STATES, 1930 AND 1929

Division and State	Marriages		Per cent of increase *	Number per 1,000 of population		Number to one divorce
	1930	1929		1930	1929	
United States .....	1,128,180	1,282,559	— 8.5	9.2	10.1	5.9
New England:						
Maine .....	6,438	6,195	— 3.9	8.1	7.8	4.4
New Hampshire .....	5,142	5,171	— 0.6	11.0	11.2	8.0
Vermont .....	2,633	2,712	— 2.9	7.3	7.6	7.1
Massachusetts .....	27,481	30,568	— 10.8	6.4	7.2	7.4
Rhode Island .....	4,816	5,880	— 9.6	7.0	7.8	6.4
Connecticut .....	11,060	12,808	— 10.1	6.9	7.7	8.4
Middle Atlantic:						
New York .....	117,880	121,535	— 3.0	9.8	9.8	24.5
New Jersey .....	28,449	30,257	— 5.8	7.0	7.6	9.9
Pennsylvania .....	64,770	70,507	— 8.1	6.7	7.4	8.1
East North Central:						
Ohio .....	60,354	65,679	— 8.1	9.1	10.0	4.3
Indiana .....	38,611	43,800	— 11.8	11.9	13.6	5.2
Illinois .....	75,961	84,092	— 9.7	9.9	11.1	4.9
Michigan .....	29,482	36,816	— 19.9	6.1	7.7	2.8
Wisconsin .....	15,218	17,988	— 15.4	5.2	6.2	6.1
West North Central:						
Minnesota .....	22,697	24,109	— 5.9	8.8	9.5	8.0
Iowa .....	20,642	21,985	— 5.9	8.4	8.9	4.8
Missouri .....	34,705	38,263	— 9.8	9.5	10.6	3.8
North Dakota .....	8,794	4,155	— 8.7	5.6	6.1	8.2
South Dakota .....	6,489	6,701	— 3.2	9.4	9.7	8.9
Nebraska .....	10,248	10,209	0.5	7.43	7.44	6.3
Kansas .....	19,987	21,041	— 5.2	10.6	11.2	4.9
South Atlantic:						
Delaware .....	1,126	1,230	— 8.5	4.7	5.2	5.3
Maryland .....	24,592	25,124	— 2.1	15.0	15.5	12.0
District of Columbia .....	5,846	5,684	— 5.1	11.0	11.7	57.5
Virginia .....	23,871	23,570	— 1.3	9.84	9.77	7.3
West Virginia .....	17,739	19,219	— 7.7	10.2	11.2	9.5
North Carolina .....	14,489	18,746	— 22.7	4.6	6.0	9.5
South Carolina .....	26,017	27,298	— 4.7	15.0	15.7	...
Georgia .....	30,283	32,534	— 6.9	10.4	11.2	12.9
Florida .....	17,147	18,198	— 5.8	11.6	12.7	4.7
East South Central:						
Kentucky .....	31,116	30,474	2.1	11.9	11.7	7.2
Tennessee .....	20,807	28,412	— 26.8	7.9	10.9	4.2
Alabama .....	27,587	29,480	— 6.8	10.4	11.2	8.6
Mississippi .....	25,728	31,495	— 18.3	12.8	15.8	9.4
West South Central:						
Arkansas .....	25,184	30,823	— 17.1	13.5	16.4	6.0
Louisiana .....	20,980	20,729	1.0	9.92	9.97	11.4
Oklahoma .....	36,567	35,789	2.2	15.2	15.1	4.7
Texas .....	45,158	63,173	— 28.5	7.7	11.0	2.7
Mountain:						
Montana .....	5,445	6,115	— 11.0	10.1	11.4	4.1
Idaho .....	4,497	4,779	— 5.9	10.1	10.8	4.5
Wyoming .....	1,772	1,941	— 8.7	7.8	8.7	2.7
Colorado .....	11,738	13,047	— 10.1	11.3	12.7	5.2
New Mexico .....	8,711	6,727	29.5	20.5	16.1	11.3
Arizona .....	7,715	7,405	4.2	17.6	17.3	6.8
Utah .....	5,649	6,286	— 10.1	11.1	12.5	5.6
Nevada .....	6,100	5,733	6.4	67.0	63.7	2.3
Pacific:						
Washington .....	18,274	19,685	— 7.2	11.7	12.7	4.2
Oregon .....	7,676	8,243	— 6.9	8.0	8.8	2.7
California .....	50,154	51,866	— 3.3	8.7	9.4	3.2

\* A minus sign denotes decrease.

following conditions have been carefully complied with:

(a) He shall ascertain by due inquiry the right of the parties according to the laws of this Church to contract a marriage.

(b) He shall instruct the contracting parties as to the nature of Holy Matrimony, its responsibilities, and the means of grace which God has provided through His Church.

(2) There shall be at least two witnesses present at the solemnization of the marriage.

(3) Every Minister shall without delay formally record in the proper register the name, age and residence of each party. Such record shall be signed by the Minister who solemnizes the marriage, by the married parties, and by at least two witnesses of the marriage.

(4) No marriage shall be solemnized by a Minister of this Church unless the intention of the contracting parties shall have been signified to the Minister at least three days before the service of solemnization.

Section V states the position of the Church regarding the marriage of divorced persons and is, in full, as follows:

No Minister, knowingly, after due inquiry, shall solemnize the marriage of any person who has been or is the husband or the wife of any other person then living,

from whom he or she has been divorced for any cause arising after marriage. Nor shall it be lawful for any member of this Church to enter upon a marriage when either of the contracting parties is the husband or the wife of any other person then living from whom he or she has been divorced for any cause arising after marriage. But this Canon shall not be held to apply to the innocent party in a divorce for adultery; PROVIDED, that before the application for such remarriage a period of not less than one year shall have elapsed after the granting of such divorce; and that satisfactory evidence touching the facts in the case, including a copy of the Court's Decree, and Record, if practicable, with proof that the defendant was personally served or appeared in the action, be laid before the Ecclesiastical Authority, and such Ecclesiastical Authority, having taken legal advice thereon, shall have declared in writing that in his judgment the case of the applicant conforms to the requirements of this Canon; and PROVIDED, FURTHER, that it shall be within the discretion of any Minister to decline to solemnize any marriage.

In Section VI nullity is clearly defined. The Protestant Episcopal Church has always recognized certain marriages as null and void, and a few of its bishops have at times annulled marriages in accordance with the impediments now stated in the Canon, and which are now made clear and

TABLE II—DIVORCES AND ANNULMENTS IN THE UNITED STATES, 1980 AND 1929

Division and State	Divorces		Per cent of increase *	Number per 1,000 of population		Annulments	
	1980	1929		1980	1929	1980	1929
United States .....	191,680	201,468	— 4.9	1.56	1.66	4,888	4,408
New England:							
Maine .....	1,472	1,261	16.7	1.84	1.59	9	18
New Hampshire .....	689	691	— 7.5	1.87	1.49	6	10
Vermont .....	871	406	— 8.6	1.08	1.18	1	3
Massachusetts .....	3,691	3,552	8.9	0.87	0.84	59	62
Rhode Island .....	747	751	— 0.5	1.08	1.10	...	...
Connecticut .....	1,828	1,220	8.4	0.82	0.77	18	18
Middle Atlantic:							
New York .....	4,804	5,148	— 6.6	0.88	0.41	1,028	1,029
New Jersey .....	2,891	3,001	— 8.7	0.71	0.75	64	61
Pennsylvania .....	8,026	7,866	2.0	0.88	0.82	49	53
East North Central:							
Ohio .....	14,198	15,818	— 7.3	2.13	2.33	69	62
Indiana .....	7,420	8,158	— 9.0	2.28	2.54	96	88
Illinois .....	15,482	15,758	— 2.1	2.01	2.09	202	249
Michigan .....	10,541	11,981	—12.0	2.16	2.52	92	109
Wisconsin .....	2,506	2,671	— 6.2	0.85	0.92	46	60
West North Central:							
Minnesota .....	2,855	2,859	— 0.1	1.11	1.12	20	21
Iowa .....	4,319	4,402	— 1.9	1.75	1.79	35	25
Missouri .....	9,218	9,818	— 6.1	2.53	2.72	49	42
North Dakota .....	465	561	—17.1	0.68	0.88	7	9
South Dakota .....	728	778	— 6.4	1.05	1.18	6	4
Nebraska .....	1,635	1,728	— 5.4	1.18	1.26	72	71
Kansas .....	4,094	4,127	— 0.8	2.17	2.20	80	18
South Atlantic:							
Delaware .....	211	174	21.3	0.88	0.78	2	7
Maryland .....	2,045	2,111	— 3.1	1.25	1.80	16	6
District of Columbia .....	98	115	—19.1	0.19	0.24	20	27
Virginia .....	3,261	3,054	6.8	1.84	1.27	19	21
West Virginia .....	1,861	1,995	— 6.7	1.07	1.17	42	43
North Carolina .....	1,534	1,707	—10.1	0.48	0.55	27	28
South Carolina .....	...	...	...	...	...	13	8
Georgia .....	2,342	2,441	— 4.1	0.81	0.84	41	39
Florida .....	3,632	3,773	— 2.7	2.45	2.64	21	20
East South Central:							
Kentucky .....	4,330	4,593	— 5.7	1.65	1.77	28	8
Tennessee .....	4,989	5,180	— 3.7	1.90	2.00	19	29
Alabama .....	3,224	3,589	—10.2	1.21	1.37	7	10
Mississippi .....	2,736	3,159	—13.4	1.86	1.58	8	7
West South Central:							
Arkansas .....	4,170	4,928	—15.4	2.25	2.67	19	7
Louisiana .....	1,833	2,166	—15.4	0.87	1.04	24	17
Oklahoma .....	7,748	8,252	— 6.1	3.22	3.48	173	164
Texas .....	16,682	18,383	— 9.3	2.85	3.20	110	167
Mountain:							
Montana .....	1,839	1,492	—10.8	2.49	2.77	31	40
Idaho .....	997	1,036	— 3.8	2.24	2.33	18	25
Wyoming .....	650	704	— 7.7	2.88	3.15	12	14
Colorado .....	2,245	2,892	— 6.1	2.16	2.33	67	70
New Mexico .....	770	798	— 3.5	1.81	1.91	9	10
Arizona .....	1,186	1,084	4.8	2.59	2.53	88	24
Utah .....	1,016	1,012	0.4	2.00	2.01	14	22
Nevada .....	2,609	2,583	8.0	28.67	28.13	38	36
Pacific:							
Washington .....	4,379	4,484	— 2.3	2.79	2.90	63	65
Oregon .....	2,825	3,179	—11.1	2.95	3.88	25	16
California .....	15,608	15,099	3.8	2.72	2.74	1,476	1,476

\* A Minus sign denotes decrease.

available for the whole Church. Section VI also places the responsibility for judgment definitely upon the bishop or upon a court constituted by the canons of a diocese or of a missionary district. It should be here noted that under the former Canon there was nothing to prevent any clergyman of this Church from giving his own definition of annulment. Section VI is as follows:

(1) Any person whose former marriage has been annulled or dissolved by a civil court may apply to the Bishop or to the Ecclesiastical Court constituted by Canon, of the Diocese or Missionary District of the said person's domicile to have the said marriage declared null and void by reason of any of the following impediments to marriage:

1. Consanguinity (whether of the whole or of the half blood) within the following degrees:
  - (a) One may not marry one's ascendant or descendant.
  - (b) One may not marry one's sister.
  - (c) One may not marry the sister or brother of one's ascendant or the descendant of one's brother or sister.
2. Lack of free consent of either party.
3. Mistake as to the identity of either party.
4. Mental deficiency of either party sufficient to prevent the exercise of intelligent choice.

5. Insanity of either party.
6. Failure of either party to have reached the age of puberty.
7. Impotence of either party undisclosed to the other.
8. The existence of venereal disease in either party.
9. Facts which would make the proposed marriage bigamous.

(2) The Bishop in such case, after taking legal advice thereon, or the Ecclesiastical Court proceeding in accordance with the canons and acting through the Bishop, shall render judgment in writing to the petitioner. All judgments rendered under this Canon by the Bishop or the Ecclesiastical Court shall be made matters of permanent record in the archives of the Diocese or Missionary District. No such judgment shall be construed as referring in any way to the legitimacy of children or the civil validity of the former relationship.

(3) Any person whose former marriage has been annulled or dissolved by a civil court and pronounced null by the Bishop, may be married by a Minister of this Church as if he had never previously been married.

In Section VII the Church declared itself as desirous of making a more definite declaration for the need of mercy toward those who have been unfortunate in marriage, the sentence printed in italics in the following extract having been added. In the last paragraph of the Canon it is

stated that those who have been married by civil authority or otherwise than this Church provides, after the favorable judgment of the bishop or court, may have their marriage blessed by a minister of this Church. The complete Section VII reads as follows:

(1) If any Minister of this Church shall have cause to think that a person desirous of Holy Baptism, or of Confirmation, or of receiving the Holy Communion, has been married otherwise than as the word of God and discipline of this Church allows, such Minister, before receiving such person to these ordinances, shall refer the case to the Bishop for his godly judgment thereupon. *The Bishop, after due inquiry into the circumstances, and taking into consideration the godly discipline both of justice and of mercy, shall give his judgment thereon in writing, PROVIDED, HOWEVER, that no Minister shall in any case refuse these ordinances to a penitent person in imminent danger of death.*

(2) Any persons who have been married by civil authority, or otherwise than as this Church provides may apply to the Bishop or to the Ecclesiastical Court of their domicile for the recognition of communicant status or for the right to apply for Holy Baptism or Confirmation. After due inquiry into all the facts relevant thereto, judgment shall be given in writing to the petitioners by the Bishop or by the Ecclesiastical Court acting through the Bishop. In case of a favorable decision, a Minister of this Church may, at his discretion, bless the parties to the union.

**DIVORCE IN SCANDINAVIAN COUNTRIES.** Despite the existence of more liberal divorce laws in Sweden, Norway, and Denmark, where, in fact, divorce may be obtained openly on the basis of mutual consent, the divorce rate in these countries is considerably lower than that of the United States. The following figures give rates for the countries in question, as of 1929:

Country	Percentage of divorces to marriages	Divorces per 1,000 population
United States .....	16.3	1.641
Sweden .....	...	0.376
Norway .....	4.4	0.285
Denmark .....	8.2	0.659

In the Scandinavian countries, joint application for divorce may be made by husband and wife, on the ground of incompatibility alone; the severing of the union may be ordered on the representation of the aggrieved mate, if adultery, conviction of a crime, venereal disease, or incurable insanity is charged and proved. Where children exist, proper provision for them is the first condition for the sundering of a marriage; where the parents have indicated their willingness and ability to provide for dependents, the court does not insist upon an arrangement supervised by the authorities. Both parties have equal standing before the law, particularly as regards property rights; the payment of alimony is not a sex privilege but is ordered only in the case of need; breach of promise suits are not tolerated except when an illegitimate child is involved; the husband has not patriarchal rights over the property of wife and children, as is commonly true under the legal codes of the Continent. Both parties are protected in their property, the courts making provision for either husband or wife if either shows an inability toward self-support. See *LAW under Marital Status*.

**MARTINIQUE**, măr'ti-nèk'. One of the Lesser Antilles group of the West Indies, forming a colony of France. Area, 385 square miles; population, in 1929, 231,435, of whom 10,000 were whites, and the remainder Negroes, mulattoes, East Indians, and Chinese. Capital and chief port, Fort-de-France, with a population of 43,338.

Sugar, rum, cacao, coffee, tobacco, pineapples, and bananas are the chief products. Imports in 1929 were valued at 266,168,492 francs and exports at 272,900,755 francs (1 franc equals \$0.0392 at par). Sugar and rum constituted nearly 90 per cent of the value of all exports. The 1930 budget balanced at 92,240,200 francs. Governor in 1931, L. Gerbinis, appointed in 1927.

**MARYLAND.** POPULATION. According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 1,631,526; in 1920, 1,449,661. The number of native whites was 1,259,077 (1930), 1,102,560 (1920); of foreign-born whites, 95,093 (1930), 102,177 (1920); of Negroes, 276,370 (1930), 244,479 (1920). Baltimore, the chief city, had 804,874 inhabitants (1930), 733,826 (1920); Cumberland, 37,747 (1930), 29,837 (1920); Hagerstown, 30,861 (1930), 28,004 (1920); Annapolis, the capital, 12,531 (1930), 11,214 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops for 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Wheat .....	1931	404,000	9,696,000	\$5,042,000
	1930	481,000	11,063,000	8,519,000
Corn .....	1931	545,000	20,710,000	8,284,000
	1930	508,000	6,858,000	6,378,000
Hay, tame ..	1931	381,000	469,000 <sup>a</sup>	5,628,000
	1930	369,000	309,000 <sup>a</sup>	7,015,000
Tobacco ..	1931	38,000	31,540,000 <sup>b</sup>	7,570,000
	1930	35,000	16,625,000 <sup>b</sup>	4,821,000
Potatoes ....	1931	32,000	8,360,000	1,848,000
	1930	30,000	2,520,000	2,394,000
Sweet potatoes	1931	11,000	2,013,000	1,006,000
	1930	9,000	630,000	567,000

<sup>a</sup> Tons. <sup>b</sup> Pounds.

**MINERAL PRODUCTION.** The production of coal from mines in the State diminished in yearly total to 2,288,000 short tons for 1930, from 2,640,114 short tons, in value \$4,640,000, for 1929. Coke ovens produced 1,169,016 short tons of coke in 1930, as against 1,393,052 in 1929. Largely with its own coke the State produced from non-native ores a substantial output of pig iron. But the pig iron shipments of the blast furnaces decreased, to 981,466 long tons, for 1930, from 1,111,219 for 1929. The total value of the mineral output of the State, exclusive of coke and pig iron, was \$18,460,568 for 1929; for 1928, \$18,417,781.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 stated the number of the manufacturing establishments as 3229. These establishments employed 131,399 wage earners (3.7 per cent in excess of the number for 1927) and paid them \$149,051,281 (5 per cent more than the wage bill of 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$560,183,235 (slightly less than for 1927). The manufactured product was valued at \$1,120,409,058 (18.8 per cent more than that of 1927). The value added by manufacture was \$560,225,823.

**FINANCE.** State expenditures in the year ended Sept. 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$21,579,370 (of which \$3,024,357 was for local education); for conducting public-service enterprises, \$91,875; for interest on debt, \$1,342,377; for permanent improvements, \$12,983,763; total, \$35,997,385 (of which \$17,105,849 was for highways, \$6,297,012 being for maintenance and \$10,808,387 for construction). Revenues were \$31,-

159,400. Funded debt outstanding on Sept. 30, 1930, totaled \$33,154,000; of which \$19,268,000 was for highways. Net of sinking fund assets, it was \$31,276,689. On an assessed valuation of \$2,781,851,071 the State collected in the year ad valorem taxes of \$6,358,323.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 1443.13. Additions of 5.72 miles had been made to the total during the year preceding, while the operation of 1.41 miles of line had been given up.

**EDUCATION.** Legislation was enacted in 1931 to provide State aid for the special education of children physically or mentally handicapped. The course of the normal schools was lengthened to three years, from two. The law as to school attendance was made more strict.

**CHARITIES AND CORRECTIONS.** The State, under the system operating in 1931, carried on institutional work largely through privately managed institutions receiving State aid. The number of institutions supported to a greater or lesser extent by such aid was 112. The central State authority was the Board of State Aid and Charities, composed of the Governor, ex officio, and six appointees serving terms of four years. Executive functions were exercised by the Board's secretary (William J. Ogden).

**LEGISLATION.** A regular session of the Legislature was held, terminating April 6. It voted the Governor's budget of approximately \$72,000,000 for the ensuing two fiscal years. The issuance of State bonds to the total of \$7,633,000 for the building of roads, and for construction and repair of bridges, was authorized. The State blue laws were modified to the extent of granting Baltimore the right to vote on its own proposed code of local Sunday observance, and of allowing Sunday baseball in Hagerstown. This modification went through in the face of earnest opposition from Protestant church groups. The Washington, Baltimore and Annapolis Railway Company was by statute exempted from taxation for the period of two years in view of its adverse business.

Motorists involved in serious accidents, under another statute, were required to satisfy the Commissioner of Motor Vehicles of their financial responsibility or to suffer suspension of their licenses. Power to regulate taxicabs was vested in the Public Service Commission, and it was required that such vehicles be operated either by owners or by owners' employees. For Baltimore were authorized a water loan of \$7,500,000 and a paving and bridge loan of \$5,000,000, as well as school and sewerage loans. Some progress was made with legislative investigation of a proposal to build a bridge over Chesapeake Bay via Claiborne and Annapolis. A bill to create a State commission to manufacture and sell intoxicating beverages was presented but failed of passage.

**POLITICAL AND OTHER EVENTS.** H. W. Jackson, Democrat, was elected Mayor of Baltimore on May 5. Upon the incoming of a Democratic city administration charges of payroll padding and of excessive expenditure on the \$4,000,000 municipal airport were brought forward for investigation. Work was prosecuted on a new Baltimore post office, to be completed early in 1932.

**OFFICERS.** Governor, Albert C. Ritchie; Secretary of State, David C. Winebrenner, 3d; Treasurer, J. M. Dennis; Auditor, Edmund R. Stewart; Comptroller, William S. Gordy, Jr.;

Attorney-General, William Preston Lane, Jr.; Superintendent of Schools, Albert S. Cook.

**JUDICIARY.** Court of Appeals: Chief Judge, Carroll T. Bond; Associate Judges, John R. Patterson, T. Scott Offutt, William H. Askins, Francis N. Parke, Hammond Urner, W. M. Digges, D. Lindley Sloan.

**MARYLAND, UNIVERSITY OF.** A coeducational State institution of higher learning at College Park and Baltimore, Md., founded in 1807. The enrollment for the autumn term of 1931 was 3278. The faculty in the autumn numbered 500. The total income from appropriations and other receipts amounted to \$3,214,869. The library contained approximately 68,000 volumes. During 1931 a new power plant costing \$216,000 was completed, and construction was started on a new horticulture building at \$220,000, an addition to the engineering buildings at \$100,000, and a dormitory for women at \$125,000. President, Raymond A. Pearson, D.Agr., LL.D.

**MARYLAND TERCENTENNIAL CELEBRATION.** See CELEBRATIONS.

**MASHONALAND.** See RHODESIA.

**MASSACHUSETTS. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 4,249,814; in 1920, it was 3,852,356. There were 3,138,290 native whites (1930), 2,725,990 (1920). The foreign-born numbered 1,054,636 (1930), 1,077,534 (1920). The number of Negroes rose to 52,365 (1930), from 45,466 (1920). A sprinkling of 4323 (1930) of other races included 2973 Chinese. The population was, if anything, increasingly urban; under the classification of communities that prevailed in 1920, the urban percentage would have been 95.3 in 1930; but certain of the towns were reclassified as rural, with the result that the urban percentage for 1930 was rendered as 90.2, producing a merely apparent decrease from the 94.8 of 1920.

Out of 1,814,422 reporting gainful employments in 1930, 837,446 were listed in the manufacturing and mechanical industries, including 117,817 in the building industry. Only 56,015 were in agriculture while 325,406 were in trade, 153,763 in professional service, 188,917 in domestic and personal service, and 148,355 in transportation. Populations of the chief cities according to the Federal Census for 1930, with those for 1920 shown in parentheses, were: Boston, 781,188 (748,060); Worcester, 195,311 (179,754); Springfield, 149,900 (129,614); Fall River, 115,274 (120,485); Cambridge, 113,643 (109,694); New Bedford, 112,597 (121,217); Somerville, 103,908 (93,091); Lynn, 102,230 (99,148); Lowell, 100,234 (112,759).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ...	1931	334,000	481,000*	\$8,610,000
	1930	336,000	427,000*	8,070,000
Cranberries ..	1931	14,000	450,000*	2,700,000
	1930	14,000	370,000*	3,700,000
Tobacco .....	1931	7,600	10,184,000*	2,240,000
	1930	8,300	11,728,000*	3,483,000
Corn .....	1931	37,000	1,591,000	955,000
	1930	39,000	1,755,000	1,755,000
Potatoes .....	1931	13,000	1,625,000	1,056,000
	1930	11,000	1,870,000	2,057,000
Apples .....	1931	.....	1,713,000	1,799,000
	1930	.....	4,398,000	8,511,000

\* Tons.    † Barrels.    • Pounds.

**MINERAL PRODUCTION.** The product of the stone quarries for 1929, the latest year for which official data were furnished, slightly exceeded half of the year's entire value of minerals produced. From imported coal originating in other States Massachusetts produced in its by-product ovens much coke; in 1929, 776,679 short tons, having a value of \$5,919,159. The quantity of this product rose to 862,663 for 1930, and the value to \$6,697,235. Exclusive of non-native products, chiefly coke, the total value of the State's mineral production was \$16,030,807 for 1929; for 1928, \$16,234,037.

**MANUFACTURES.** Federal Census data obtained in 1930 to cover the year 1929 presented the number of the State's manufacturing establishments as 9952 (not quite 1 per cent below the number for 1927). These establishments employed 559,443 wage earners (3.2 per cent fewer than for 1927). The wages paid these earners totaled \$695,351,100 (1.2 per cent less than the total for 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$1,685,585,153 (about the same amount as in 1927). The manufactured product totaled \$3,392,149,485 (2.2 per cent above the figure for 1927). Value added by manufacture was estimated at \$1,706,564,332.

Boston, the leading centre of manufacture, had 2752 establishments, which employed 76,613 wage earners, paid wages of \$106,800,959, and attained a manufactured product of \$613,303,031. Like figures for other manufacturing cities were: Worcester, 539 establishments, 31,822 wage earners, \$45,364,759 for wages, and \$215,798,511 of product; Springfield, 326 establishments, 18,728 wage earners, \$25,620,495 for wages, and \$121,430,408 of product; Cambridge, 390 establishments, 21,854 wage earners, \$28,078,148 for wages, and \$174,621,190 of product; New Bedford, 193 establishments, 32,155 wage earners, \$31,407,670 for wages, and \$121,692,217 of product.

**FINANCE.** State expenditures in the year ended November 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$46,768,579 (of which \$2,670,221 was for local education); for operating public-service enterprises, \$205,213; for interest on debt, \$1,235,404; for permanent improvements, \$13,992,359; total, \$62,201,555 (of which \$15,273,912 was for highways, \$6,986,772 being for maintenance and \$8,287,140 for construction). Revenues were \$69,182,443. Of these, property and special taxes formed 47.0 per cent; departmental earnings and remuneration to the State for officers' services, 6.4; sale of licenses, 30.4 (including gasoline sale taxes amounting to \$10,342,851). The State's funded debt outstanding on November 30, 1930, was \$30,823,738. Of this total, \$4,554,000 was for highways. Net of sinking fund assets, debt was \$17,291,040. On a property valuation of \$7,233,539,128 were levied in the year taxes of \$7,000,000.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 2021.79. There had been increases, during the year preceding, to the total of 12.70 miles, while the operation of 6.85 miles had been given up. No building of new line or trackage in 1931 was reported.

**EDUCATION.** For the academic year ending with June, 1931, the number of persons of school age (from 5 to 16 years, inclusive) was reported as

852,115. There were enrolled in the public schools of the State 760,208 pupils. Of these, 515,884 were in common schools or elementary grades; 101,067 in junior high schools; 143,257 in the upper high schools. The year's expenditures for public-school education were: current, \$72,521,041; outlay, \$11,947,278. Salaries of teachers, inclusive of principals and superintendents, averaged yearly \$1910. Progress was reported by State Superintendent Smith in providing for the separate education of special groups of children.

**CHARITIES AND CORRECTIONS.** The authority of the State over its institutions for care or custody of persons, under the system existing in 1931, was not centred in a single body. A Department of Public Welfare consisting of a Commissioner and an advisory board of six members, dealt with a variety of welfare problems. It gave some sort of State assistance to about 70,000 individuals during the year, at an expenditure of about \$5,000,000. Among these were 2982 mothers and 8202 children assisted under the Mothers' Aid Law. In the Department's custody, as State wards, were 6601 children (December 1). It had charge also of 3327 minors on parole from the State training schools. The Department had charge also of old age assistance; supervision of town planning, housing regulations and divers sorts of private charitable corporations; and the investigation of adoptions. It directed the State Infirmary, Tewksbury, with 2988 inmates; Massachusetts Hospital School, Canton, 329; Lyman School for Boys, Westborough, 480; Industrial School for Girls, Lancaster, 342; Industrial School for Boys, Shirley, 306.

Under the government of a Commissioner of Correction were the State Prison, Boston; Massachusetts Reformatory, Concord; Reformatory for Women, Framingham; Prison Camp and Hospital, Rutland; State Farm, Bridgewater. A Department of Mental Diseases supervised State mental hospitals at Worcester, Taunton, Northampton, Danvers, Westborough, Medfield, Monson, Foxborough and Grafton. The Department of Public Health had authority over five State sanatoria.

**LEGISLATION.** Governor Ely, Democrat, succeeded after a protracted contest in obtaining from the Legislature a great part of the programme of public relief through State works that he had recommended. As enacted, this programme provided an increase in the tax on sales of gasoline, for two years, to three cents a gallon, from two cents. The expenditure of the proceeds of the additional levy, on highway construction; on a building for the department of public works; and in measures of relief for individuals in cities, towns, and counties, was authorized. The amount to become available for highways was estimated at \$5,000,000.

Measures to give the State a system of pensions for the needy aged met with only partial success. The measure committing the State to inaugurate the system of old age relief was enacted, to go into effect on July 1, but the two houses of the General Court failed to agree on the means to raise the requisite money. The House sought to finance the plan by an inheritance tax, while the Senate insisted on a head tax of \$1 on men and \$2 on women. The two houses concurred in a resolution asking the Federal Congress either to call a convention for the repeal of the Eighteenth Amendment or itself to propose to

the several States an amendment repealing the Eighteenth. Statutes were enacted to extend by an hour the time for public Sunday afternoon sports and to allow civic and fraternal organizations to parade on Sunday.

The State was redistricted into 15 Congressional districts, in place of the previous 16, to conform with the new Federal reapportionment, by which the State had lost one seat in the House of Representatives. Over the veto of Governor Ely a bill was enacted to relieve cities and towns of the maintenance of State highways within their borders. The system of public control over the Boston Elevated lines was extended for a period of 28 years, subject to acceptance by the stockholders. This measure prolonged a virtual lease, by which the company obtained guarantee of dividends, depreciation charges and possible losses in certain contingencies.

Among other enactments were one making it a punishable offense for a police officer to search for and seize, without a warrant, intoxicating liquor in a dwelling; an act requiring mental and physical examination of children before their commitment as delinquents or to institutions for mental disease; a measure authorizing the State Department of Education to give free correspondence courses to inmates of hospitals, infirmaries, and correctional institutions. A measure to abolish the State's physical examinations for cities' civil service laborers was vetoed.

**POLITICAL AND OTHER EVENTS.** Industrial and economic conditions in the State during the year were in some respects better than in the country in general. This was largely due to a moderate improvement in the textile industry. Important cotton mills at Fall River reopened in March. A strike of some 10,000 workers in the woolen mills at Lawrence occurred in February, but most of the workers returned to work at the end of the month. Governor Ely united with the governors of three other New England States, in July, to intervene before the Interstate Commerce Commission in opposition to the Pennsylvania R. R. system's control of the New York, New Haven & Hartford and the Boston & Maine railroads. In Boston a legal contest made by advertisers against the regulation of billboards by the Commissioners of Public Works was decided by the Supreme Court in favor of the Commissioners. The Supreme Court, in a decision of May 31, found the State measure to prohibit "yellow dog" contracts (excluding union affiliation) on the part of employees in part unconstitutional.

Parts of the State were afflicted by an epidemic of bank runs and suspensions in the middle part of December. The Federal National Bank of Boston closed on December 15 with deposits reported as around \$28,000,000. It carried down with it nine affiliates in other cities, having deposits of some \$32,000,000. Other closings brought the total tied up to about \$80,000,000.

The construction of a new traffic tunnel was begun in East Boston on March 23. The proposal to equip the Cape Cod Canal with a 1000-foot lock and other improvements was recommended to Congress in March by Secretary of War Hurley. The American Woolen Company declared a 10 per cent reduction in wages, effective October 13, one of the most extensive of the year's wage cuts in the New England area. Employees in textile mills at Lawrence, some 23,000 in number, responded by striking on October 6, but returned to work in November.

The city of Boston, in an action before the Interstate Commerce Commission, sought to obtain railroad rates on import and export freight lower than those in effect to and from New York. The proceeding was connected with the petition of New Jersey interests for the abolition of free lighterage in the port of New York. The Port of New York Authority, which had not intervened in the lighterage matter, offered a brief against Boston as to that city's rate demand.

**OFFICERS.** Governor, Joseph B. Ely; Lieutenant-Governor, William S. Youngman; Secretary of the Commonwealth, Frederic W. Cook; Treasurer, Charles F. Hurley; Auditor, Francis X. Hurley; Attorney-General, Joseph E. Warner; Commissioner of Education, Payson Smith; Commissioner of Public Welfare, Richard K. Conant.

**JUDICIARY.** Supreme Judicial Court: Chief Justice, Arthur Prentice Rugg; Associate Justices, John Crawford Crosby, Edward Peter Pierce, James Bernard Carroll, William Cushing Wait, George Augustus Sanderson, Fred Tarbell Field.

**MASSACHUSETTS BAY TERCENTENARY.** See CELEBRATIONS.

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY.** A nonsectarian institution for scientific and technical education in Cambridge, Mass., founded in 1861. The enrollment for the autumn of 1931 was 3188, including 578 graduate students. For the summer session, the registration was 1679. There were 240 members on the faculty and 323 others on the active staff of the institute. The productive funds amounted to \$34,500,000; and the income for the year was \$3,550,000 received from various sources, as follows: Funds, \$1,729,000; student fees, \$1,321,000; miscellaneous, \$500,000. The book value of land and buildings in Boston and Cambridge was \$15,500,000. The library contained 275,000 volumes. A new building for research in physics and chemistry was under construction during 1931 at a cost of \$1,200,000. President, Karl Taylor Compton, D.Sc., D.Eng., Ph.D., LL.D.

**MASSACHUSETTS STATE COLLEGE** (formerly MASSACHUSETTS AGRICULTURAL COLLEGE). A State institution for agricultural and scientific training in Amherst, founded in 1867. The enrollment in 1931 was 1356. There were 203 members on the faculty, including 113 in resident teaching, 61 in research at the experiment station, and 29 in extension service in agriculture and home economics. The income in 1931 amounted to \$1,226,765, of which \$1,045,460 was from State appropriation and \$181,305 from Federal appropriation. The library contained approximately 90,000 volumes. President, Roscoe W. Thatcher, D.Agr., LL.D.

**MATABELELAND.** See RHODESIA.

**MATERNAL HEALTH.** See CHILD WELFARE.

**MATERNITY PROTECTION.** The Children's Bureau of the U. S. Department of Labor reported that there were several forms of aid to mothers with young children, in use in countries outside of the United States. First among these aids were mothers' pensions paid from public funds to widowed, divorced or deserted women with children under a certain age. Denmark was the only European country to carry such a law on its statute books covering the whole nation. In Norway such pensions were being paid in two cities; in France, aid was given to large families with children of school age; in six provinces of



Canada, the States of New South Wales and Victoria, in Australia, and in New Zealand, mothers pension laws existed. A Turkish law of 1930 made provision for the rendering of aid for mothers with six or more living children.

In the second place, aid to mothers was provided for under various forms of social insurance paid from insurance funds to which in some countries the state made contributions. In Great Britain, a special law provided for pensions for widows and for orphans under 16 of those men who were insured under the compulsory sickness insurance law. In those countries which possess a system of compulsory insurance against invalidity and old age—as in Austria, Czechoslovakia, France, Germany, Italy, Sweden and the U. S. S. R.—a person in receipt of such a pension (who had children of school age) was paid an allowance for each child in addition to the pension. In nearly all these countries temporary pensions were being paid to the orphans upon the death of an insured parent. In Italy and Spain, the majority of employed women were obliged to pay a proportion of their wages into a common maternity insurance fund with the employers in the state also making contributions. In 24 countries having compulsory sickness insurance (all of these in Europe, with the exception of Chile and Japan) maternity benefits were being paid to insured women at the time of confinement and for several weeks before and after; in some of these countries benefits were also being paid to the non-insured wives of insured workers.

In the third case aid was being rendered through family allowances. In France and in Spain, such allowances were provided by law in the case of large families. Belgium, New Zealand, and New South Wales legally provided for family allowances for wage earners in proportion to the number of their children, the allowances being paid in addition to the wages. In some countries, notably France, in the absence of such legislation, family allowances are paid voluntarily by a large number of private groups (see *CHILD WELFARE under France*).

In the fourth case, aid was being rendered from public funds at the time of child birth. Such aid was being given on application to women of small means, who were not covered by social insurance, in France, Germany, and Norway. In France, maternity benefits were being paid for 12 weeks; in Germany, for periods varying according to the need; and in Norway, for six weeks before and six months after confinement. In Australia, a lump sum of \$25 was payable to every mother at the time of confinement and in Saskatchewan, Canada, aid was granted not to exceed \$25.

In the fifth case, provision for maternity aid came under various labor law codes. In Ecuador, Guatemala, Peru, Salvador, some of the Mexican States, the Province of Bombay (India), and China, general child labor laws provided for weekly maternity benefits to women employees at the time of child birth, amounting usually to about one-half the regular wages. Such women were required to refrain from work for a certain number of weeks. These benefits were to be paid by the employers in some of the countries and in others out of mutual benefit funds.

It is to be noted that in June, a royal Swedish decree made provision, for the first time in that country, for the payment of maternity benefits

from the national treasury to women, whether married or single, who did not belong to sickness insurance funds and whose income whether singly or with that of the husband was below a certain amount. One krona a day was to be paid to such women for 30 days after child birth on condition that they refrained from employment. The women who were protected by the labor law and who by that law were required to remain away from work for at least six weeks might receive a benefit for 56 days. A midwife's services or hospital care was to be provided on request and in that case a deduction was to be made from the cash benefit.

**GERMANY.** A study made of 3000 women and 7700 children was carried out in this country to determine the effect of factory work on motherhood. It was found in this investigation that the babies of women working in the last weeks of pregnancy weighed less than babies of those who stayed at home during the entire period; also that the percentage of still births was greater among the factory workers. The infant mortality rate among children of factory workers was 126 per 1000 live births as compared with a rate of 106 for the children of housewives. The difference in mortality rates between the two groups was notably high after the beginning of the seventh week of the child's life, which was the time when the mother usually returned to the factory and stopped nursing her infant.

**MATHER, FLORA STONE, COLLEGE.** The women's college of liberal arts and sciences of Western Reserve University (q.v.).

**MATHESON, KENNETH GORDON.** An American educator, died in Bryn Mawr, Pa., Nov. 29, 1931. Born in Cheraw, S. C., July 28, 1864, he attended the South Carolina Military College during 1882-85 and was graduated with the M.A. degree from Stanford University in 1897. He served successively as commandant of cadets at the Georgia Military College (1885-88), University of Tennessee (1888-90), and the Missouri Military Academy (1890-96). He then became professor of English at the Georgia School of Technology, where he was elected chairman of the faculty in 1905 and president in 1906. During the World War he served in France as Y. M. C. A. divisional chief of the Langres area. He was elected president of Drexel Institute in 1922.

**MAURITANIA.** See FRENCH WEST AFRICA.

**MAURITIUS**, ma-ri-sh'ü-s. An island in the Indian Ocean, 500 miles east of Madagascar, forming with the adjacent small islands of Rodrigues and Diego Garcia a crown colony of Great Britain. Area, about 720 square miles; estimated population Jan. 1, 1930, 415,543 (including 9985 in the Dependencies), largely East Indian in origin. Port Louis, the capital and largest city, had 54,147 inhabitants in 1929.

Sugar is the main crop, one-quarter of the island being devoted to its cultivation. Production in 1929-30 was estimated at 240,000 metric tons. Low prices in 1930 and 1931 caused distress and a severe business depression. Coconuts, cacao, tobacco, coffee, aloe fibre, tea, and vanilla also are grown. Exports in 1930 were valued at 26,000,964 rupees; imports, 39,806,180. The budget for 1930-31 estimated revenue at 13,322,000 rupees and expenditure at 16,930,000 rupees (1 rupee equalled about \$0.36). Governor in 1931, W. E. Francis Jackson, who was appointed on March 7, 1930.

**MAWSON, SIR DOUGLAS.** See **EXPLORATION.**  
**MAYOR-COUNCIL PLAN.** See **MUNICIPAL GOVERNMENT.**

**MAYOTTE** (má-yôt') and **COM'ORO ISLANDS.** An archipelago midway between Africa and the northern end of Madagascar, belonging to France and administered by the Governor-General of Madagascar. Capital, Dzaoudzi (111 inhabitants). Total area, about 790 square miles; population in 1928, 126,208 (about 800 Europeans).

**MEAD, GEORGE HERBERT.** An American philosopher, died in Chicago, Ill., Apr. 25, 1931. He was born in South Hadley, Mass., Feb. 27, 1863, and was graduated from Oberlin College in 1883 and from Harvard in 1888, after which he studied at the Universities of Leipzig and Berlin. He became instructor in philosophy at the University of Michigan in 1891 and assistant professor in 1893. The following year he went to the University of Chicago as assistant professor of philosophy, becoming associate professor in 1902 and professor in 1907. At the time of his death he was chairman of the department of philosophy at the University of Chicago. In 1930 he delivered the Carus lectures at the University of California. His important contribution was in developing a sense of social-consciousness whereby the individual mind might recognize its relation to the world of nature and social institutions. His works include *The Definition of the Psychical* (1903) and "Scientific Method and Individual Thinker" in *Creative Intelligence: Essays in the Pragmatic Attitude*, by John Dewey and Others (1917).

**MEAT.** See **LIVESTOCK: FOOD AND NUTRITION.**

**MECHANICAL ENGINEERS, THE AMERICAN SOCIETY OF.** An organization founded in April, 1880, to promote the art and science of mechanical engineering and the allied arts and sciences. It includes 16 professional divisions, organized on the basis of a common interest in a branch of engineering within the scope of the society. These divisions are: Aeronautic, applied mechanics, fuels, hydraulic, iron and steel, machine shop practice, management, materials handling, national defense, oil and gas power, petroleum, power, printing industries, railroad, textile, and wood industries. Another division was being developed by the process industries committee, which was organized during 1931.

Local sections of the society have been established in 72 industrial centres of the United States. They foster and promote the welfare of strong local engineering societies, inclusive of members of all branches of the engineering profession, together with architects and chemists. The formation of student branches of the society at the University of Alabama and Harvard University during 1931 brought the total number of these groups to 108. A grade of membership known as "Student Member" was established during the year, and the problem of affiliating the student members more closely with the work of the society was brought nearer to a satisfactory solution. The membership of the society at the beginning of its fiscal year Oct. 1, 1931, was 20,009.

Among the achievements of the technical committees during 1931 was the survey of screw-thread practice in the United States, sponsored by this society in cooperation with the Society of Automotive Engineers and the National Bureau of Standards. Many firms manufacturing and using threaded products were visited by the committee's

representative, and approximately 7500 bolts, nuts, and screws were collected and shipped to the National Bureau of Standards for measurement in an effort to judge the extent to which the American National Standard screw thread had measured up to commercial requirements, and in what respect revisions should be made.

The regular publications of the society are as follows: *Mechanical Engineering*, the monthly journal; *Transactions*, containing the year's papers of specialized interest and issued annually in 36 sections, including the "Record and Index," which contains annual reports, necrology, and an index to all publications of the society for the year; *The Engineering Index*, a comprehensive index to the engineering literature of the world; the *Membership List*; *Mechanical Catalog*, formerly the Condensed Catalogues of Mechanical Equipment; and the *A.S.M.E. News*, the semi-monthly news sheet for the members. In September, 1931, the society issued an abridged edition of *Steam Tables and Mollier Diagram* by Joseph H. Keenan, published in 1930. A new edition of the *Bibliography of Management Literature*, including material up to January, 1931, also appeared in 1931.

In addition to the meetings of its student branches, local sections, and professional divisions, the society held four outstanding gatherings during the year. These were the semi-annual meeting in Birmingham, Ala., April 20-23, 1931; meetings at Hartford, Conn., June 1-3, 1931, and at Kansas City, Mo., Sept. 7-9, 1931; and the annual meeting in New York City, Nov. 30-December 4, 1931.

The society is a member of the American Engineering Council and has cooperated with it in all of its work, including that on unemployment. The society's own committee on the economic status of the engineer conducted an intensive study of this subject during the year and published its findings in three installments in the September, November, and December issues of *Mechanical Engineering*.

The officers for 1931-1932 were: President, Conrad N. Lauer; vice presidents, Harvey N. Davis, William A. Hanley, T. R. Weymouth, Robert M. Gates, Charles M. Allen, Fred H. Dornier, William B. Gregory; managers, Harold V. Coes, James D. Cunningham, C. F. Hirschfeld, William L. Batt, H. L. Doolittle, H. L. Whittemore, Alexander J. Dickie, Eugene W. O'Brien, Harry R. Westcott; treasurer, Erik Oberg; secretary, Calvin W. Rice; executive secretary, C. E. Davies; assistant secretaries, E. Hartford, C. B. LePage. Headquarters are in the Engineering Societies Building, 29 West Thirty-ninth Street, New York, N. Y. The mid-West office, established in April, 1930, is at 205 West Wacker Drive, Chicago, Ill. A mid-continent office in Tulsa, Okla., is concerned principally with the problems of the petroleum industry.

**MECKLENBURG DECLARATION OF INDEPENDENCE.** See **CELEBRATIONS.**

**MECKLENBURG-SCHWERIN**, mēk'lēn-bōrk-shvā-rēn. A State of the German Republic. See **GERMANY** under *Area and Population*.

**MECKLENBURG-STRELITZ**, mēk'lēn-bōrk-shtrā'lits. A State of the German Republic. See **GERMANY** under *Area and Population*.

**MEDICAL ASSOCIATION, AMERICAN.** A union of the constituent, or State and Territorial, medical associations, founded in 1847 "to promote the science and art of medicine and the betterment of public health." Members in good standing, who have qualified as fellows, consti-

tute the scientific assembly of the association, which meets annually to present and discuss subjects pertaining to the science and art of medicine.

The 1931 annual session was held in Philadelphia, Pa., June 8-12, with an attendance of more than 7000. Among the outstanding speakers were: Dr. Walter Freeman of Washington on "Physicochemical Factors in Mental Disorders"; Dr. George W. Crile of Cleveland on "The Treatment of Peptic Ulcer and Neurocirculatory Asthenia by Suprarenal Denervation"; Dr. Robert H. Halsey of New York City on "The Etiology of Heart Disease"; and Dr. Robert L. Dickinson of New York City on "A Medical Analysis of One Thousand Marriages." The association's highest awards at the scientific exhibit are those in Class I for exhibits of individual investigations, judged on the basis of originality and excellence of presentation. The gold medal in this class was awarded to Jacob Furth of the Henry Phipps Institute, University of Pennsylvania, for "original investigative work on experimental leukemia." The silver medal was awarded to Bedford Shelmire of the Baylor University of Medicine, Dallas, Texas, and W. E. Dove of the U. S. Bureau of Entomology, Charleston, S. C., for "original work on the spread of typhus fever by the tropical rat-mite."

The association's 1932 convention was scheduled to meet in New Orleans, La., May 9-13. The membership in 1931 totaled 98,348. The officers for 1931-32 were: President, E. Starr Judd, Rochester, Minn.; president-elect, Edward H. Cary, Dallas, Texas; vice president, George C. Yeager, Philadelphia; secretary and general manager, Olin West, Chicago; treasurer, Austin A. Hayden, Chicago; and editor, Morris Fishbein, Chicago. The official publication is the *Journal of the American Medical Association*. Headquarters are at 535 North Dearborn Street, Chicago, Ill.

**MEDICINE, PROGRESS IN.** The more significant developments in medicine during the year are discussed in the following summary.

**POLIOMYELITIS.** The rather severe epidemic of infantile paralysis occurring in New York, New Jersey, and the New England States, and to a less marked degree in Michigan, Minnesota, and Wisconsin centred public interest on a problem which for many years had received the attention of physicians and medical investigators. Coincident with the epidemic there came valuable communications concerning the etiology, diagnosis, and treatment of the disease.

The work of Flexner, and of Popper and Landsteiner in 1913 established certain fundamental facts concerning the nature of poliomyelitis. They showed that it was an acute infectious disease caused by a filterable virus (that is, an organism small enough to pass through the meshes of a Berkfeld filter which sifts out all bacteria of ordinary size), which could be recovered from the brain and cord, and from the naso-pharyngeal discharge and which, when inoculated into monkeys, reproduced the disease. It remained, however, to isolate and identify the organism itself. Dr. Frederick Eberson of the University of California Medical School announced before the American Association for the Advancement of Science at New Orleans on December 31 that by prolonged incubation of the virus of poliomyelitis (obtained from the brain and cord of persons dying of the disease) on

special media he had succeeded in culturing a visible, though minute, organism varying between 0.05 and 0.1 micra in size. He was able, after carrying the organism through a number of subcultures, to reproduce the disease by inoculation into monkeys (*Macacus. Rhesus*). When recovered again from monkeys, the organism would become visible after several weeks of cultivation. Dr. Eberson hoped that his discovery might make possible the preparation of a vaccine or serum to be used in immunization and treatment.

Dr. Jungeblut of Columbia University in recent publications (*Proc. Soc. Exp. Biol. and Med.* 28: 1072 and *Jr. Exp. Med.* 53: 159) for the first time showed that apparently allergic phenomena exist in poliomyelitis. His work was based on the earlier observations made by Fairbrother and Hurst in England and by Kramer and his co-workers in the United States, who noted a febrile reaction in monkeys appearing 24 to 48 hours before the onset of paralytic symptoms, about five to seven days after the intracerebral injection of poliomyelitis virus. Jungeblut re-inoculated convalescent monkeys at intervals of five to eighteen months after the cessation of acute symptoms, and found that they reacted with an immediate elevation of temperature, amounting to three to five degrees in two hours. Subcutaneous injection gave a similar fever but did not produce a local skin reaction; nor was corneal instillation associated with any local inflammatory signs. Monkeys which had been previously vaccinated with the heat-killed virus reacted with a less marked fever response; which suggests that the phenomenon may have quantitative as well as qualitative implications.

With this evidence in hand, Jungeblut tried intracutaneous injection of human subjects known to have previously had infantile paralysis. He found that the introduction of a small amount of heat-killed poliomyelitis virus (0.2 c.c.) into the skin produced a typical local allergic response, with redness, swelling, and signs of inflammation appearing around the site of injection in about five hours and increasing in intensity until the twenty-fourth hour. These subjects, incidentally, did not have any systematic febrile reaction. Dr. Jungeblut's work promised to afford a means of recognizing susceptibility to and immunity from poliomyelitis quite as important as the now widely used Schick test for diphtheria and the von Pirquet reaction for tuberculosis.

Another important advance in the study of the experimental production of poliomyelitis was that of Dr. Simon Flexner of the Rockefeller Institute for Medical Research, long a student of this disease, who reported (*Sci. Nov.* 20, 1931) that by repetition of the injection of the virus into monkeys a greater proportion of animals could be successfully inoculated. Previously only a certain number of human strains could be transferred and often a single injection failed. By this same technique, Dr. Flexner was able to change the abortive form of the disease into one of progressive paralysis, such as is seen in severe human cases. The exact mechanism of this reaction is not known, but it is a definite advance in research technique.

Dr. George Draper of New York summarized the problems encountered in the clinical management in a paper in the *Journal of the American Medical Association* (vol. 2, 1931, p. 1139). He pointed out that until we know the exact mode

of transmission, questions of isolation and quarantine present great difficulties. The disease is certainly transferred by direct contact; possibly by those with mild, atypical, unrecognized forms and by immune carriers; and even perhaps by raw food and milk. As far as treatment is concerned the chief problem is that of early diagnosis in the stage before paralytic symptoms become evident. It is known experimentally that immune serum will neutralize the virus in monkeys (Flexner) if given before the latter has actually combined with the nervous tissues of the brain and cord. Once this has occurred, the serum is incapable of exerting any neutralizing effect (Andrewes, 1929). The fact that the serum has not been given early enough as a rule (intravenously before invasion of the meninges has occurred and intra-spinally afterwards) probably accounts for the uncertain and generally unsatisfactorily clinical results.

A clinical report of interest was that of Shaw and his coworkers of the University of California Medical School (*Jr. Am. Med. Assn.* 1931, vol. 2, p. 162), who observed 104 cases of poliomyelitis between July 1 and Dec. 31, 1930. Of these 92 were given specific treatment with immune serum. Their results were as follows: of 53 treated in the pre-paralytic stage 28 (average age 9½ years) developed no paralysis, 15 (average age 10 years) showed a transient weakness, 9 (average age 17 years) developed some permanent paralysis, and 1 died; of 39 treated in the acute stage after the occurrence of demonstrable paralysis, 9 (average age 6.8 years) showed only transient weakness, 23 (average age 11.7 years) developed some permanent paralysis, and 7 (average age 19.8 years) died. In summary.

	No permanent paralysis Per cent	Permanent paralysis Per cent	Deaths Per cent
Treated before pa- ralysis, 53 ...	84.4	16.9	1.9
Treated after pa- ralysis, 39 ...	23.1	59.0	18.0

Shaw concluded from his study that "the use of known highly immune serum will be productive of consistent results" and that "hyper-immune animal serum offers the greatest promise in this direction." He also pointed out the interesting relationship between the age of the patient and the severity of the disease, the incidence of permanent paralysis and the death rate both being higher in older children and young adults.

**PNEUMONIA.** Since the discovery by Gay and Chickering in 1915 of an immune serum effective in experimentally produced pneumonia in animals, interest in the treatment of this extremely common and serious disease had centred largely in the development of a clinically useful serum. Two items of interest in this respect appeared in the *Journal of the American Medical Association*—one an editorial reviewing briefly the history of the development of the concentrated serum widely used in certain types of the disease, and the other a clinical report from the Boston City Hospital of their experience with this form of therapy. (1931, vol. I, pp. 1465 and 1505).

Cole, Dochez, and Gillespie of the Rockefeller Institute opened the way for specific therapy in pneumonia when they distinguished four biologically different types of organisms previously grouped together culturally as pneumococci.

Shortly afterward came the work of Gay and Chickering who produced a serum effective in Type 1 pneumonia experimentally and useful in clinical cases as well. The effort since then has been to refine and concentrate this serum and to free it from extraneous protein in order that it may be administered to patients in large amounts without the dangers of "serum sickness." By the work of Huntoon, of Avery, and later of Felton, of the Massachusetts Board of Health, this objective has been in large part attained.

All the clinical studies point to the effectiveness of an immune serum prepared for use in cases of Type 1 pneumonia, and to a much smaller extent, in cases of Type 2. So far no effective serum has been prepared to combat pneumonia caused by the Type 3 and Type 4 organisms.

During 1931 a report came from the Boston City Hospital and the Harvard Medical School. Sutleff and Finland, using Felton's concentrated pneumococcus anti-body in cases of Type 1 pneumonia, treated 29 of 59 cases between Nov. 15, 1929 and June 30, 1930. Alternate cases were chosen for treatment. They found that the early administration of serum, before the fourth day, shortened the duration of the illness by one to two days, that it often sterilized the blood stream from which, previously pneumococci could be cultured, and that extension to uninvolved lobes of the lung did not occur in treated cases (although it often did in the untreated ones.) They did not think that their mortality rate, 7 of 28 treated cases (25 per cent) against 10 of 31 untreated ones (32.2 per cent) fairly reflected the efficacy of the serum, because of the small number of cases treated and the fact that the more seriously ill seemed to fall by chance largely into the treated group. They emphasized their clinical impression of obvious improvement after administration of the serum and pointed out the necessity for early diagnosis of the disease, early typing of the organism, and early serum therapy. They concluded that "the antibody has a constantly beneficial effect. As with other specific measures, best results are obtained following treatment early in the course of the disease."

**ADDISON'S DISEASE.** One of the most important advances in medicine during the year 1930 was the isolation from the cortex of the supra-renal gland by Swingle and Pfiffner of Princeton (and independently by Hartmann and Brownell of Buffalo) of a hormone capable of maintaining life in supra-renalectomized animals and clinically efficacious in cases of Addison's Disease. This condition, characterized by extreme asthenia, low blood pressure and pigmentation of the skin, is caused by a destructive process in the supra-renal glands, usually tuberculous in nature, and is as a rule fatal. Of considerable importance, therefore, was the report of Rowntree, Greene, and Ball of the Mayo Clinic in the *Journal of the American Medical Association* (1931, vol. 2, p. 1446), which gives a summary of their experience with the use of the hormone during the year since it was discovered. Their early impression of its therapeutic value was confirmed and strengthened as the treated cases increased in number.

Rowntree found that even markedly prostrated patients were greatly improved after administration of the serum—that nausea and vomiting stopped, appetite improved, pigmentation of the skin decreased and there was a marked gain in strength and feeling of general well being. In

tabulating the results at the Mayo Clinic, he divided the cases into five groups as follows:

1. Those who did not do well in spite of adequate treatment. 1 case.
2. Those moribund on entry who died before adequate treatment could be given. 2 cases.
3. Those who showed a partial response while under treatment but who have required nearly constant treatment with the hormone since their dismissal. 5 cases.
4. Those who showed an excellent response to treatment at the Clinic, but who died at home when treatment was stopped. 3 cases.
5. Those who showed a good response at the Clinic, and who have done well since dismissal. 9 cases.

He also pointed out that treatment is complicated by the fact that these patients usually have other foci of tuberculosis beside that in the suprarenal glands, and although the deficiency of hormone may be supplied, the tuberculosis process in other organs is not affected.

**MULTIPLE SCLEROSIS.** Recent investigations in the United States rather disappointingly failed to confirm the observations of Purves-Stewart and Chevassut of London who announced in 1930 that they had succeeded in isolating the causative agent of multiple sclerosis. They found a minute organism, which they named *Spherula Insularis*, in the spinal fluid of 176 of 189 patients suffering from the disease, and were unable to find the organism in 209 cases of other diseases of the nervous system which they studied. Weil of Northwestern University Medical School, Chicago, who had seen Chevassut's preparations in London and was familiar with the details of her cultural technique, carefully repeated the work and came to the conclusion that the spheres and colonies of sphere seen in smears taken from agar cultures of spinal fluid really represented a precipitate of colloidal protein, or possibly lipid particles, and was not actually a living organism. He was able to demonstrate similar spheres in spinal fluids from other neurological conditions and thought that they were caused by the presence of a protein (globulin), which is found in a great number of pathological conditions of the central nervous system. He concluded that "repetition of the experiments failed to produce convincing evidence that, in multiple sclerosis, cultures from the spinal fluid yield a filtrable virus and that this virus is responsible for the production of the disease." (*Jr. Am. Med. Assn.*, 97-1587.)

Putnam, McKenna, and Morrison of the Harvard University Medical School also adduced evidence against a specific virus being the causative agent in the disease. They were able to produce experimentally in dogs the histological picture of multiple sclerosis (that is, scattered areas of degeneration and scarring) by a variety of means which had nothing in common except the fact that they all probably caused some degree of obstruction of small vessels in the brain and cord. They found that injection of minimal doses of tetanus toxin, poisoning by carbon monoxide inhalation, and the introduction of a cod liver oil emulsion into a vein all produced rather similar microscopic changes. And some of the animals so treated developed nervous symptoms not so very dissimilar to those found in clinical cases. It is their opinion that it is "not necessary to postulate a specific virus, toxin, or ferment to account for the histological appearance seen in multiple sclerosis." (*Jr. Am. Med. Assn.* 97, p. 1591.)

**ÆTIOLOGY OF INFLUENZA AND THE COMMON COLD.** In the YEAR BOOK for 1930 the results of the investigations of Dochez at Columbia and of

Long and Doull at the Johns Hopkins were reported which pointed to a filtrable virus as being the causative agent in the production of the common cold. Two further contributions were made to the study of this subject. Dochez was able to grow the virus of the common cold in the laboratory. (*Proc. Soc. Exper. Biol. and Med.* Feb. 1931.) Using the method of Li and Rivers, which in essential consists of the employment of embryonic tissues as a culture medium, he was able to obtain a positive take in a monkey and a chimpanzee after incubation of the virus for 13 days. Subcultures of this organism, he found, were pathogenic for fifteen generations. Two of three human volunteers inoculated with this material (which represented a dilution of the original culture of about one part to one million billion parts) contracted colds.

Long, Bliss and Carpenter (*Jr. Am. Med. Assn.* Oct. 17, 1931) at Hopkins obtained symptoms very strongly resembling those seen in influenza in man by the intranasal inoculation of three chimpanzees with a bacteria free filtrate obtained from the rhino-pharyngeal washing of patients ill with influenza. These animals developed within 36 to 48 hours fever, rather marked prostration, and a decrease in the number of white blood corpuscles (a finding significant in the diagnosis of influenza in man). They did not have the respiratory symptoms usually seen in the human form of the disease.

**STUDIES ON THE GROWTH OF NERVES.** The annual award of the American Association for the Advancement of Science was given to Dr. C. C. Speidel of the University of Virginia Medical School in recognition of his work on the mechanism of the growth of nerves, a subject concerning which there has been considerable controversy for many years. Dr. Speidel watched microscopically the growing nerve fibres in the transparent tail fin of tadpoles by means of a special technique which he devised. Daily observations were made for a period of months, as a result of which he was able to demonstrate definitely that "nerves do not grow as a result of cells forming a chain, but that each nerve grows out of a single cell in the central nervous system." His work establishes the so-called "outgrowth theory" as opposed to the "chain theory." He found that at the tip of each outgrowing nerve sprout there was an enlargement which he called a growth cone. This sends out a number of delicate processes which "are being continually extended and retracted, as if the immediate vicinity is being explored for a favorable route. The growth cone advances by a slow, irregular flowing motion, spinning the nerve fibre behind it." The nerve fibre tends to follow the fibrous processes of tissue cells which it meets. When an obstruction is met, the cone leaves a thickening behind, and when its growth in one direction is blocked a new cone may develop and progress in a more favorable direction.

**MISCELLANEOUS BRIEF ANNOUNCEMENTS.** The following items, summarized by Science Service in its annual review, are of interest and may be mentioned briefly although in the main formal detailed reports have not been made or are not accessible. McCollum and Orent of the Johns Hopkins School of Hygiene and Public Health found that lack of magnesium in the diet may cause death in experimental animals by producing a disturbance of the adrenal glands. Dr. McCollum also found that the formation by the pituitary



gland of a hormone concerned in the regulation of sexual function is related to the magnesium content of the diet.

D. Walter B. Cannon of the Harvard Medical school discovered a new hormone, thought by him to be formed as the result of the action of nervous impulses on muscle cells. This hormone, which he calls sympathin, is similar to adrenalin, a well known hormone obtained from the medulla of the supra-renal glands. The causative agent of small-pox, hitherto considered a virus disease, was said to have been discovered by Prof. J. C. G. Ledingham of the Lister Institute of London; and two American investigators, McKinley and Soule, reported that they had succeeded in growing the organism of leprosy outside the human body.

Studies on deafness made by Dr. S. J. Crowe of the Johns Hopkins Medical School show that certain forms may be due to alteration in the rigidity of certain small bones in the inner ear (so called ossicles) and that pressure on a membrane ("round window") in the inner ear may greatly increase the acuity of hearing.

See SURGERY, PROGRESS IN; FOOD AND NUTRITION; VITAMINS; CHEMISTRY, INDUSTRIAL, for Cancer.

**MEDIEVAL LANGUAGE AND LITERATURE.** See PHILOLOGY, MODERN.

**MEDITERRANEAN FRUIT FLY.** See ENTOMOLOGY, ECONOMIC.

**MEDIUMS.** See PSYCHICAL RESEARCH.

**MEDUSA.** See ZOOLOGY.

**MELBA, NELLIE.** An Australian operatic soprano, died in Sydney, Feb. 23, 1931. She was born, Nellie Porter Mitchell, near Melbourne on May 19, 1861, her later stage name being an adaptation of that of her native city. Following her marriage to Capt. Charles Armstrong in 1882, she studied under Mme. Marchesi in Paris in 1886, and the following year made her debut as Gilda in *Rigoletto* at the Théâtre de la Monnaie in Brussels. Possessing a coloratura voice of exceptional purity and beauty, she achieved a signal success at Covent Garden, London, the Paris Opera, and La Scala, Milan. Her first appearance in the United States was in 1893 at the World's Columbian Exposition in Chicago and at the Metropolitan Opera House in New York City. She remained a member of the Metropolitan Opera Company until 1910, her repertory including more than 25 operas of which the last to be added was *La Bohème*. In 1915-16, after an extensive concert tour, she returned to American opera as a member of the Chicago Company. She was made Dame Commander of the Order of the British Empire in 1918, and in 1927, following her retirement to private life, was created Dame of the Grand Cross of the Order of the British Empire. She wrote *Melodies and Memories* (1925).

**MELONS.** See HORTICULTURE.

**MEMEL, mǎ'mēl, or KLAIPĖDA.** A territory on the Baltic including the city of Memel (population, 36,633) and the lower reaches of the Memel or Niemen River, which was detached from Germany by the Treaty of Versailles and subsequently incorporated in Lithuania under a convention agreed to by the conference of ambassadors (May, 1924). The German population of Memel received a clearly defined measure of administrative and financial autonomy. The governor is appointed by the President of Lithuania. The port of Memel was designated a port of international concern. A harbor board, including a neutral appointee of the League, was charged

with its control. The total area is 943 square miles and the population (1930) about 147,000, of whom 37,000 were Lithuanians. Governor in 1931, Antonas Merkys. See LITHUANIA.

**MENDELISM.** See ZOOLOGY.

**MENTAL HYGIENE.** See PSYCHOLOGY.

**MENTAL TESTS.** See PSYCHOLOGY.

**MERCURY.** See QUICKSILVER.

**MERCURY-ARC RECTIFIERS.** See DYNAMO ELECTRIC MACHINERY.

**MERCURY BOILERS.** See STEAM POWER PLANTS.

**MESOPOTAMIA.** See ARCHÆOLOGY; IRAQ.

**METABOLISM.** See FOOD AND NUTRITION.

**METALLURGY.** The rate of metallurgical activity again declined to a considerable extent during 1931 with the sole exception of gold. Gold mines and reduction plants benefited greatly by reduced costs of both labor and materials while getting a fixed price for their product. On the other hand, many base-metal mines were closed down altogether, and the others, almost without exception, operated at a greatly curtailed rate, with a minimum expenditure for new equipment or for research. Nevertheless, several new plants of importance were completed during the year, and the period was not without technological progress.

**COPPER.** Interest centred in the newly developed district of Northern Rhodesia where one of the new companies, Roan Antelope, put a large new concentrating plant and smelter into operation during the year, and another company, Rhokana, completed a mill at its N'Kana property that went into operation on December 11. A smelter also under construction was expected to be in operation early in 1932. A third company, Mufulira, had a large concentrating plant under construction but further work was deferred owing to the large accumulation of copper on the market. All three of these companies were controlled by Rhodesia Selection Trust, and all were similar metallurgically. The ore is a sulphide and after ball-mill grinding, is subjected to the flotation process. The concentrates thus obtained are roasted in multiple-hearth furnaces, and smelted in reverberatories, the matte being blown to blister in horizontal basic-lined converters, all of which follows conventional American practice.

In Canada, the Flin Flon property of the Hudson Bay Mining and Smelting Co., and the Sherritt-Gordon mine, both in Manitoba, entered the ranks of producers during the year with mines and concentrating plants in operation. The product was shipped East for smelting and refining in recently built plants. All of the Canadian copper is electrolytically refined, in distinction to that produced by the Roan Antelope company, already mentioned, which has so little gold and silver in it that fire refining is adequate.

**LEAD-ZINC.** The new plant of the Mt. Isa company, in Queensland, Australia, proved of dominant interest. Both sulphide and carbonate ores are present here, and it was first planned to treat them separately. Subsequently, however, it was found feasible to mix the two underground in the proportion of two tons of carbonate to one of sulphide. After being mixed intimately, the ore is sent to the concentrator where it is first treated on tables which recover about half of the lead present, the percentage of lead present in the concentrator feed being about 13. The table tailing is reground to 80 mesh in ball mills, con-



ditioned with soda ash, and the lead sulphide floated off with xanthate and Aero-float. Remaining lead carbonate is then sulphidized with sodium sulphide and subsequently floated. Sometimes zinc sulphate or cyanide are added to depress the zinc, which is not recovered at present. The concentrate contains about 50 per cent lead, with an over-all recovery of 85 per cent. A new lead smelter, the Britannia, was under construction on the Thames, in England, to handle the Mt. Isa concentrates.

Volatilization processes for zinc attained considerable importance. Four were developed during the last seven years, of which two had reached the commercial stage. The Waelz process, referred to in the YEAR BOOK for 1927 as being of much promise, is now responsible for the production of well over 100,000 tons of zinc oxide a year.

The Laist slag-fuming furnace developed by Anaconda at East Helena, and recently installed also by the Consolidated Mining and Smelting Co. at Trail, B. C., proved efficient for the recovery of zinc from lead blast-furnace slags. Production of metallic zinc by the Coley process apparently was not a commercial success, but the process was being adapted to the production of zinc oxide on an experimental scale.

Zinc oxide of unusual purity was being produced commercially at the new plant of the St. Joseph Lead Co. in Pennsylvania, using concentrates from the company's properties in northern New York, which are substantially lead-free. The concentrates are roasted in Herreshoff furnaces, each with 12 hearths, and the gas from which is used for making sulphuric acid by the contact process using vanadium mass. Sintering is accomplished in three Dwight & Lloyd machines, and the sinter is charged to a battery of electrothermic furnaces developed here for this work. The current passes directly through the charge of sintered ore and coke. The fume from these furnaces is caught in a baghouse. No metallic zinc had been produced commercially in this plant up to the end of the year, but may be in the future. In Sweden, where zinc metal had been produced by electrothermic smelting for twenty years, the last plant closed down, evidently not being able to compete with electrolytic processes, or with the vastly improved practice in retort volatilization now available.

**FLOTATION.** Flotation continued to be the outstanding method of concentrating ores, and its applications were constantly extending into the non-metallic field, and into the concentration of oxidized ores as well as sulphides. Over 100,000,000 tons of ore were said to be treated annually by this process. Recent developments in special varieties of ore include the following:

**Manganese Carbonate** (Rhodochrosite). A 300-ton plant at Anaconda, Mont., floated this mineral successfully. **Phosphate rock.** Coarse material was floated in a modified cascade type machine in a 1000-ton plant in operation at Mulberry, Fla., by the International Agricultural Corporation. **Fluorspar.** A 50-ton plant was in operation at Rosiclare, Ill., by the Franklin Fluorspar Co. **Barytes.** A concentrate carrying 94 per cent barium sulphate was being produced from 25 per cent material in a 125-ton plant at Barstow, Calif. **Coal.** Flotation of coal was still only experimental, but the Pittsburgh Coal Co. was giving much attention to the matter and a commercial plant may soon be put in operation.

**Native Copper.** In Michigan flotation was generally utilized. In Rhodesia, a variation known as the segregation process involved heating oxidized ore with coal and salt in a reducing atmosphere, thus reducing the copper to the metallic state; then regrinding, and recovering the copper by flotation. **Gold.** See a succeeding paragraph. **Iron.** Though flotation had not been applied to iron ore in North America, it was successfully used for separating pyrite and chalcopyrite from hematite in one or two European plants.

Reagents used in flotation had changed considerably in the last few years. The total amount used in the United States in 1929 was recently announced by the U. S. Bureau of Mines, and their importance takes the following order: Frothers: pine oil, cresylic acid. Collectors (distillation products): coal-tar creosote, blast-furnace oil, petroleum products, wood-tar creosote. Synthetic products: ethyl xanthate, discredol-dithiophosphoric acid, sodium diethyl-dithiophosphate, amyl xanthate, sodium discredol-dithiophosphate, butyl xanthate, thiocarbamilid. Acids and alkalies: lime, sulphuric acid, sodium carbonate, cement. Other inorganic reagents: copper sulphate, zinc sulphate, sodium sulphide, cyanides, sodium sulphite, sodium silicate.

With the gradual exhaustion of high-grade iron ore, washing plants to treat the leaner material were beginning to be built. Concentrating practice on the Mesabi range developed individual flowsheets rather than the general methods of treatment formerly followed. The Oliver company at its Trout Lake plant had a Newhouse crusher, rolls, and vibrating screens to screen the ore from a maximum of six inches to a minimum of one-fourth inch. At the Holman-Cliffs washing plant, comparative tests had been going on between a Hydrotator machine and a bowl classifier, and some work also was done with the new Dorr-Fahrenwald sizer, of six spigots. Wisconsin Steel Co., at its Hawkins washing plant, installed Hancock jigs to treat roll-crushed ore. The finest material was still recovered in a bowl classifier. Butler Brothers, at Nashwauk, was using jigs, and experimenting with a commercial sized flotation machine.

The largest sintering machine in the world proved successful at the Evergreen plant, at Crosby, Minn. This treats limonitic ores of the Cuyuna range. It is 72 inches wide by 125 feet long, and sinters over 1400 tons a day. Labor amounts to about 20 tons per man-shift. An 18-inch bed is carried. The operating cost per ton of sinter is 7.7 cents, of which 6.3 cents is for supplies. All ore coarser than three-eighths inch is screened out before sintering, and mixed with the sinter afterward to dry it, making the capacity of the plant virtually double what it was when coarser material was being sintered as well. Also, some of the hot gases from the sintering machine are used for drying the coke breeze used for fuel.

**GOLD.** The Rand, the greatest producing gold district in the world, set a new record in output in 1931. Two new plants entered production on the Far East Rand during the year. The first was the East Geduld, capacity 2000 tons a day, which has adopted the all-sliming flowsheet, with three-stage grinding in tube mills. Newhouse crushers were installed here as secondary crushers, following their successful application at West Rand Consolidated. They were also installed during the year at Daggafontein, the second Far

East Rand mill to go into operation, and at Robinson Deep, on the Central Rand, which revamped its mill. The new Daggafontein mill has a capacity of about 50,000 tons a month.

The application of flotation to gold ores had become of importance and several plants in various parts of the world were using it in connection with cyanidation. The Lake View and Star in Western Australia had a new mill in which the gold ore was crushed in gyratories and cone crushers to one-half inch, then in ball mills, and concentrated in Fahrenwald flotation machines. Tailings are impounded for possible future treatment. Concentrate is dried and roasted in Edwards furnaces after which the small bulk of concentrate is cyanided. The Wiluna, another Western Australian mill completed in the year, has a similar flowsheet. Here, arsenic is recovered from the roasters as well.

Another new gold mill but one not embodying flotation, was the Howey, a 900-ton plant in Canada. The flowsheet is simple but effective. The ore is reduced in jaw and cone crushers and ground to about 40 mesh only, in ball mills. The pulp then goes to 40-foot Dorr thickeners, the overflow from which goes to a clarifying press, and then to a Crowe-vacuum system, followed by zinc-dust precipitation. Thickened sludge goes to agitators and then to Genter thickeners, the sludge from which is dewatered in disk filters and then discarded as tailing. Costs have been exceedingly low, averaging about \$2.55 per ton mined and \$3 per ton milled, an appreciable tonnage being hand-picked as waste. These costs are total for the mine and mill and even include interest on loans.

**METAMORPHISM.** See GEOLOGY.

**METAPHYSICS.** See PHILOSOPHY.

**METEORITES.** See EXPLORATION under *Australia*.

**METEOROLOGY.** The difficulty, if not impossibility, of determining with certainty from direct evidence of accurate meteorological records whether or not significant changes of climate have occurred during historic times has led C. E. P. Brooks to attempt a reconstruction of past climates over Europe and neighboring regions on the basis of indirect evidence, such as historical and literary writings, former distribution of forests, etc. The five periods 2500-2000 B.C., 800-400 B.C., the beginning of the Christian Era, 300-800 A.D., and 1100-1400 A.D. were investigated. The available evidence indicates that during the first period the climate was abnormally dry throughout Europe, western Asia, and northeastern Africa. In contrast, the second period appears to have had a generally wet, cold, and stormy climate. The climate of the third period did not differ greatly from present conditions. The fourth period was marked by dryness. During the fifth period, the southern North Sea area was marked by heavy rainfall, especially during 1150 to 1275; while in the late thirteenth and fourteenth centuries northeast Africa, southeast Asia, and perhaps Italy, had heavy rainfall.

It has often been suggested that we are at present living in an interglacial, rather than in a postglacial, period. A recent study by Erdtman of the annual pollen deposits from forests in lakes and bogs seems to indicate that in Scandinavia and the British Isles a southward movement of the deciduous forests is now under way, and that a return of the great glaciers may occur in about 2000 years. Deciduous forests are

known to have been much more extensive in southeastern Canada a few thousand years ago than they are to-day. The present climate is more humid and probably cooler than it was then.

**DYNAMICAL METEOROLOGY.** While weather forecasting is still predominantly empirical, there has been an increasing tendency in recent years to utilize results of theoretical investigations as far as possible, and to place the practice of weather forecasting at least partially on a scientific basis. Exact precalculation of coming weather from the mathematical equations in accordance with which the physical phenomena of the atmosphere take place will perhaps never be practicable; but it is of interest and importance that certain elements of the weather complex may sometimes be submitted more or less successfully to mathematical calculation. For example, Gião has recently attempted to apply the dynamical theory of the motion of adjacent cold and warm masses of air over the earth to the calculation of the motion of such air masses shown on the daily synoptic charts. Again, Angervo has developed formulæ for calculating the future positive of centres of high and low barometric pressure, and the magnitude of the pressure. These methods have limitations and imperfections, but seem to be valuable beginnings, and are capable of yielding useful results in practice.

A beginning has also been made toward a dynamical theory of climates: Climatology has hitherto consisted almost entirely of the compilation of statistical data on the meteorological elements and the average course of the weather over the globe, without much systematic effort to discover the underlying dynamic and thermodynamic phenomena which are responsible for the climatic characteristics of any given region. Bergeron, however, has suggested a method for the scientific representation and dynamical explanation of climate, by introducing into statistical climatology some of the concepts that have been developed in recent years in connection with the rational analysis of daily synoptic charts; and he has attempted to construct a unified picture of the dynamic and thermodynamic mechanism by which climate is controlled. A summary of Bergeron's theory is given in the *Monthly Weather Review*, June, 1931.

**METEOROLOGICAL PHYSICS.** In the study of the physical phenomena of the atmosphere, it is of importance to have some method of characterizing the physical state of a mass of air, together with a means of identifying a given air mass as it moves from place to place over the earth. The so-called equivalent potential temperature is coming into extensive use for this purpose; it is the temperature to which a mass of air would come if the latent heat of all the water vapor that is present were liberated, and the air then brought adiabatically to some standard pressure. The equivalent potential temperature is apparently the most conservative of all meteorological quantities; it remains unchanged throughout any adiabatic process, whereas ordinary potential temperature is altered by condensation of water vapor.

The long, narrow, parallel bands of cloud which sometimes stretch across the sky, and which are often called billow clouds or windrow clouds, are usually explained as caused by a flow of one air current over another current of air of different temperature and speed: As the

one current glides over the other, waves known as Helmholtz waves are formed at the interface, much as water waves are generated by a wind blowing over a water surface; as the air rises and falls in these waves, it alternately cools and warms by expansion and contraction respectively, and if the humidity is just right the wave crests may be cloud capped, while the troughs are free from cloud. Similarly, the long rows of rectangular cloud patches which sometimes occur have been ascribed to the simultaneous existence of two such wave systems at right angles to each other.

Recent studies of the forms of stratified clouds by S. Mal, however, indicate that these and other similar cloud patterns may, on some occasions at least, be formed in another way: It has long been known that when a thin layer of liquid is heated at the lower boundary or cooled at the upper boundary so strongly as to become unstable, it spontaneously breaks up into polygonal sections; and there are several reasons for thinking that when a thin cloud stratum breaks up into patches arranged in more or less regular patterns, the phenomenon may be caused by instability of the air within which the cloud lies. Direct evidence for the latter interpretation of cloud patterns has now been provided by the laboratory experiments of Mal, in which rectangular arrays in unstable liquids were produced for the first time, and by aeroplane observations of the atmospheric conditions which exist at the times when stratified clouds appear. Such an unstable layer might be produced in the atmosphere either by radiation effects or by a general lifting of a cloud layer above which the air is clear and dry. Instability accompanied by sufficiently great shear due to motion gives cloud bands parallel to the shear, while less rapid shear gives rectangular patterns. It is possible that Helmholtz waves may in reality be rather rare.

The peculiar features of the nitrogen bands in the auroral spectrum have been reproduced in the laboratory for the first time by Kaplan; this was accomplished by running a continuous electric discharge for long periods through air at a pressure of less than  $\frac{1}{1000}$  millimeter. The green oxygen line was also obtained, and thus the complete auroral spectrum was reproduced.

On the basis of laboratory experiments, Cohn has concluded that some of the characteristic polarization and color properties of the light from the sky are caused by the combination of electrons from the sun with atmospheric ions in the uppermost atmosphere.

**NECROLOGY.** Franklin G. Tingley, January 26; Alfred Judson Henry, October 5; Preston C. Day, October 21; Robert DeCourcy Ward, November 12; Alfred Wegener, lost on the German Scientific Expedition that was exploring central Greenland in November, 1930.

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**METEORS.** See **ASTRONOMY.**

**METHANOL.** See **CHEMISTRY. INDUSTRIAL.**  
**METHODIST CONNECTION (OR CHURCH) OF AMERICA, WESLEYAN.** A branch of the Methodist Episcopal Church. In 1931 the branch comprised 27 annual conferences. There were 628 churches, 797 ministers, and 24,341 members; the Sunday schools numbered 638, with 6300 teachers and officers, 39,949 pupils, and 6984 persons enrolled in the home department and on the cradle roll.

The Connection's quadrennial general conference was held in Houghton, N. Y., June 24-30, 1931. This conference, which is the highest ecclesiastical body of the church, legislated for the following corporations: The Wesleyan Methodist Connection (or Church of America); the Wesleyan Methodist Publishing Association; the Superannuated Minister's Aid Society of the Wesleyan Methodist Connection of America; the Missionary Society of the Wesleyan Methodist Connection of America; and the boards of trustees of the following colleges maintained by the church: Houghton College in Houghton, N. Y.; Central College in Central, S. C.; Marion College in Marion, Ind.; and Miltonvale College in Miltonvale, Kans. The foreign missionary department of the Missionary Society continued its work in Africa, India, and Japan, and the department of home missions and church extension among the American Indians, Mexicans, and in the mountain region of the South. The *Wesleyan Methodist*, published weekly in Syracuse, N. Y., is the official organ of the church.

The officers elected at the 1931 general conference were: President, the Rev. E. D. Carpenter; first vice president, the Rev. J. S. Willett; second vice president, Joe Lawrence; and secretary, the Rev. E. F. McCarty. Headquarters are at 330 East Onondaga Street, Syracuse, N. Y.

**METHODIST EPISCOPAL CHURCH.** Methodism in its widest significance and intention was a "revival of Christian earnestness, simplicity, and power." John Wesley (1703-91) had no intention of establishing a new church; his effort was to revive pure and undefiled religion, but he was forced out of the Church of England. Richard Boardman and Joseph Pilmoor, two of Wesley's workers, came to America in 1769 and were followed in 1771 by Francis Asbury who became the great leader of the infant church. The Methodist Episcopal Church was organized at a "Christmas conference" held in Baltimore in 1784.

The governing body of the church is the quadrennial general conference, composed of an equal number of ministerial and lay delegates who make all the rules and regulations and appoint commissions to carry on the work of the church. Such a conference was held at Kansas City, Mo., in 1928 and that for 1932 was called for Atlantic City, N. J., in May. There also are held annual conferences, presided over by the bishop of each area, at which all pastoral changes are considered and reports of the local churches are gathered and compiled. A local quarterly conference administers all matters pertaining to the work of the local church.

In 1931 there were in the United States and territories 97 annual conferences and missions, 399 districts, and 15,136 charges in 21 episcopal areas. Effective ordained ministers numbered 12,696 and local, or lay, preachers, 10,521. There were 4,016,919 church members, of whom 102,007 were preparatory and 3,914,912 full members.

The enrollment in 23,853 church schools was 4,008,126, including 376,948 officers and teachers. There were 525,543 Epworth League members. Conferences outside of the United States in 13 episcopal areas included 5 in Africa, 10 in Eastern Asia, 21 in Europe and North Africa, 5 in Latin America, 3 in southeastern Asia, and 12 in southern Asia. The membership totaled 641,943; ordained ministers, 1892; and local preachers, 3064. Church schools numbered 7674, with an enrollment of 349,472, including 17,917 officers and teachers.

The administration of the missionary, educational, and philanthropic work of the Methodist Episcopal Church is committed to six general boards: Foreign missions; home missions and church extension; education; hospitals, homes, and deaconess work; pensions and relief; and temperance, prohibition, and public morals. These boards cooperate in the world service movement, their budgets being fixed and their work correlated by the world service commission. On May 31, 1931, this commission reported total net receipts of \$6,721,299.

The board of foreign missions administers the missions of the church in Africa (Central and South), Europe and North Africa, Eastern Asia (China, Japan, Korea), Latin America (Mexico, Central America, South America), Southeastern Asia (Philippine Islands, Malaya, Sumatra), and Southern Asia (India and Burma). Its receipts for the fiscal year ending Oct. 31, 1931, totaled \$2,412,750. The board of home missions and church extension administers the missions in the United States and its possessions, not including the Philippine Islands, and looks after weak churches in new and growing communities in the United States. During the fiscal year a total of \$1,387,721 was expended on home missions, while disbursements for church maintenance and extension amounted to \$1,664,180. There are two women's missionary societies, the foreign and the home, which reported total receipts in 1931 of \$2,085,112 and \$2,588,983, respectively.

The educational system of the church, administered by the board of education, included, in 1931, 47 colleges and universities, 24 secondary and preparatory schools, 8 schools of theology, and 15 institutions for colored students. Its total income for the fiscal year ending June 30, 1931, was \$1,043,763, while total expenses and appropriations amounted to \$1,114,540. The board of hospitals, homes, and deaconess work administered, in 1931, 77 hospitals, 44 homes for the aged, 43 children's homes, 45 deaconess homes, and 27 homes for young business men and women. The board of pensions and relief reported in 1931 a connectional permanent fund amounting to \$1,376,825; endowments and reserves in trust, \$332,028; conference stewards' fund in trust, \$303,193; and ministers' provident annuity fund, \$614,751.

The board of temperance, prohibition, and public morals is responsible to the general conference, its purpose being "to make more effective the efforts of the church to create a Christian public sentiment" and "to crystallize opposition to all public violations of the moral law and to all attempts to undermine and destroy civil and religious liberties."

The official publications of the church are the *Christian Advocate* (New York); the *Epworth Herald* (Chicago); *Zion's Herald* (Boston); and *Der Christliche Apologete* (Cincinnati). The

*Pittsburgh Christian Advocate* (Pittsburgh, Pa.) and the *Michigan Christian Advocate* (Detroit) are also official in character. The secretary of the general conference in 1931 was the Rev. John M. Arters, 700 Hammond Street, Bangor, Me. See METHODIST EPISCOPAL CHURCH, SOUTH, for account of the SIXTH METHODIST ECUMENICAL CONFERENCE.

**METHODIST EPISCOPAL CHURCH, COLORED.** This denomination was organized in Jackson, Tenn., in 1870 and was composed of the colored membership of the Methodist Episcopal Church, South. In 1931 it reported 4361 churches with 488,520 members; 3620 traveling preachers and 2104 local preachers; 3210 Sunday schools with an enrollment of 301,520 pupils; and 1809 Epworth Leagues with a membership of 47,201. The amount raised during the year for educational purposes was \$192,600 and about the same for missionary purposes. More than \$1,000,000 was also contributed for home maintenance. The church has 9 bishops and 12 connectional officers. The *Christian Index* is the official organ, while the *Eastern Index* and *Western Index* serve their respective sections. A quadrennial general conference was held in Louisville, Ky., in May, 1930. Headquarters are in Jackson, Tenn.

**METHODIST EPISCOPAL CHURCH, SOUTH.** A separate branch of the Methodist Episcopal Church, formed in 1845 over the question of slavery. In 1931 there were 48 conferences and missions, of which 41 were in the United States and 7 in foreign countries; 10,381 churches; 8127 traveling preachers and 4329 local preachers; and 2,621,900 church members. Sunday schools numbered 15,339, with an enrollment of 1,930,552 pupils; and Epworth League societies, 9008, with a membership of 260,159. Contributions for all purposes in 1931 amounted to \$31,048,919. The denomination sponsored 248 educational institutions, including 32 universities and colleges, 21 academies, and 46 mission schools. Important periodicals are the *Missionary Voice* and the *Christian Advocate*. The executive body is the college of bishops which in 1931 had 15 members.

In October, 1931, the Methodist Episcopal Church, South, acted as host to the Sixth Ecumenical Methodist Conference which met in Atlanta, Ga., and brought together 550 delegates representing 23 Methodist bodies in 25 countries. More than 100 addresses were delivered during the 10 days of the conference on various aspects of the main theme, "Methodism in the Life of Today," and the four general topics, "Personal Religion," "Church Life," "The Christian Social Order," and "Wider Human Relationships." Important pronouncements also were delivered on prohibition, marriage, race relations, war and peace, and economic distress. After the conference many delegates made a pilgrimage to Savannah to visit the site of the historic labors of John Wesley and George Whitefield.

During 1931 autonomous national churches were established in Mexico, Brazil, and Korea as a result of the visits of the three special commissions appointed for the purpose by the Methodist Episcopal Church and the Methodist Episcopal Church, South. In the setting up of each of these new churches preachers from the Methodist Episcopal Church, South, were elected to the episcopacy, as follows: in Mexico, the Rev. Juan N. Pascoe; in Brazil, the Rev. J. W. Tarboux; and in Korea, the Rev. J. S. Ryang.

**METHODISTS.** **WESLEYAN METHODIST CHURCH.** The principal branch of the Methodist denomination in Great Britain and Ireland, founded at the University of Oxford in 1739 by John and Charles Wesley and holding its first conference in London in 1744. This is the mother church of the denomination and is composed of five divisions: Great Britain; Ireland; Foreign Missions; French Conference; and South African Conference. The church maintains a publishing house at 25-35 City Road, London, E. C., 1. See **METHODIST CONNECTION (OR CHURCH) OF AMERICA, WESLEYAN.**

**PRIMITIVE METHODIST CHURCH.** Commonly known as the "Camp Meeting Methodists," organized in Staffordshire in 1810. Next to the Wesleyan, this is the most numerous and most democratic of the denominations which have arisen out of the Methodist movement. The church was organized in the United States in 1844 by Hugh Bourne, one of the founders of the movement in England. A publishing house is maintained at Holborn Hall, Clerkenwell Road, London, E. C., 1.

**UNITED METHODIST CHURCH.** Formed in England in 1907 by the union of three denominations of Methodists which had hitherto been separate from and independent of each other: The Methodist New Connection; the Bible Christians; and the United Methodist Free Church. The church maintains a publishing house at 12 Farrington Avenue, London, E. C., 4.

In Great Britain, a scheme for the reunion of the Wesleyan, the Primitive, and the United Methodist churches, after having been approved by all three conferences and having received Parliamentary sanction, was voted on finally at both representative and pastoral sessions held in June and July, 1931. A united meeting in London of the conferences of the three churches was announced for Sept. 20, 1932. A further stage in the world-wide union of Methodism and the establishment of autonomous churches was the approval by the Primitive Methodist conference in June, 1931, of the draft bill to be presented to the South African Parliament, formally asking for powers to combine the South African conference of the Wesleyan Methodist Church and the Primitive Methodist missions, the new church to be known as the Methodist Church of South Africa.

**WESLEYAN REFORM UNION.** One of the smaller divisions of the Methodist movement, which separated in 1850 from the Wesleys and organized as a separate body in 1859. Its adherents are mostly in the Midland counties of England.

**INDEPENDENT METHODIST CHURCHES.** Founded in 1796 in England and united with other societies in 1806.

**AUSTRALASIAN METHODIST CHURCH.** Methodism in Australia dates from 1812; the first conference was held in 1855. Publishing houses are maintained in Sidney, Melbourne, Adelaide, Brisbane, and Perth.

Other branches, or autonomous churches, of the denomination include the New Zealand Methodist Church, the Japan Methodist Church, the Korean Methodist Church, the Methodist Church of Mexico, and the Methodist Church in Brazil. See also **CANADA, THE UNITED CHURCH OF.**

**METROPOLITAN MUSEUM OF ART.** See **ART EXHIBITIONS; ART SCHOOLS.**

**MEXICAN FRUIT WORM, MEXICAN BEAN BEETLE, ETC.** See **ENTOMOLOGY, ECONOMIC.**

**MEXICAN LABOR.** See **IMMIGRATION; MEXICO** under *History*.

**MEXICO.** A federal republic lying between the United States and Central America. Capital, Mexico City.

**AREA AND POPULATION.** With an area of about 767,198 square miles, the population at the census of May 15, 1930, was 16,404,030, or 2,069,250 (14.4 per cent) more than at the census of 1921. Of the 1930 population, 9,040,590 were of mixed race, 4,620,880 were Indian, 2,444,466 were pure white, 140,094 of unknown racial origin, and 158,000 (including about 14,600 citizens of the United States) were foreigners. About 1,791,000 Indians still spoke their native language. The population is overwhelmingly Roman Catholic, but the Church, under the Constitution of 1917, is separated from the State and strictly regulated. The birth rate for the years 1924-28 averaged 33.1 per 1000 inhabitants and the death rate 28.4.

The population of Mexico City, according to the 1930 census, was 968,443 (752,194 in 1921). A presidential decree of Aug. 24, 1931, extended the city boundaries to include parts of four adjoining villages, thus increasing the population to slightly more than 1,000,000. Other leading cities, with their populations in 1930, are: Guadalajara, 150,000; Puebla, 111,701; Monterrey, 98,940; Mérida, 91,139; San Luis Potosí, 73,205; Vera Cruz, 70,000; and Torreón, 65,000.

**EDUCATION.** Elementary education is nominally free, compulsory, and secular. In the schools of the Federal District and the territories, supported by the National Government, there were 252,988 boys and 161,276 girls in 1927. The other schools are supported by the respective States. Enrollment in all State and Federal schools in 1929 was 1,662,371 and in private schools, about 18,000. Three universities, at Mexico City, Mérida, and Guadalajara, enrolled a total of 9379 students in 1928, of which 7527 attended the National University at Mexico City.

**PRODUCTION.** Agriculture is the main factor in Mexico's national economy. In the henequen industry, which supplies about half the world's requirements, there was overproduction and prices dropped 40 per cent toward the close of 1930. Production of the chief crops in 1930, with figures for 1929 in parentheses, were: Corn, 1,325,000 metric tons (1,543,835); wheat, 311,517 metric tons (308,447); beans, about 80,478 metric tons (16,769); tomatoes, 78,076 metric tons (88,000); chickpeas, 49,795 (69,134); and cotton, 36,712 (51,000). Sugar, rice, coffee, chicle, cacao, bananas, winter vegetables for export to the United States, and tobacco are other important products.

Mining is the chief industry, but about 97 per cent of the 31,000 mining properties in 1930 were foreign-owned. Metal prices, particularly silver, dropped steadily during 1930 and 1931 and the industry suffered greatly. The value of mineral and metal production (1930) was 264,743,000 pesos (1 peso equals \$0.4985 at par), exclusive of petroleum production, compared with 359,866,000 pesos in 1929; petroleum production was valued at 12 per cent less than in the previous year. Five important oil fields were under exploitation in 1930 by some 1186 concessionaries occupying about 30,870,000 acres. The output, which reached 64,119,884 barrels in 1927, fell to 44,687,879 in 1929 and to 33,038,600 in 1931. Silver output in 1930 was 105,700,000 fine ounces,



out of a world total of 243,700,000 ounces; in 1929 it was 108,700,000 fine ounces. The decline in silver prices, from about 53 cents per troy ounce in 1929 to 27½ cents in May, 1931, reduced the value of the Mexican output by approximately one-half in the latter year. Production of the other principal minerals in 1930 was: Copper, 73,411 metric tons; lead, 232,930 metric tons; zinc, 124,083; antimony, 3032; arsenic, 9977; graphite, 5853; mercury, 167 metric tons; coal, 1,294,000 metric tons.

Manufacturing centres in Mexico City and Monterrey and is mainly for local consumption.

**COMMERCE.** Preliminary official statistics for 1930 showed imports of 350,178,000 pesos (\$165,039,000), compared with 382,843,000 pesos (\$184,454,000) in 1929, and exports of 458,674,000 pesos (\$216,173,000), as against 590,633,000 (\$284,587,000) in 1929. The imports and exports declined 10.5 per cent and 24 per cent, respectively, compared with 1929. Mineral and vegetable products comprised over 95 per cent of all exports. United States imports from Mexico (U. S. statistics) amounted to \$80,293,000 and exports to Mexico were \$116,214,000 during 1930, or 31.8 per cent and 13.2 per cent, respectively, below 1929. The United States supplied 68.2 per cent of all Mexico's imports in 1930 and purchased 58.3 per cent of the total exports.

**FINANCE.** The revised budget estimates for 1932, as submitted to the Chamber of Deputies Dec. 23, 1931, estimated revenues at 213,074,225 pesos and expenditures at 212,987,421 pesos. This compared with the 1931 budget estimates of 298,500,000 pesos and 298,488,000 pesos, respectively. The 1932 appropriations for the War and Marine Department were cut to 55,000,000 pesos from 70,000,000 pesos in 1931 and 113,000,000 pesos in 1930. The appropriations authorized under the 1931 budget were reduced about 6,000,000 pesos during the year, but Finance Minister Luis Montes de Oca on August 20 estimated that the final deficit would be about 80,000,000 pesos.

Under the agreement concluded with the International Committee of Bankers on Mexico in July, 1930, the principal amount of the government's direct foreign debt was fixed at \$267,493,250 and the principal amount of the debt of the Mexican National Railways was fixed at \$225,000,000. The internal debt was estimated by the Minister of Finance in 1931 at 600,000,000 pesos (nearly \$300,000,000 at par).

**COMMUNICATIONS.** Mexico had about 14,600 miles of railways, of which about 7500 miles comprised the National Railways of Mexico, the principal system. The National Railways are government owned but are privately managed under government supervision. A total of 66½ miles of new line were completed in 1930. Work was proceeding in 1931 upon the uncompleted 198-mile section of the Laredo-Mexico City highway, which was to provide for all year traffic between the Mexican capital and the United States. A new graveled highway between Mexico City and Vera Cruz, opened Mar. 21, 1931, reduced the traveling time by motor car to 10 hours.

**GOVERNMENT.** Under the constitution of 1917, executive power is vested in the President, elected by direct popular vote for four years and ineligible for reelection; legislative power in the Congress consisting of the House of Deputies elected for two years by universal suffrage, and the Senate, comprising two members from each State, elected in the same manner. A permanent

committee of 14 Senators and 15 Deputies, appointed by the respective Houses, sits while Congress is in recess. President in 1931, Pascual Ortiz Rubio, who assumed office Feb. 5, 1930. For local government, the Republic is divided into 28 States, one Federal District, and three Territories; a decree of Feb. 7, 1931, subdivided the peninsula of Lower California, formerly the Territory of Lower California, into Southern and Northern Territories of Lower California. The dividing line is the 28th parallel.

## HISTORY

**MEXICAN-AMERICAN RELATIONS.** The friendly relations with the United States developed during the ambassadorship of Dwight Morrow (q.v.) became embittered during 1931 by a series of unfortunate incidents. Foremost among these was the killing at Ardmore, Oklahoma, on June 8 of two Mexican students attending college in the United States. The two youths—Emilio Cortes Rubio, a nephew of President Ortiz Rubio, and Manuel Garcia Gomez—were mistaken for gunmen by two local deputy sheriffs and shot to death. About the same time Reuben Pardo, a Mexican citizen, was shot and killed by an American immigration official near San Diego when he sought to evade arrest on a charge of illegally entering the United States. The Mexican Government vigorously protested the action of a Chicago municipal judge in sentencing Adolfo G. Dominquez, Acting Mexican Consul in Chicago, to six months in jail for contempt of court on July 7. Acting Secretary of State William R. Castle, Jr., made a formal apology for this violation of the consul's diplomatic immunity (July 10) and secured his immediate release. But these incidents, and the acquittal by an Oklahoma jury of the deputy sheriffs involved in the Rubio-Gomez slayings, aroused much hostile feeling in Mexico.

There were numerous minor irritations. In January, Senator Ashurst's resolution for the purchase of Lower California and part of the State of Sonora aroused little interest in the United States but much indignation and recrimination in Mexico. The competition and the tactics of large American business concerns operating in Mexico aroused resentment. On February 22 the Confederation of Owners of Small Businesses protested to the convention of American consuls then in session in Mexico City that some American companies were selling below the cost of production in order to eliminate small native competitors and establish monopolies. And on August 8, Minister of Communications Juan Andreu Almazan reported to President Ortiz Rubio that foreign (i.e., American) fruit companies were seeking to destroy rather than to develop Mexico's fruit industry, in order to eliminate competition from the American market.

Friction arose also as a result of numerous deportations of Mexicans who had illegally entered the United States, alleged discrimination against Mexican wage earners north of the boundary, and the exodus of more than 100,000 Mexicans from the United States due to the economic depression and unemployment.

In August, the closing of the international bridges across the Rio Grande at 9 P.M. by the U. S. Treasury Department aroused protests from both sides of the border. The order was apparently intended to prevent all night gambling and revelry by American citizens in the Mexican fron-



tier towns. On September 15, a Ciudad Juarez crowd, celebrating the Mexican independence day, stoned a number of automobiles with American license plates. During February, the Governor of Lower California ordered the discharge of all Americans employed in Mexicali and the replacement of them by unemployed Mexicans.

The entry of Mexico into the League of Nations (q.v.) on Sept. 12, 1931, was considered of great importance in its effect upon future Mexican-American relations. Mexico's acceptance of the League's invitation was accompanied by a declaration that "she has never admitted the regional understanding mentioned in Article XXI of the League covenant." Article XXI specified in part that the League Covenant should not affect the validity of "regional understandings like the Monroe Doctrine."

On September 4, the Foreign Affairs Department announced that it could not accept the mediation of the U. S. Government in behalf of Chinese nationals in Mexico, which had been requested by the Chinese Foreign Minister. Accordingly, the American State Department on September 10 declined to exercise its good offices. The Chinese Government had requested American mediation in connection with the forcible expulsion of some 10,000 Chinese from the five northern and western Mexican States of Sonora, Jalisco, Chihuahua, Sinaloa, and Nayarit. The Chinese were notified by the State Governments that they would be forced to leave by September 5. They were given less than 60 days in which to dispose of their property and many were reduced to poverty by forced sales. On September 3, however, the Federal Government intervened and extended indefinitely the time limit set for September 5.

The Mexican Ministry of Foreign Relations, on October 1, announced the appointment of Dr. José Manuel Puga-Casauranc as Ambassador to the United States, succeeding Señor Manuel Tellez. For U. S. Mexican Mixed Claims Commission, see ARBITRATION, INTERNATIONAL.

**THE POLITICAL CRISIS.** A crisis of somewhat mysterious origin led to the resignation of President Ortiz Rubio's entire cabinet on October 15 and the emergency appointment of former President Calles as Minister of War. It was the second time that Mexico's "strong man" had emerged from political retirement to tide the nation over an emergency. The first time was in 1929 when Calles succeeded General Amaro temporarily as Minister of War and put down the Escobar rebellion. In 1931, circumstances pointed to factional divisions within the National Revolutionary party, which was in complete control of the country, rather than to unrest in the army.

That all was not well within the party was indicated by the transference of Gen. Lazaro Cardenas from the party presidency to the post of Minister of Interior on August 28. General Cardenas was succeeded as party leader by Gen. Manuel Perez Treviño, whose former position as Minister of Agriculture went to Gen. Saturnino Cedillo.

President Ortiz Rubio's official explanation for the resignation of the cabinet was that the members had retired "in order to leave their Executive in a position to reorganize the government on a basis of freedom from political unrest." He added that "on several occasions there have appeared in political and governmental circles indications of a crisis productive of lamentable public

unrest." General Calles in a statement on October 16 absolved the army of any responsibility for the crisis but issued a stern warning to "those who fail to comply with their duty." The same day he declared that the crisis had been "solved, due to the patriotism of certain members of the army, principally among them General Amaro."

The cabinet resignations were followed by those of virtually all party members holding important government posts, including the executive board of the National Revolutionary party, the three territorial governors of Lower California and Quintana Roo, the head of the Federal District, the Attorney General, and the chief of the Public Health Department.

The new cabinet was notable for the absence of the strong military element present in the preceding one. General Calles retained the War portfolio. The Ministry of Interior, ranking post in the cabinet, went to Manuel Tellez, who for 11 years had been Ambassador to Washington. The four civilian members of the former cabinet—Señors Estrada, Montes de Oca, Saenz, and Silva—were reinstated in their old posts.

The cabinet crisis passed without disorder, due to the intervention of General Calles. But it was preceded by several clashes of National Revolutionary party factions over State issues. A violent attack upon the Governor of Jalisco during a debate in the National Chamber of Deputies August 25 ended in a pistol battle in which Deputy Manuel H. Ruiz of Jalisco was killed and two other Deputies seriously wounded. Sixty shots were fired before the police restored order. The following day the Chamber expelled four Deputies from Jalisco, all supporters of Governor Ignacio de la Mora. Another factional struggle raged in the State of Chihuahua, where Governor Andres Ortiz was accused of manipulating the National Revolutionary party for his own ends. **ANTI-CATHOLIC DISORDERS.** Much more threatening than these minor political disorders was the development of open conflict between some of the State governments and the Roman Catholic Church. The 1929 agreement had ended a three-year struggle between the Federal Government and the Church. In the dispute concerning subsequent anti-Catholic legislation by the State legislatures, the Federal Government took the position that it could not intervene without violating States' rights.

The religious strife centred in the State of Vera Cruz, where the State Legislature on June 11 passed a law limiting the number of priests to one for every 100,000 inhabitants, or to 13 priests for the entire State. Archbishop Leopoldo Ruiz y Flores, Papal Delegate to Mexico, protested to President Ortiz Rubio on the ground that the Vera Cruz measure and similar legislation in the State of Tabasco were violations of the 1929 compact. The Federal Government declined to intervene. The Vera Cruz clergy refused to abide by the new law and in subsequent clashes which followed efforts of the authorities to put it into effect, a number of priests, laymen, and public officials were slain.

Restriction of the number of clergy and other anti-clerical measures spread from Tabasco and Vera Cruz to Yucatan, Chiapas, Durango, and Chihuahua. Similar legislation was under consideration in Sonora, Michoacan, and other States. Congress showed its sympathies on August 7 by ordering the removal of José Ramon Valdes, Acting Governor of Durango, on charges of permit-

ting violations of State religious laws. Late in September Mgr. Ruiz y Flores stated that the Roman Catholic religion was not being exercised formally in Vera Cruz, Tabasco, or Yucatan and only to a limited extent in several other States. The Catholic episcopate announced September 15 that it would postpone its petition for a reform of the Constitution until a more opportune time.

A provisional settlement of the Church-State feud in Vera Cruz was announced December 11 and churches in various cities were reopened. The following day, the ecclesiastical authorities celebrated with pomp and splendor the 400th anniversary of the legendary appearance of the Virgin Mary at Mexico's most sacred shrine, Guadalupe Hidalgo, just outside of Mexico City. Thousands of pilgrims from all parts of Mexico and other Latin American countries worshipped at the shrine. Declaring that the Guadalupe Hidalgo festivities represented a "gross exploitation" of the Mexican people, the leaders of the National Revolutionary party inaugurated a new campaign against the Church. A law limiting the number of priests in the Federal District, comprising Mexico City, and Lower California, to one for every 50,000 inhabitants was placed in effect December 30. In a pastoral letter issued the same day, Mgr. Pascual Diaz, Archbishop of Mexico, declared that Catholics could not accept the new law. Arrests of a number of priests followed.

THE FINANCIAL CRISIS. Despite political and religious difficulties, the nation's attention was mainly absorbed in the battle to check the economic depression and prevent the collapse of the currency. Although Mexico was nominally on the gold standard, with the silver peso as the circulating medium, the restriction of gold export to the Bank of Mexico in 1924 was virtually an abandonment of the gold standard. The government was unable to redeem the silver peso in gold and in 1928 it began to depreciate in relation to the gold peso. This depreciation was greatly aggravated in 1930 and 1931 by economic conditions. In December, 1930, the silver peso was selling at a 20 per cent discount in relation to the gold peso. This disparity in the value of the gold and silver peso caused severe dislocations in the economic structure and brought hardship to large sections of the population. There were serious strikes when industrial establishments sought to pay wages in silver. However, the government adopted this practice in December, 1930, and it was everywhere followed. Many who had contracted to pay rents, mortgages, and other fixed charges in gold received their own income in depreciated silver coins. The government's revenue likewise declined in gold value and at the beginning of 1931 it found itself unable to meet the gold payments on the foreign debt called for under the 1930 debt agreement (see 1930 YEAR BOOK). On Jan. 30, 1931, a supplementary agreement was reached with the International Committee of Bankers on Mexico under which Mexico for two years was to be allowed to deposit debt payments in Mexico in silver pesos. It was stipulated that if the silver peso did not regain parity, the Mexican government would make up the difference in gold.

The supplementary debt arrangement and the securing of a \$15,000,000 loan in January from the National City Bank of New York strengthened the silver peso somewhat. But in May it commenced another severe decline, which was not halted by the withdrawal from circulation of

10,000,000 silver pesos. With the silver peso selling at a discount of from 30 to 36 per cent below the gold peso, former President Calles was made head of the Bank of Mexico in July to avert further collapse. At his suggestion the government on July 18 pruned the salaries of the civil and army personnel by some 15,000,000 pesos (about \$7,500,000 at par) in order to offset a threatened budget deficit. Also on July 25, the Chamber of Deputies voted to abolish the gold standard in favor of a modified silver basic coin.

The abandonment of the gold standard was followed by the closing of a Mexico City bank and a heavy run on the Banco Nacional de Mexico, a strong institution. New York bankers predicted that foreign banks operating in Mexico would be compelled to withdraw. The government made strenuous efforts to balance the budget and provide for the payment of both the foreign and internal debt. Extraordinary taxes put into effect August 1 were estimated to yield an additional 20,000,000 pesos. The tariff was several times revised to encourage the consumption of domestic products, to aid Mexican producers in foreign markets, and thereby to restore an excess of exports.

IMPORTANT LEGISLATION. The Mexican Congress convened in special session May 24 and adjourned late in August in time for the convening of the regular session. In addition to the currency and tax laws mentioned above, Congress passed legislation extending the boundaries of the capital city and putting into effect a revolutionary labor code, promulgated by President Ortiz Rubio August 28. Provision was also made for the extension of agricultural credits and for reforms in agrarian legislation. On December 21, the Federal Chamber of Deputies approved a bill providing for the payment of the government's internal debt by the sale of government-owned lands, through the medium of bonds redeemable in lands.

The new labor code, which consisted of some 700 articles, inaugurated a unified and advanced social-economic policy covering the whole country. It provided for the preferential employment of nationals; written labor contracts; compulsory adoption of collective labor contracts under certain circumstances; the 8-hour day, with paid vacation after one year of service; a minimum salary standard; the payment of indemnity of three months' wages for unauthorized suspension or termination of labor contracts; recognition of strikes; labor accident benefits; compulsory arbitration of labor disputes; and close supervision of employer-employee relations by the government. The World Press Congress was held in Mexico City, commencing Aug. 10, 1931. See IMMIGRATION; EARTHQUAKES.

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MEYDUM. See ARCHAEOLOGY.

**MEZES, SIDNEY EDWARD.** An American educator, president emeritus of the University of Texas and the College of the City of New York, died in Pasadena, Calif., Sept. 10, 1931. He was born in Belmont, Calif., Sept. 23, 1863, and was graduated from the University of California in 1884, receiving the Ph.D. degree from Harvard University in 1893. Appointed an adjunct professor of philosophy at the University of Texas in 1894, he became associate professor in 1897, professor in 1900, dean in 1902, and president in 1908. In 1914 he was elected president of the College of the City of New York, where he remained until 1927. He also was director of *The Inquiry* in 1917-18, and in 1919 accompanied President Wilson to Paris, where he was a member of the Central Territorial Commission of the Peace Conference, having previously served as director of the Territorial Section of the American Commission to Negotiate Peace. He received the LL.D. degree from Southwestern University (1911), the University of California (1912), New York University (1915), and the University of Cincinnati (1915). He was co-author of *The Conception of God* (1897) and *What Really Happened in Paris* (1921) and author of *Ethics, Descriptive and Explanatory* (1901).

**MIAMI UNIVERSITY.** A coeducational institution in Oxford, Ohio, founded in 1809. The enrollment for the autumn of 1931 was 2309, distributed as follows: College of liberal arts, 836; school of education (four-year course), 728, (two-year course), 188; business administration, 478; fine arts, 79. The enrollment in two summer sessions was 1042. The faculty numbered 170. The income from the State of Ohio, fees, gifts, and income on investments for 1931-32 was approximately \$1,330,000. There were 121,000 bound volumes in the library. During 1931 a new physical education building and gymnasium and a new chemistry building were completed at a cost of approximately \$600,000, the funds being appropriated by the Ohio Legislature. President, Alfred H. Upham, Ph.D.

**MICHELSON, ALBERT ABRAHAM.** An American physicist, died in Pasadena, Calif., May 9, 1931. He was born in Strelna, Germany (now in Poland), Dec. 19, 1852, and at the age of two was taken to the United States.

Graduated from the U. S. Naval Academy in 1873 he had several years service in the U. S. Navy in the course of which he was instructor in physics and chemistry at the Naval Academy (1875-79) and at the Nautical Almanac Office (1880). It was while at the Naval Academy in 1878, engaged in repeating Foucault's experiment on the velocity of light, that Michelson began his classic and original experiments, the first of which were described in *Silliman's Journal* of May, 1878. He studied at Berlin, Heidelberg, and Paris (1880-82), and on his return to the United States became professor of physics at the Case School of Applied Science (1883-89) and held a similar chair at Clark University (1889-92). In 1892 he became head of the department of physics at the University of Chicago, retaining this chair until 1929 and being "distinguished service" professor after 1925.

Michelson's determinations of the velocity of light were carried on with many refinements after his first work of 1878. His interferometer enabled him to measure distances in terms of light waves; the original instrument was de-

vised in 1887. This method was used by him at the International Bureau of Weights and Measures at Sèvres, near Paris, to determine the length of the International Standard Meter in terms of the red light from a cadmium arc. This was found to be 1,553,164.13 wave lengths of such light, and when repeated 14 years later by French physicists, a value was obtained with a difference of but a small fraction of a wave length, so that the standard meter could at any time be reproduced from light measures. The interferometer also was employed by Michelson, with Gale and Moulton, to measure the rigidity of the earth, and later in measuring the diameter of a star by placing two interferometer mirrors on a 20-foot beam it was possible to measure the diameter of a star as effectively as with a telescope having a lens 50 feet in diameter. In the celebrated "Michelson-Morley experiment" motion relative to the ether was determined, and the work was repeated by Prof. Dayton C. Miller and again by Michelson, as the results were important to the development of the theory of relativity. Michelson devised the echelon spectroscope by which he was able to secure greater dispersion than with a prism, and under his direction was built a new and more efficient dividing engine for the construction of diffraction gratings.

Professor Michelson was a member of the National Academy of Sciences and was its president in 1923. He also was president of the American Physical Society (1901-02) and of the American Association for the Advancement of Science (1910). Among his more notable honors were Rumford Medal (1899); Grand Prix, Paris Exposition (1900); Matteucci Medal, Society Italiana, Rome (1904); Copley Medal, Royal Society, London (1907); Nobel Prize for Physics (1907); Elliott Cresson Medal (1912); and Draper Medal (1916). He was a member of many important learned societies of Europe, and held academic honors from many American and European universities. He published *Light Waves and Their Uses* (1903), a notable course of lectures delivered at Lowell Institute, Boston, in 1899.

**MICHIGAN. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1931, was 4,842,325, as against 3,668,412 in 1920. The native whites numbered 3,809,903 (1930), 2,874,992 (1920); foreign-born whites, 840,268 (1930), 726,635 (1920); Negroes, of whom there had been a considerable immigration from other States, 169,453 (1930), 60,082 (1920). Those of other races, 22,701 in 1930, included 13,336 Mexicans and 7080 Indians. The number of those listed as in gainful occupations in 1930 was 1,927,498. Of these, only 247,963 were in agriculture, while 833,789 were in the manufacturing and mechanical industries (this total including 349,151 in automobile manufacture and 113,046 in the building trades); 283,272 were in trade, 150,311 in transportation, 162,972 in domestic and personal service and 125,548 in professional service. Detroit's population numbered 1,568,662 (1930), 993,678 (1920); Grand Rapids had 168,592 inhabitants (1930), 137,634 (1920); Flint, 156,492 (1930), 91,599 (1920); Saginaw, 80,715 (1930), 61,903 (1920); Lansing, the capital, 78,397 (1930), 57,327 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops of Michigan for the years 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ..	1931	2,394,000	2,544,000*	\$21,878,000
	1930	2,548,000	2,460,000*	40,098,000
Corn .....	1931	1,407,000	40,944,000	16,378,000
	1930	1,245,000	26,768,000	20,611,000
Oats .....	1931	1,435,000	43,768,000	10,504,000
	1930	1,354,000	48,744,000	16,573,000
Wheat .....	1931	711,000	18,446,000	9,234,000
	1930	705,000	16,160,000	11,802,000
Potatoes ...	1931	250,000	23,750,000	7,125,000
	1930	227,000	14,301,000	12,156,000
Dry beans ..	1931	614,000	3,316,000*	6,964,000
	1930	690,000	2,525,000*	10,858,000
Sugar beets .	1931	59,000	590,000*	.....
	1930	74,000	513,000*	4,143,000
Barley .....	1931	278,000	7,228,000	2,891,000
	1930	288,000	6,593,000	3,626,000
Rye .....	1931	158,000	2,183,000	811,000
	1930	140,000	1,820,000	1,001,000

\* 100-lb. bags.    \* Tons.

**MINERAL PRODUCTION.** Ranking after Minnesota alone in the mining of iron ore, Michigan produced much less ore in 1930. The long tons shipped from the State's mines decreased to 11,154,773 tons for 1930, from 16,838,508 for 1929; value of shipments fell to \$31,515,996 for 1930, from \$47,597,976. The production of the coal mines declined to 665,000 short tons for 1930, from 804,969 tons for 1929, when the product was valued at \$2,904,000. Chiefly from non-native coal, there were produced, in 1930, 2,603,815 short tons of coke, all in by-product ovens, or but little less than the 2,679,971 tons of 1929; by value, the totals were \$14,222,856 for 1930 and \$14,867,651 for 1929. The blast furnaces, however, shipped only 711,224 long tons of pig iron in 1930, as against 841,089 in 1929; by value, \$12,859,820 for 1930 and \$14,099,647 for 1929. The production of the copper mines declined moderately in quantity to 169,381,413 pounds for 1930, from 186,402,218 for 1929, and more severely in total value, to \$22,019,584 for 1930, from \$32,800,790 for 1929. The cement industry was less active, shipping 10,817,994 barrels of cement from mills in 1930, as against 13,325,727 in 1929; by value, \$14,897,439 in 1930 and \$18,816,711 in 1929. The total value of the mineral production of the State was \$151,975,563 for 1929; for 1928, \$123,825,527.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering the year 1929 represented the number of the State's manufacturing establishments as 6683 (some 15 per cent above the number for 1927). These establishments employed 528,512 wage earners (8.1 per cent more than had been employed in 1927) and paid them wages to the total of \$838,241,649 (10 per cent more than for 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$2,578,818,719 (an advance of 10 per cent over 1927). The manufactured product totaled \$4,636,361,417 (or 9.2 per cent above the total of 1927). The value added by manufacture was estimated at \$2,057,542,698. Somewhat less than half the manufacturing activity was concentrated in Detroit, where 2416 establishments employed 223,416 wage earners, paid them \$390,878,645, and turned out a manufactured product of the value of \$2,026,937,319. Pontiac, in second place, had 65 establishments, 21,800 wage earners, a wage total of \$35,944,723 and a product of \$248,201,533.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$66,-

456,045 (of which \$22,657,170 was for local education); for conducting public-service enterprises, \$180,032; for interest on debt, \$4,521,015; for permanent improvements, \$30,412,644; total, \$101,569,736 (of which \$33,034,409 was for highways, \$7,638,514 being for maintenance and \$25,395,895 for construction). Revenues were \$113,500,763. Of these, property and special taxes formed 49.1 per cent; departmental earnings and remuneration to the State for officers' services, 0.6; sale of licenses, 37.3 (including gasoline sale taxes amounting to \$16,714,394). The State's funded debt outstanding on June 30, 1930, was \$90,432,253, of which \$50,000,000 was for highways. Net of sinking fund assets, debt was \$64,372,174. On a property valuation of \$9,015,297,600 were levied in the year taxes of \$43,757,456.

**TRANSPORTATION.** The total number of miles of railroad line in operation on Jan. 1, 1931, was 8071.93. Increases of line to the total of 21.05 miles had been made during the year preceding, but abandonments to the total of 104.47 miles much exceeded them. In 1931 were built 14.24 miles of new second track.

**EDUCATION.** For the academic year ending in 1930 the number of persons of school age in the State was reported as 1,365,008. There was a net enrollment, in the public schools, of 970,582. The number (gross) of pupils enrolled in common schools or elementary grades was 838,790; that (gross also) of pupils enrolled in high schools was 167,857. The year's expenditures for public-school education totaled \$97,860,353. Salaries of teachers averaged, by the month, \$172.36. Legislative commissions reported in 1931 on the respective subjects of the equalization of school costs in different localities and the retirement of teachers.

**CHARITIES AND CORRECTIONS.** The State Welfare Department, as operating in 1931 comprised five commissions, those respectively of welfare, of prisons, of hospitals, of corrections and of the State Institute. Four of these bodies were each composed of five members; the fifth, the Hospital Commission, of seven. All members were appointive. Each commission performed duties of central control or administration in its respective field.

A sixth State hospital, situated at Ypsilanti, went into operation in June. On September 1 the 17 State institutions contained 22,836 inmates or pupils. The institutions and the numbers of persons for whom each cared, were: Kalamazoo State Hospital, 2717; Pontiac State Hospital, 1756; Traverse City State Hospital, 2180; Newberry State Hospital, 1162; Ionia State Hospital, 621; Ypsilanti State Hospital, 360; Farm Colony for Epileptics, 821; Michigan Home and Training School, 3402; State Prison, Jackson, 5576; Michigan Reformatory, Ionia, 1907; Branch Prison, Marquette, 936; Boys' Vocational School, Lansing, 599; Girls' Training School, Adrian, 282; State Public School, Coldwater, 380; School for the Deaf, Flint, 212; School for the Blind, Lansing, 138; Employment Institute for the Blind, Saginaw, 57.

**LEGISLATION.** The State Legislature held its regular session, sitting until May 22. It enacted the important measure for the reapportionment of seats in the Federal House of Representatives, creating 17 districts for the election of such Representatives, as against the previous 13. Wayne County, virtually Detroit, obtained five of the

districts and part of a sixth, as against a previous two and part of a third. Appropriations of about \$30,000,000 for each of the two ensuing fiscal years were provided. The Governor, however, vetoed about \$1,000,000 of each year's items. A number of special taxes were created, but a proposal to alter the State constitution so as to permit of the creation of an income tax failed of passage. A tax on malt, designed to yield some \$2,000,000 a year, of which the proceeds were to be devoted in part to a tuberculosis hospital in the northern part of the State, was voted. It was opposed by supporters of Prohibition and was vetoed by Governor Brucker, but was enacted over his veto. Penalties for delinquency in payment of taxes and assessments for 1929 and 1930 were remitted up to July 1. Another effort to render effective the taxation of banking assets was made in the passage of the McEachron bill, providing a new method of assessing such items for taxation.

**POLITICAL AND OTHER EVENTS.** In a special election held on April 6, the voters rejected the referendum proposal to establish the penalty of death for murderers. The voters also defeated a proposed amendment of the State constitution that would have permitted the issue of new bonds for the refunding of maturing debt of the State. This amendment, if adopted, would have had the particular effect of enabling the State to refund, instead of paying off, an issue of \$47,000,000 of its highway bonds maturing serially, starting with 1934. Investigation of the affairs of the State sinking funds brought to light in March purchases of municipal bonds of uncertain value during the term of State Treasurer McKay. About \$1,000,000 of State moneys paid for such bonds was reported to have been recovered to the State after the inquiry had been instituted.

Detroit experienced some financial difficulty, which was intensified by the need to make considerable expenditure to relieve distress among the unemployed. A citizens' finance committee formed to help the municipal government deal with these difficulties produced a plan by which the city, if it imposed on itself certain financial restrictions, might obtain the support of bankers to its refinancing some \$59,500,000 of its short-term notes. The plan was accepted by the city council on July 23. It involved a postponement of public improvements, with exceptions where impracticable, and a limit on payments for purposes of public welfare. The city reduced its assessed valuations of taxable property by about 10 per cent of the total and raised the tax rate by about the same percentage. Mayor Murphy sought in the winter and spring to take care of many of the destitute by means of an unemployment committee. Contributions to the funds of this committee were drawn from great numbers, including city employees.

Detroit, like some other leading American cities, had difficulty in placing bonds to cover its fiscal deficiency. Less than half of the year's tax levy of \$76,029,000 had been collected by the close of September. In August the city's floating debt rose to about \$82,000,000, but was partly cared for by the issue of \$30,000,000 in short-term serial bonds maturing yearly up to 1936, with the aid of a syndicate of bankers.

The Michigan statute requiring a person to disclose the source of liquor that he had obtained was tested in the courts, in the case of a farmer who had been put in jail for refusing to tell who

purveyed liquor with which he had become intoxicated. The Supreme Court discharged the defendant, holding that the statute was valid only against unwilling witnesses, not against persons accused. An oil well with the flow, unprecedented for the State, of nearly 3000 barrels a day was drilled in during July near Mount Pleasant.

**ELECTION.** The 8th Congressional District, which had been Republican for 32 years, elected Michael J. Hart, Democrat, on November 3, to be its representative, to fill a vacancy. Hart defeated his Republican opponent, Foss O. Eldred, by 25,744 (unofficial count) to 20,683.

**OFFICERS.** Governor, Wilber M. Brucker; Lieutenant-Governor, Luren D. Dickinson; Secretary of State, Frank D. Fitzgerald; Treasurer, Howard C. Lawrence; Auditor-General, Oramel B. Fuller; Attorney-General, Paul W. Voorhies; Superintendent of Public Instruction, Webster H. Pearce.

**JUDICIARY.** Supreme Court: Chief Justice, Henry M. Butzel; Associate Justices, Louis H. Fead, Nelson Sharpe, William W. Potter, John S. McDonald, George M. Clark, Walter H. North, Howard Wiest.

**MICHIGAN, UNIVERSITY OF.** A State institution for the higher education of men and women in Ann Arbor, founded in 1817. In 1930-31 the enrollment was 15,000. The registration in the 1931 summer session was 4329. The teaching staff was composed of 887 members, including 54 of the summer session staff not at the university during the regular year.

For current expenses, the State appropriated \$4,920,000, while approximately \$4,300,000 was derived from other sources. During the year 1930-31 the William W. Cook Legal Research Building was opened, and the construction of a new law school building, Hutchins Hall, was begun. The Model Elementary School was opened for its first year of operation. Two stories were added to the central portion of the University Hospital, to house a fully equipped unit for the treatment of tuberculosis. Important changes were made in the administration of the university: three vice presidents, in charge of finance, educational investigations, and the various extra-mural relations of the institution, were appointed; a university council was set up, taking the place of the more cumbersome senate; and a university press and an institute of archaeological research were organized. Among the important gifts of the year were a publications building, donated by Dexter M. Ferry, Jr., of Detroit (value with site, \$43,000); the Edwin S. George reserve of 1200 acres, from Col. Edwin S. George of Detroit; and bequests of \$100,000 and \$50,000 respectively, from the late Charles H. Ditson of New York City and the late William H. Murphy of Detroit. The university libraries contained 799,573 volumes. President, Alexander Grant Ruthven, Ph.D.

**MICROBIOLOGY.** See SOILS.

**MIDDLEBURY COLLEGE.** A coeducational, nonsectarian college in Middlebury, Vt., founded in 1800. For the autumn term of 1931, 655 students were registered as undergraduates and 17 as graduates; of these 372 were men and 300 women. The enrollment in the special summer schools of French, Spanish, German, and English, conducted by the college, amounted to 525. There were 67 members on the faculty, including administrative officers and those on leave of absence. The productive funds of the college in 1930-31 amounted to \$4,263,820, and the income



for the year was \$363,933. Gifts to the college amounted to \$55,268. The library contained 60,000 volumes. President, Paul Dwight Moody, D.D.

**MIDDLE CONGO.** See **FRENCH EQUATORIAL AFRICA.**

**MIDWAY ISLAND.** See **HAWAII.**

**MIGRATION OF BIRDS.** See **ZOOLOGY.** under *Birds.*

**MILITARY PROGRESS.** The Disarmament Conference convening in Geneva on Feb. 2, 1932, was to have the task of examining the data submitted to it by the various governments concerning existing land, naval and air armaments. By Oct. 15, 1931, reports of 25 governments had been received, including most of the larger ones. Reserves and material constitute two of the most important factors in the strength of modern armies, as trained reserves form the backbone of conscript armies and permit rapid expansion from a peace to a war basis. These essential statistics were not given or were not satisfactory, and the same held in the case of military expenditures. Estimates based upon the laws of the larger European countries indicated in 1931 that the number of reserves had been kept very nearly at prewar levels. In the case of France since the World War, it was probable that at least 3,000,000 men had been trained with the active army and placed in the first-line reserve. The older classes and second-line reserves provided an additional reserve of more than a million. Italy had probably built up a reserve of 2,500,000 trained men although the actual number had not been made public. Poland had approximately 1,700,000 trained men; Czechoslovakia probably a reserve of 1,000,000 men. All the states created since the War had adopted conscription and built up considerable bodies of trained reserves.

The peace-time strength of land armed forces of the 18 principal European powers in 1913 (excluding Russia) was approximately 3,000,000. Including armies required by the six states created after the War—Poland, Czechoslovakia, Latvia, Lithuania, Finland, and Estonia—with a combined strength of 487,000, the total peace-time European effectives in 1930 were approximately 2,865,000 officers and men.

The strength of the British regular army in 1913 was approximately 174,000 officers and men, excluding Indian forces; in 1930 the average was 144,000 officers and men. The Indian Army in 1913 consisted of 75,000 British and 150,000 Indian troops, officered almost entirely by British officers. In 1930 the numbers were 60,000 and 162,000, respectively.

In the United States in 1913 the total personnel of the regular army was 92,035, including 4655 officers. In 1930 it was 139,957, including 13,080 officers—an increase of approximately 60 per cent.

In Japan the 1913 peace-time army was composed of 250,000 officers and men; in 1930 this total was approximately 259,000. In China there was no organized military establishment.

As to the total national budget of the great powers expended upon national defense the proportions were no less illuminating. Great Britain for the fiscal year 1930-1931 applied approximately 13.8 per cent of its total budget to the upkeep of the army, navy, and air forces, including ordinary pensions; France 21.9 per cent, not including pensions; the United States approximately 16.5 per cent. Approximately 69 per cent of the French budget was applied to pensions, debt

service and the army, navy and air forces; 65 per cent of the British budget; and 60 per cent of the United States budget.

France and Great Britain each devoted 18 per cent of the total expenditure for 1930 of their land forces to war material; while the United States and Italy devoted 17 per cent.

The increasing importance of military and naval aviation is shown by the proportion of total national defense expenditure devoted to air forces—Great Britain 18 per cent; France, Italy, and United States, 15 per cent.

#### MILITARY AIRPLANES

Country	Total no.	Notes
France	2,375	Includes 1,210 machines capable of use in war in service in tactical units and 637 in training school or formations in home country, but not those in immediate reserve.
Great Britain	1,434	Includes 706 machines in operational units, 247 in training and miscellaneous units, 481 in "immediate service"—distributed as follows: 848 in home country—286 reserves and 300 aircraft carriers.
Italy	1,507	Includes all machines suitable for use in war.
Japan	1,639	Includes machines in service.
United States	1,752	Army 965 tactical types in commission. Navy 787 machines in commission.

The year 1931 witnessed a definite advance in the valuation of air power and better understanding of the manoeuvres by which it could be brought into play. Since it was impossible to keep an impenetrable line of defending fighters in the air, it became essential to keep defending aircraft in a state of readiness and by a system of intelligence to dispatch a suitable force to intercept attacks. Air forces in turn must be supplemented by anti-aircraft defenses.

**GREAT BRITAIN.** The air exercises for 1931 considered as a whole showed that adequate air defense was practicable with a sufficiency of the best aircraft, anti-aircraft guns, and observation systems, but that Great Britain did not possess that sufficiency. An air force designed primarily for defense must be stronger numerically and in quality than one designed primarily for attack in similar circumstances. Great Britain in 1931 ranked fifth among the world's air powers in terms of first-line strength. Three new regular squadrons were to be added to the home defenses, bringing up the number of such squadrons to 29. The total strength of the air force was to be 72 regular squadrons. There were to be in addition, 13 non-regular squadrons, 8 belonging to the auxiliary air force and 5 organized on a cadre basis. There were 52 accidents to Royal Air Force machines in 1931 involving 41 cases of injury and 46 of loss of life.

The total strength of the Regular Army at home on June 1, 1931, was 101,248, compared with 99,223 a year earlier. Officers holding commissions in the Indian Army numbered 3114, of whom 105 were Indians, in addition to 116 British and 9 Indian officers awaiting appointment. The total number of men in the army establishment, exclusive of India, in March, 1931, was 148,800.

Effective July 1, reduction in pay for Army officers amounted to 8 per cent and was to be in force for two years. Under the new schedule, second lieutenants would receive \$2.45, captains



\$5.25, and majors \$7.10 daily. The air estimates for 1931 carried a net total of £18,000,000, an increase of £250,000.

**FRANCE.** The war budget passed by the Chamber of Deputies early in 1931 provided for land, sea, and air defenses of over \$461,000,000. The Army and Colonial defense items totaled about \$258,320,000 and the air budget \$89,196,036, providing for subventions for airplane manufacture, retaining civilian pilots for war service, and the development of new models. The French government's memorandum to the Secretary General in the matter of armament data was entirely devoted to reaffirming the French viewpoint that reduction of armament depends on the degree of security assured by a general organization of peace. See **DISARMAMENT**; **FRANCE** under *History*.

According to the memorandum, the number of effectives liable to be stationed at home had been brought down to 163,000 trained men out of 270,812 for home defense, to whom may be added 66,000 trained men out of 69,823 constituting the "expeditionary force" stationed at home. The expeditionary force not only was the normal reservoir for the relief of forces stationed overseas, but it also constituted a reserve in the event of colonial troubles. The oversea army comprised on the one hand the expeditionary force as defined and on the other the troops permanently stationed overseas. These are forces of a special nature, almost exclusively made up of professional soldiers and natives. The sum total of the forces stationed overseas, had been reduced from 312,312 in 1921 to 237,363 men in 1931, 13,904 of whom were for service in the mandated territories.

A decree constituting a Higher Air Council to be an advisory body on all subjects relevant to military aviation and in particular the organization of the aerial forces in peace and war was signed on Aug. 27, 1931. This placed the air command for the first time on an equal footing with the naval and military high command.

**GERMANY.** Germany's arms statement, as published by the League of Nations Secretariat, showed 100,500 men and 4500 officers. Naturally the report showed the lack of land armed forces overseas and of armed and air forces stationed in Germany.

**JAPAN.** A military reorganization scheme providing for a smaller and better army without increase in cost had been under consideration by a military committee formed in 1928. It planned for a reduction in man power by some 25,000, reducing the annual budget by \$3,250,000. The number of divisions was to remain at 17, with no reduction in the period of compulsory training of 18 months. In 10 years there had been a reduction in man power of 50,000, the peace strength being 272,000 in 1920 and 220,000 in 1930.

**ITALY.** A general law dealing with war-time drafting was passed, stating that in the event of war Italy looked to all its inhabitants, including women and minors, to collaborate in the defense of the country. One of the objects of the Air manoeuvres in Italy was to test the organization of mass formations and the direction of mass attacks on cities and on naval and military bases. Over 1000 planes were assembled in these manoeuvres, the largest air fleet ever brought together in Europe. It was found that defenses

against air raids were inadequate. One airplane was fitted with special wireless equipment enabling it to transmit drawings and pictures while in flight, the observers making rapid sketches of every position and wirelessly the actual sketches. The low-flying "trench strafers" carried front and flank machine guns and gas tanks.

**SPAIN.** The plan of the Minister of War to cut the strength of the Spanish peace-time army from eight divisions, effective July 1, 1931, would result in a saving of approximately \$20,000,000 per year. About 4000 army officers took advantage of the full retirement provisions prior to May 28, 1931, and left the service. Thirty-seven infantry regiments, 21 cavalry regiments, and one railway operation regiment were abolished. Two armored tank regiments and one machine gun battalion were added to the Army as well as additional anti-aircraft defense. (See **SPAIN** under *History*.)

Sixteen mobilization and reserve centres were established for mobilization of men; the requisitioning of animals, vehicles, materials and supplies of all kinds; and the organization of the reserve units.

**UNION OF SOVIET SOCIALIST REPUBLICS (RUSSIA).** The parade in Moscow on the fourteenth anniversary of the Revolution was an impressive display of military force, with automotive traction outnumbering the horse-drawn and cavalry sections combined by 10 to 1, including tanks from the "beetle" one-man machine gun carriers to lumbering caterpillars with an armament of two machine guns and one 2-inch gun.

The U. S. S. R. efforts towards armament production were being pushed at top speed. However, inferior steel turned out by Germany was being used and interfered with tank production. The *Ant-14*, the first Soviet-built 5-motored plane, had a speed of 135 miles per hour—only the DO-X and the Italian bomber KA-90 surpassed it in size. The number of military aircraft in the U. S. S. R. was over 1000 excluding training aircraft. The U. S. S. R. in 1931 had more aircraft than all her European neighbors put together. The land, sea, and air forces were under one head or command, the Commissar for War.

**UNITED STATES.** The normal 1930-31 appropriations for the military and non-military activities of the War Department amounted to \$445,691,011. The special funds made available for essential construction and maintenance programmes amounting to over \$58,000,000 were for relief measures and would not ordinarily have been undertaken in the fiscal year 1931. The adoption of a programme of operative economies involved the abandonment of 53 superfluous army posts. In some of these posts, however, congressional action would be necessary.

All components of the Army presented satisfactory evidence of efficiency and training. The Air Corps five-year programme had proceeded satisfactorily. A striking example of the advances realized in this field was the concentration on May 9, 1931, of the first provisional air division of 603 planes, piloted by Regular Army, National Guard, and the Organized Reserve personnel. Continuous progress was made in the important sphere of motorization and mechanization and in the evolution of new tactical methods rendered desirable and necessary by these improvements.

The personnel of the War Policies Commission created by Public Resolution No. 98—71 Con-

gress, comprised six cabinet officers, four Senators and four members of the House of Representatives. Hearings were conducted during months of March and May, 1931. A report was to be submitted to the session of Congress during the year 1932.

There were 1600 rifle clubs authorized by the War Department, and the popularity of rifle shooting continued.

Plans for the procurement of army munitions and for prompt mobilization of American industry in emergency, on which the Army and leading industrialists had been working, were not near completion. Of the 663 planes participating in the field exercises in May, 1931, only 449 were tactical types that would be used in active operation against an enemy. These represented the maximum combat strength of Army aviation units in continental United States. The United States stood fourth in actual tactical strength, including both the Army and Navy Air Service. With the Navy airplanes out of the calculation, the United States stood fifth. There is always a close relationship between racing and fighting planes. The United States Air Service was not keeping up with medium speed development, because of lack of funds. At the end of the fourth year of the five-year programme of expansion for the Air Corps, 1476 serviceable airplanes were on hand, a shortage of 183. There was a shortage of 190 R. A. officers commissioned in the Air Corps and 203 vacancies for second lieutenants in the same unit.

During the year Army airplanes were flown a total of 396,961 aircraft hours, or approximately 175 flights around the globe. The most marked improvement was made in the new bombardment type with a high speed of 108 miles per hour, an increase of 60 miles over the types in service. A new attack plane in sufficient numbers to equip one attack squadron attained a speed of 196 miles per hour, an increase of 55 miles over existing types. Improvements were made in radio communications and equipment for facilitating navigation in fog. The fatal accidents decreased from 37 to 21 and number of fatalities from 52 to 26, due to splendid air and ground discipline. There were 241 Reserve officers on extended active duty with tactical units, flying 67,391 hours, and for the first time service-type flying equipment was available for Reserve officers' use.

Under agreement between the War and Navy Departments the naval air forces were to be based on the fleet and move with it as an important element in performing the essential missions of the forces afloat. The army air forces were to be land based and employed as an element of the Army in carrying out its missions of defending the coasts, both in the homeland and in overseas possessions. Thus the fleet was assured absolute freedom of action with no responsibility for coast defense—which became absolutely the Army's—with little danger of duplication in planning, training, and procurement activities.

In another direction an accord with equally significant consequences in war planning was reached in principle, and made public in a document that might be called "Joint Army-Navy-Industry Preparation for National Organization in War." During the year the independent "mechanized force" at Fort Eustis was broken up, and the Cavalry was given the task of developing combat vehicles that would enhance its power

in reconnaissance, counter reconnaissance, flank action, pursuit and similar operations. One of its regiments was to be equipped exclusively with such vehicles, while the Infantry was to give its attention to machines intended to increase the striking power of that arm against strongly held positions. To the greatest extent possible machines were to be used to increase the mobility, security and striking power of every ground arm, but no separate corps was to be established.

The Organized Reserve Corps, including both active and inactive lists, had a commissioned strength of about 108,000. Promotions were placed entirely upon the basis of military qualifications, changing policies heretofore in effect. With the development of reserve organization it was becoming more feasible to administer them as units, instead of treating individually with officers. Reserve regulations were liberalized to permit promotion of second lieutenants from Reserve Officers' Training Corps to first lieutenants without restriction as to vacancies.

During the year 6569 students completed the Reserve Officers' Training Corps. camps, while in the Citizens' Military Training camps 38,000 applicants received training.

The Annual Report of the Adjutant General of the Army for the fiscal year ending June 30, 1931, showed the actual strength of the Army by classes of personnel, as follows:

<b>Commissioned officers:</b>	
Regular Army .....	12,099
Philippine Scouts .....	78
Retired (both of above) on active duty .....	145
<b>Total .....</b>	<b>12,322</b>
<b>Total Warrant Officers .....</b>	<b>1,028</b>
<b>Total enlisted, including 6,433 Philippine Scouts .....</b>	<b>125,817</b>
<b>Aggregate .....</b>	<b>139,267</b>

In addition to all the foregoing there were 809 army nurses (597 Regular, and 212 Reserve), 31 Contract Surgeons, and 836 cadets at the United States Military Academy—making a grand total of 140,543 individuals in the military service.

The regular troops in China consisted of 58 commissioned officers, 2 warrant officers, and 948 enlisted men, a total of 1008. In view of conditions in China this seemed a very inadequate legation guard.

The strength of the Officer Reserve Corps by grades on June 30, 1931, was major generals 18, brigadier generals 106, colonels 1202, lieutenant colonels 3505, majors 8910, captains 20,678, first lieutenants 31,246, second lieutenants 54,825, or a total of 120,550 accepted appointments, a gain of 7027 in all grades. For the fiscal year \$6,542,362 was appropriated for Organized Reserve activities, \$2,815,866 was set aside for preparation for commission as Reserve Officers, 43,042 applicants were ordered to camps, 40,564 reported, 39,061 enrolled and 37,049 completed training, including 2037 graduated from the blue course. During the summer of 1931 there were held 99 camps for training reserves.

On June 30, 1930, there were 2578 officers on the retired list of the Regular Army.

During the year the 1st Battalion, 2nd Field Artillery in Panama was equipped with the new standard 75 mm. pack howitzer, one of the most

efficient weapons ever devised by the Ordnance Department. The .50-calibre machine gun was eliminated from consideration for anti-aircraft defense for field artillery due to the superiority of the .30-calibre machine gun in point of hits per elapsed period of time, up to ranges of 1000 to 1200 yards.

Troops in the Canal Zone obtained training in transporting the 14-inch railway guns in Panama between the emplacements at either end of the canal, by moving one gun from Culebra Island to Fort Randolph and return in nine hours without attempting high speed or obtaining right of way over the Panama Railroad.

Including overseas possessions the system of harbor defense embraced approximately 315 batteries numbering 800 fixed major and minor calibre guns, fire control installations, searchlights, power plants and other accessories. There were also 103 batteries mounting 245 fixed anti-aircraft guns, installations costing \$250,000,000. Recent changes in naval design and in the composition of fleets had the effect of increasing the offensive power of guns mounted on shore which were formerly out-classed by guns carried by battleships. The 12-inch and 16-inch guns, long range, installed during and after the World War were superior to guns possessed by any country for similar purposes and the latest 16-inch gun was superior to any calibre carried by ships of any navy. Progress was being made in the development of fire control equipment for long-range sea coast guns and in the development of the same for anti-aircraft artillery.

In the Ordnance Department the following items were procured: 15 75-mm. pack howitzers, 15 3-inch anti-aircraft mobile guns and 1 set of tools for its manufacture, 11 37-mm. guns, 12 75-mm. howitzers, 4 105-mm. howitzers, 20 .276 Garand rifles.

The pilot 155-mm. gun with 8-inch howitzer carriage T2 was completed and transferred to the Aberdeen Proving Ground for test. Its preliminary firing indicated this unit satisfactory as a firing unit, and capable of making a speed of 45 miles per hour.

Contracts were made for the manufacture of seven Christie convertible type (medium T3) tanks. In the tests made early in the year this machine sped over rough country at 45 miles per hour on its caterpillar tractor belts. With wheels instead of tractors it reached a maximum speed on a macadam road of 84 miles per hour. It is a 10-ton tank carrying a crew of two. To shift the chassis from tractors to wheels requires 14 minutes. It carries one one-pound cannon and one .45-calibre machine gun and is armored with steel plate  $\frac{5}{8}$ -inch thick. Carrying 90 gallons of gasoline it can move 3 miles on a gallon on wheels and 2 miles with caterpillar treads.

Contrary to popular belief the use of helium in military balloons in place of hydrogen was found more economic and further study contemplated the disuse of hydrogen altogether.

According to the chief of the Militia Bureau the aggregate strength of officers, warrant officers and enlisted men of the National Guard was 187,386. To promote general efficiency 295 selected officers were sent to various army service schools, where special courses adapted to their needs were given. There were 16 major generals and 82 brigadier generals in the National Guard on June 30, 1931; 239 colonels, 499 lieutenant

colonels, 1184 majors, 4374 captains, 3487 first lieutenants and 3197 second lieutenants, with 198 warrant officers and 1 cornet—making a total of 13,250. During the year four divisions were assembled for field training. The strength of the guard was 184,371 officers and men and the maximum was 190,211.

The accompanying table from the War Department gives the strength of the guard, by States, as of Apr. 1, 1931:

State	Officers	Enlisted
Alabama	216	2,506
Arizona	78	1,148
Arkansas	139	2,046
California	452	6,010
Colorado	192	1,651
Connecticut	309	8,995
Delaware	55	775
District of Columbia	70	980
Florida	175	2,288
Georgia	243	3,875
Hawaii	102	1,590
Idaho	103	1,158
Illinois	647	8,855
Indiana	373	4,427
Iowa	266	3,291
Kansas	248	2,926
Kentucky	218	2,526
Louisiana	186	1,845
Maine	172	2,215
Maryland	245	3,081
Massachusetts	666	8,936
Michigan	341	4,175
Minnesota	353	4,626
Mississippi	122	1,612
Missouri	309	4,160
Montana	77	1,107
Nebraska	108	1,606
Nevada	8	127
New Hampshire	77	972
New Jersey	304	4,452
New Mexico	74	900
New York	1,365	19,685
North Carolina	266	3,110
North Dakota	77	1,089
Ohio	616	7,876
Oklahoma	403	4,745
Oregon	206	2,841
Pennsylvania	850	10,993
Porto Rico	90	1,401
Rhode Island	153	1,765
South Carolina	146	2,000
South Dakota	105	1,241
Tennessee	180	2,281
Texas	698	7,507
Utah	126	1,256
Vermont	81	1,117
Virginia	258	3,556
Washington	216	2,410
West Virginia	122	1,843
Wisconsin	359	4,516
Wyoming	51	573
Totals	13,145	171,226

The guard in 1931 was about 60,000 officers and enlisted men greater in size than it was in 1914, the year of the outbreak of the World War. In 1915 it was 120,693 and in 1916, when the war clouds began to gather in the United States it was 123,605. In 1929 its strength was 182,715. Indications were that maximum strength would be reached in the near future.

**MILITARY TERRITORY OF THE NIGER.** See FRENCH WEST AFRICA.

**MILK.** See DAIRYING.

**MILLS, CHARLES KARSNER.** An American neurologist, died May 28, 1931, in Philadelphia, Pa., where he was born Dec. 4, 1845. He was graduated from the medical department of the University of Pennsylvania in 1869 and received the Ph.D. degree two years later. From 1883 to

1898 he was professor of diseases of the mind and nervous system at the Philadelphia Polyclinic, and from 1891 to 1902 clinical professor of nervous diseases at the Women's Medical College of Pennsylvania. At the University of Pennsylvania he served as professor of mental diseases and medical jurisprudence (1893-1901), clinical professor of nervous diseases (1901-03), and professor of neurology (1903-15). He attained a high reputation as an alienist and was particularly well known for his pioneer work in the field of cerebral localization. He was also president of the American Neurological Association during 1886-87 and 1923-24. Besides monographs on mental and nervous strain he published *The Nursing and Care of the Nervous and Insane* (1912) and edited a valuable *Treatise on the Nervous System and Its Diseases* (1898).

**MILLS COLLEGE.** A college for women in Oakland, Calif., founded in 1885. The enrollment in the autumn of 1931 was 515, while that for the summer session was 52. The summer session included courses only in music and physical education. The faculty numbered 81 members, plus 12 assistants below the rank of instructor. The total productive funds amounted to \$1,612,737 and the total assets to \$4,242,420, while the income for the year ending June 30, 1931, was \$432,742. The library contained 56,500 volumes. President, Aurelia Henry Reinhardt, Ph.D., LL.D., Litt.D.

**MINAS GERAES.** See BRAZIL under *History*.  
**MIND.** See *PHILOSOPHY*.

**MINERALOGICAL CHEMISTRY.** See *CHEMISTRY*; *MINERALOGY*.

**MINERALOGY.** Several important papers appeared during the year 1931, of which the following selection should be noted.

An American version of Dr. Victor Goldschmidt's admirable discussion of "Crystallographic Classification" appeared in the *American Mineralogist* (vol. xvi, p. 18). Dr. Goldschmidt in this paper advanced arguments in favor of a six system division as against the thirty-two group proposed by Gadolin (1867), and advocated by P. Groth (1895). This stand is in line with the present day trend toward simplification in matters of scientific classification, and carries with it the weight of the opinion of the world's greatest authority on mathematical crystallography.

Among the very useful compilations and collections of data may be cited Dr. L. J. Spencer's "Twelfth List of New Mineral Names" (*Mineralogical Magazine*, vol. xxii, pp. 614-632). Like the preceding lists compiled by Dr. Spencer, this compendium includes the new mineral species and varieties added to the science during the three years preceding its issue. A collection of very useful data is contained in the "Tables and Charts of Specific Gravity and Hardness for use in Determination of Minerals," by Joseph L. Rosenholtz and Dudley T. Smith, both of Rensselaer Polytechnic Institute (*Engineering and Science Series* No. 34). The matter is arranged for alphabetical species reference and also on a basis of specific gravity (Chart A), and hardness (Chart B).

An extremely valuable crystallographic compilation is Dr. L. Tokody's "Pyrit formen und fundorte" (*Zeitschrift für Kristallographie*, lxxx, pp. 255-348). In addition to the usual list of crystallographic forms with localities and

authors, this work lists alphabetically the pyrite occurrences which have been studied crystallographically with the habit, occurring forms, authors, and literature.

The complex and much discussed problem of the crystallization of the mineral species Calaverite has been exhaustively dealt with by Doctors Victor Goldschmidt, Charles Palache, and Martin Peacock (*Neues Jahrbuch für Mineralogie, Geologie und Paläontologie, Beilage-Band* 63 pp. 1-58).

A new edition of *Gem and Gem Minerals*, by Edward H. Kraus and Edward F. Holden (New York), contains considerable added material both in text and illustrations, bringing this standard work up to date. Particularly illuminating and well chosen are the added and substituted half tone illustrations. *The Minerals of New York City and its Environs* by James G. Manchester (New York Mineralogical Club) is a much needed volume that should prove of more than local interest.

In regard to the number and importance of the new mineral species announced, the year 1931 was a notable one. A new manganese phosphoborate, closely related to reddingite, was found in the Chicago mine, in Iron County, Michigan. The name *seamanite* was assigned to this new species in honor of Prof. Arthur E. Seaman of the Michigan College of Mining and Technology. Seamanite occurs in acicular, orthorhombic crystals, pale yellow in color.

*Landesite*, a new ferromanganese hydrated phosphate from Poland, Maine, was named in honor of Prof. Kenneth K. Landes of the University of Kansas. It is an alteration product of reddingite, sometimes pseudomorphous after the latter mineral and is brown in color.

*Krausite*, named in honor of Prof. Edward H. Kraus, of the University of Michigan, is a new sulphate of iron and potash from the borax deposits of San Bernardino County, California. It occurs in monoclinic crystals, pale greenish yellow in color. From the same region comes a new sodium sulphate with fluorine, which occurs in colorless crystals steeply rhombohedral in habit at Searles Lake. This new sulphate has been named *Schairerite* in honor of Dr. J. F. Schairer, of the Carnegie Geophysical Laboratory. *Curtseite*, another new California mineral species, was named in honor of L. Curtis who first noticed this organic material in the crevices in sandstone at Shaggs Springs in Sonora County, where its greenish yellow flakes result from the emanations of hot springs.

A new hydrated iron vanadate was found in the carnotite region of Colorado and Utah, and was named *I'ervanite* (*ferrum-vanadim*) in recognition of its metallic composition. It occurs in brownish to yellowish masses of fibres which are probably monoclinic.

*Clarkeite*, named in honor of the late Prof. Frank Wigglesworth Clarke (1847-1931) of Washington, D. C., is a newly recognized uranium product, related to gummite but distinct from it. It occurs in the vicinity of Spruce Pine, Mitchell County, N. C., as dark brown masses associated, and in direct contact with, uraninite, and itself surrounded by gummite. A new sulphantimonite of lead and silver, near frizelyite in composition, has been found in the Department of Potosi, Bolivia. This new species, which occurs in dark gray prismatic crystals, has been

named *ramdohrite*, in honor of Prof. Paul Ramdohr, of Aachen, a German mineralogist.

A new silico-arsenide of manganese and minor metallic bases has been announced as coming from Långban, Sweden, a locality notable for rare and unusual species. The name *allodelphite*, has been assigned to this new species, which is closely related to, and associated with synadelphite, the relation between the two minerals being expressed in its name. Allodelphite occurs in dark reddish brown tabular crystals. *Bianohite*, a new hydrous sulphate of iron and zinc, was found to occur in Venezia (formerly part of Carniola), as a white crystalline crust on the walls of the mines at Raihe. It was named in honor of Prof. Angelo Bianchi, of Padova. From Nagatejima, on the Noto Peninsula of Japan, comes a new phospho-silicate of alumina, the rare earths, iron and calcium, which has been named *nagatelite*. It occurs in black crystals and tabular masses, the monoclinic prisms placing it in the epidote group close to allanite. *Serendite*, named in honor of J. N. Serend, was a new hydrous silicate of manganese, lime soda, and potash from the Island of Rouma, in the Los Archipelago, French Guinea. It occurs in nepheline syenite in rose red monoclinic crystals.

The Belgian Congo, which has in recent years been highly productive of new and rare species, yielded a new cobalt hydroxide, from Mindingi, Katanga. This has been named *stainierite*, in honor of Prof. Xavier Stainier, of the University of Gand (Ghent), Belgium. It occurs in compact, black, crystalline masses, and is regarded as a crystalline phase of cobalt oxide, of which the colloidal equivalent is heterogenite. *Cooperite*, which was reported in the YEAR BOOK for 1929, as a provisional new species was confirmed.

*Maitlandite* and *Nicolayite*, two amorphous uranium minerals from Wodgina, Northwest Division, Western Australia, which had previously been described as mackintoshite and thorgummite respectively, as a result of a more thorough investigation were established as new species. The first is named in honor of A. Gigg Maitland, a former Government Geologist, the latter is named after the late Rev. C. G. Nicolay, an eminent local mineral collector. Maitlandite is black in color, nicolayite is yellow. From the famous mines at Broken Hill in New South Wales comes a new hydrous silicate of iron, manganese, lime and magnesia, occurring in jet black, compact amorphous masses. This has been named *sturtite*, in recognition of Captain Charles Sturt, the first white man to visit the site of the Broken Hill mines. See also CHEMISTRY, GEOLOGY.

**MINERAL PRODUCTION IN THE UNITED STATES.** In 1931 the economic depression seriously affected the mineral industry in the United States and there resulted in all fields, except gold, a considerable curtailment in mining operations with a marked decline in production indicated both by reduced amounts and values. In the non-ferrous metals, prices suffered, while in the case of the mineral fuels, there was decreased production of coal, petroleum, and natural gas all registered in heat lines. Articles on individual minerals discuss productions for the year 1931 while the following paragraphs, based on the Annual Summary for 1930 of the U. S. Bureau of Mines, discuss the situation in that year which was in a large measure

preliminary to 1931 indicating the unprecedented curtailment of operations and production.

The U. S. Bureau of Mines stated the aggregate value of all mineral products in the United States in 1930, at \$4,810,400,000, the lowest point reached since 1922. This figure, as compared with the total value for 1929, represented a reduction of 18 per cent. However, the relative decline in value between 1930 and 1929 was only about one-half as severe as the 41 per cent decrease shown by the total value for 1921 as contrasted with the all-time record year of 1920. The 1930 total value was approximately equal to that reported for 1919 and 1922 and was approximately double that reported for any of the pre-war years 1912 to 1915. The accompanying tabulation on pages 517 and 518 and the separate articles on various minerals indicated decreased production in 1930 as compared with 1929.

The mineral fuels as a group showed a decrease of about 14 per cent in value of total products. Less bituminous coal and anthracite were produced in 1930 than in any postwar year free from serious labor difficulties, and the average unit sales realizations were somewhat lower than in immediately preceding years. Petroleum production decreased for the first time in six years; the output in 1930 dropped sharply to a level below that of any of the preceding three years, and the total value declined in somewhat large ratio. The production of natural gas increased, while the total value remained approximately the same as in 1929; a decline in the output of natural gasoline was accompanied by a much large relative decrease in total value.

The total value of metals produced in the United States in 1930 decreased about 33 per cent from 1929. Most striking were the notable declines in value of the major metals, ranging from 30 to 49 per cent for copper, pig iron, lead, silver, and zinc. Only gold, the standard price of which was not affected by the business depression, showed an increase in value that accompanied a gain of 3.5 per cent in output. Aluminum, manganese ore, and cadmium made moderate gains in production, but the total values were slightly less than in the preceding year. All producers of metals felt sharply the effect of weakened prices and generally reduced output.

The total value of nonmetallic products (not including fuels) showed a comparatively moderate decline of 12 per cent. Prices were almost universally lower than in 1929; and output was usually reduced, especially during the latter half of the year. All of the important nonmetallic building materials—stone, sand, gravel, gypsum, lime, cement, asphalt, slate, mineral paints, sand-lime brick, and clay—showed moderate to marked decreases in total value in 1930.

**MINERALS.** See GEOLOGY.

**MINES AND MINING.** See METALLURGY.

**MINING ACCIDENTS.** See WORKMEN'S COMPENSATION.

**MINING AND METALLURGICAL ENGINEERS,** AMERICAN INSTITUTE OF. An organization founded in 1871 and incorporated under the laws of New York State in 1905 "to promote the arts and sciences connected with the economic production of the useful minerals and metals and the welfare of those employed in these industries." It is made up of 27 local sections and has 47 affiliated societies in American colleges. On Nov. 15, 1931, there were 9502 members, distributed as follows: Honorary, 17; members, 6561;

## MINERAL PRODUCTS OF THE UNITED STATES, 1929 AND 1930 \*

Product	1929		1930	
	Quantity	Value	Quantity	Value
<b>METALLIC</b>				
Aluminum .....	pounds.. 225,000,000	\$ 51,864,000	229,035,000	\$ 50,961,000
Antimonial lead <sup>b</sup> .....	short tons (2,000 pounds).. 25,669	8,267,095	13,711	1,892,524
Antimony <sup>c</sup> .....	do. 3,052	545,700	1,685	258,500
Bauxite .....	long tons (2,240 pounds).. 865,777	2,265,638	830,612	1,928,297
Cadmium .....	pounds.. 2,451,427	2,009,956	2,777,762	1,777,768
Chromite .....	long tons.. 269	8,976	80	1,908
Copper, <sup>d</sup> sales value .....	pounds.. 2,002,863,135	852,504,000	1,894,389,327	181,271,000
Ferro-alloys .....	long tons.. 829,824	75,506,078	650,240	51,900,220
Gold <sup>e</sup> .....	troy ounces.. 2,208,386	45,651,400	2,285,603	47,247,600
Iron:				
Ore <sup>f</sup> .....	long tons.. 75,602,734	197,148,640 <sup>f</sup>	55,201,221	145,619,059 <sup>f</sup>
Pig .....	do.. 41,549,161	781,858,075	29,905,355	512,165,131
Lead (refined), <sup>d</sup> sales value .....	short tons.. 672,498	84,735,600	573,740	57,374,000
Manganese ore (85 per cent or more Mn) .....	long tons.. 60,379	1,612,357	67,035	1,437,465
Manganiferous ore (5 to 35 per cent Mn) .....	long tons.. 1,188,258	8,274,466	785,390	2,401,605
Mercury:				
Metal .....	flasks (76 pounds net) 23,682	2,892,638	21,553	2,478,789
Ore .....	short tons.. (g)	(h)	(i)	(j)
Nickel (value at New York City) .....	do.. 840	297,273	808	213,803
Ores (crude), old tailings, etc.:				
Copper .....	do.. 68,422,000	(h)	(i)	(j)
Copper-lead and copper-lead zinc .....	do.. 259,000	(h)	(i)	(j)
Dry and siliceous (gold and silver) .....	do.. 7,671,000	(h)	(i)	(j)
Lead .....	do.. 8,165,000	(h)	(i)	(j)
Lead-zinc .....	do.. 14,469,000	(h)	(i)	(j)
Zinc .....	do.. 7,193,000	(h)	(i)	(j)
Platinum and allied metals (value at New York City) .....	troy ounces.. 47,977	3,121,471	43,502	2,048,824
Silver .....	do.. 61,327,868	32,687,754	50,748,127	19,538,029
Tin (metallic equivalent) .....	short tons.. 39	35,600	17	10,590
Titanium ore .....	do.. (j)	(j)	(j)	(j)
Ilmenite .....	do.. (j)	(j)	(j)	(j)
Rutile .....	do.. (j)	(j)	(j)	(j)
Tungsten ore (60 per cent concentrates) .....	do.. 830	654,000	702	509,000
Uranium and vanadium ores .....	do.. (j)	(j)	(j)	(j)
Zinc, <sup>d</sup> sales value .....	do.. 612,136	80,802,000	489,361	46,979,000
Total value of metallic products (approximate) .....		1,475,990,000		982,550,000
<b>NONMETALLIC</b>				
Arsenious oxide .....	short tons.. 14,546	883,771	17,425	1,008,385
Asbestos .....	do.. 3,155	351,004	4,242	289,284
Asphalt .....				
Native .....	do.. 804,027	5,470,493	702,777	4,463,092
Oil <sup>f</sup> .....	do.. 2,382,973	24,135,787 <sup>f</sup>	2,278,546	21,570,439 <sup>f</sup>
Barite (crude) .....	do.. 277,269	1,850,706	234,932	1,538,171
Borates (colemanite and naturally occurring sodium borates) .....	short tons.. 169,870	4,515,375	177,360	5,851,999
Bromine .....	pounds.. 6,414,620	1,759,325	8,462,800	2,109,974
Calcium-magnesium chloride .....	short tons.. 114,240	2,097,061	116,160	2,207,800
Cement .....	barrels (376 pounds net) 172,027,452	255,104,506	160,846,350	231,189,287
Clay .....				
Products <sup>h</sup> .....	do.. 373,409,391	(k)	(k)	(k)
Raw <sup>f</sup> .....	short tons.. 4,347,020	14,850,744 <sup>f</sup>	3,962,903	12,521,495 <sup>f</sup>
Coal:				
Bituminous <sup>l</sup> .....	do.. 534,988,593	952,781,000	461,630,000	812,469,000
Pennsylvania anthracite .....	long tons.. 65,918,031	385,642,751	61,950,747	354,574,191
Coke <sup>f</sup> .....	short tons.. 59,883,845	278,994,592 <sup>f</sup>	47,972,021	209,137,262 <sup>f</sup>
Diatomite and tripoli <sup>m</sup> .....	do.. 38,011	545,658	34,339	507,505
Emery .....	do.. 924	10,722	555	5,996
Feldspar (crude) .....	long tons.. 197,690	1,278,640	171,788	1,066,636
Fluorspar .....	short tons.. 146,439	2,791,126	95,849	1,746,643
Fuller's earth .....	do.. 315,983	4,309,723	335,844	4,326,705
Garnet for abrasive purposes .....	do.. 5,961	435,420	5,003	314,129
Gems and precious stones .....	do.. (n)	(n)	(n)	(n)
Graphite .....				
Amorphous .....	short tons.. 8,555	46,650	1,941	20,525
Crystalline .....	pounds.. 5,806,410	264,241	(p)	(p)
Grindstones and pulpstones .....	short tons.. 27,736	1,241,546	18,700	770,571
Gypsum .....	do.. 5,016,132	31,292,969	3,471,393	27,051,484
Lime .....	do.. 4,269,768	33,478,848	3,384,000	24,950,000
Magnesite (crude) .....	do.. 187,660	1,500,000	129,320	1,033,130
Mica .....				
Scrap .....	short tons.. 6,253	117,901	6,732	109,100
Sheet .....	pounds.. 2,036,128	286,321	1,465,485	177,307
Millstones .....	do.. 31,407	(q)	(q)	17,702
Mineral paints .....				
Natural pigments <sup>p</sup> .....	short tons.. (r)	(r)	(r)	(r)
Zinc and lead pigments <sup>q</sup> .....	do.. 204,574	26,211,556	147,948	18,420,436
Mineral waters .....	gallons sold.. (s)	(s)	(s)	(s)
Natural gas .....	M cubic feet.. 1,917,693,000	413,276,000	1,979,000,000	412,000,000
Natural gasoline .....	gallons.. 2,233,688,000	158,410,000	2,172,900,000	126,000,000
Oilstones, etc. .....	short tons.. 838	212,017	651	137,184
Peat .....	do.. (t)	(t)	(t)	(t)
Petroleum .....	barrels (42 gallons) 1,007,323,000	1,280,417,000	896,265,000	1,046,400,000
Phosphate rock .....	long tons.. 3,780,855	13,153,259	3,926,392	13,996,830
Potassium salts .....	short tons.. 57,540 <sup>r</sup>	2,988,448	56,610 <sup>r</sup>	2,986,157
Pumice .....	do.. 67,013	353,064	56,848	338,099
Pyrites .....	long tons.. 335,465	1,250,141	347,512	1,028,680
Salt .....	short tons.. 8,543,560	27,334,695	8,054,440	25,009,480



MINERAL PRODUCTS OF THE UNITED STATES, 1929 AND 1930 <sup>a</sup>—Continued

Product	1929		1930	
	Quantity	Value	Quantity	Value
<b>NONMETALLIC—continued</b>				
Sand:				
Glass .....	2,219,677	8,788,471	2,000,000	8,600,000
Molding, building, etc., and gravel .....	220,352,228	129,047,508	188,000,000	111,400,000
Sand-lime brick <sup>c</sup> .....	269,584	2,909,685	165,829	1,748,431
Silica (quartz) .....	20,981	205,759	18,156	121,289
Slate .....	670,070	11,245,178	463,610	7,915,105
Stone .....	141,109,580	202,692,762	127,000,000	178,832,000
Sulphur .....	2,437,288	43,800,000	1,989,917	35,800,000
Sulphuric acid (60° Baumé) from copper and zinc smelters .....	1,239,842	9,828,004	1,188,316	9,544,283
Talc and soapstone <sup>d</sup> .....	219,783	2,628,662	179,385	2,108,338
Total value of nonmetallic products (approximate) .....		\$4,400,880,000		\$3,818,950,000
<b>SUMMARY</b>				
Total value of metallic products .....		\$1,475,990,000		\$ 982,550,000
Total value of nonmetallic products (exclusive of mineral fuels) .....		1,210,353,000		1,067,500,000
Total value of mineral fuels .....		3,190,527,000		2,751,450,000
Total value of "unspecified" (metallic and non-metallic) products (partly estimated) <sup>e</sup> .....		10,430,000		8,900,000 <sup>h</sup>
Grand total approximate value of mineral products .....		\$5,887,800,000		\$4,810,400,000

<sup>a</sup> In this general statement certain of the figures represent shipments rather than quantity mined, and some of the figures for 1930 are estimates. The reader is referred to the articles on the various mineral products for information in greater detail than is given here.

<sup>b</sup> From both domestic and foreign ores.

<sup>c</sup> Figures represent antimony content of antimonial lead. Value excluded from metallic total as the value of the antimony is included in the antimonial lead value.

<sup>d</sup> Product from domestic ores only.

<sup>e</sup> Value, \$20.671834625323 an ounce.

<sup>f</sup> Value not included in total value.

<sup>g</sup> Figures not available.

<sup>h</sup> Figures showing values not available.

<sup>i</sup> Figures for 1930 not available.

<sup>j</sup> Value included in total value of metallic products; Bureau of Mines not at liberty to publish figures.

<sup>k</sup> Figures obtained through cooperation with Bureau of the Census. Figures for 1930 not available, estimate of value included in total value of nonmetallic products.

<sup>l</sup> Includes brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania.

<sup>m</sup> Figures represent tripoli only. Value of diatomite is included in total value of nonmetallic products; Bureau of Mines not at liberty to publish figures.

<sup>n</sup> No canvass. Estimate of value included in total value of nonmetallic products.

<sup>o</sup> Value included in total value of nonmetallic products; Bureau of Mines not at liberty to publish figures.

<sup>p</sup> Canvass discontinued after 1915. Value of iron ore sold for paint included under last item ("Unspecified").

<sup>q</sup> Sublimed blue lead, sublimed white lead, leaded zinc oxide, and zinc oxide.

<sup>r</sup> Equivalent as K<sub>2</sub>O.

<sup>s</sup> According to Bureau of the Census.

<sup>t</sup> Figures represent talc only. Value of Soapstone is included in total value of nonmetallic products; Bureau of Mines not at liberty to publish figures.

<sup>u</sup> Includes for 1930 the value of bismuth, cadmium compounds (\$323,718), chats (\$515,000), columbite (\$3,350), flint lining for tube mills and pebbles for grinding (\$50,816), optical fluor spar, iodine, iron ore sold for magnets, iron ore sold for paint (\$53,520), lithium minerals (\$56,327), new ingot magnesium (\$268,864), natural magnesium salts (\$1,071,112), calcareous marl (\$112,523), greensand marl (\$221,211), micaceous minerals (\$56,731), molybdenum (\$2,065,000), selenium (\$454,911), silica sand and sandstone (finely ground) (\$1,009,500), sodium salts (carbonate, bicarbonate, sulphate, and trona) from natural sources (\$1,789,104), sulphur ore (\$2,700), tellurium (\$7,996), and an estimate of the value of miscellaneous mineral products, statistics for which are not collected annually by the Bureau of Mines.

junior members, 273; associates, 995; student associates, 945; Rocky Mountain members, 130; and junior associates (class abolished in 1930), 581. The income for 1931 was \$170,000.

In addition to the monthly meetings of the local sections and regional meetings held in various important mining or metallurgical centres, an annual meeting, or four-day convention beginning on the third Tuesday in February, is held in New York City. The medals and prizes awarded by the society during 1931 for notable work in the field of mining and metallurgy were: The James Douglas Medal, to William H. Peirce; William Lawrence Saunders Gold Medal, to Francis William MacLennan; Robert W. Hunt Prize, to Edmund Sharington Davenport. The Institute publishes *Transactions*, an annual in several volumes containing the best papers of the year on mining and metallurgical subjects; *Mining and Metallurgy*, a monthly bulletin; the *Year Book*, which constitutes a "Who's Who" in the profession; *Technical Publications*, a series of individual technical pamphlets; and special volumes from time to time. In connection with

three other societies, it maintains the engineering societies library and an employment bureau. The officers elected at the 1931 convention were: President, Robert E. Tally; vice presidents, Howard N. Eavenson and H. A. Guess; directors, Louis S. Cates, Karl Eilers, S. R. Elliott, H. G. Moulton, and William Wraith; secretary, H. Foster Bain, who was succeeded by A. B. Parsons on Nov. 1, 1931; and treasurer, Karl Eilers. Headquarters are in the Engineering Societies Building, 29 West 39th Street, New York City.

## MINNEAPOLIS INSTITUTE OF ARTS.

See ART MUSEUMS.

**MINNESOTA.** POPULATION. According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 2,563,953; in 1920 it was 2,387,125. The native whites numbered 2,150,679 (1930), 1,882,772 (1920); foreign-born whites, 388,294 (1930), 486,164 (1920). Negroes numbered 9445 (1930). Persons of other races, 15,535 in 1930, including 3626 Mexicans (formerly counted among the foreign-born whites) and 11,077 Indians. Of 992,847 persons listed as in gainful occupations in 1930, 303,822 were in

agriculture, 183,645 being farmers; those in manufacturing and mechanical industries numbered 195,779, including 44,551 in the building industry; in trade, 162,680; in transportation, 98,180; professional service, 82,273; domestic and personal service, 86,852. Minneapolis, the most populous city, had 464,356 inhabitants (1930), 380,582 (1920); St. Paul, the capital, 271,606 (1930), 234,698 (1920); Duluth, 101,463 (1930), 98,917 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops for 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1931	4,896,000	115,056,000	\$42,571,000
	1930	4,533,000	140,528,000	74,477,000
Hay, tame	1931	2,536,000	2,756,000*	22,875,000
	1930	2,411,000	3,179,000*	32,426,000
Oats	1931	4,575,000	123,525,000	25,940,000
	1930	4,442,000	166,575,000	41,644,000
Barley	1931	1,874,000	37,480,000	12,743,000
	1930	1,994,000	53,838,000	18,843,000
Wheat	1931	1,224,000	18,011,000	9,983,000
	1930	1,366,000	22,626,000	13,014,000
Potatoes	1931	861,000	28,880,000	8,664,000
	1930	814,000	22,608,000	14,695,000
Flaxseed	1931	361,000	6,027,000	7,413,000
	1930	742,000	7,420,000	10,759,000
Rye	1931	865,000	5,475,000	1,916,000
	1930	424,000	6,869,000	2,129,000

\* Tons.

**MINERAL PRODUCTION.** The State maintained its production of iron ore in 1930 at the rate of five-eighths, by value, of the total for the United States. The quantity produced in Minnesota, however, fell sharply to 34,165,777 long tons for 1930, from 46,470,243 for 1929; and the total by value to \$90,835,451 for 1930, from \$121,776,312 for 1929. As usual, a small proportion of the ore was converted into pig iron within the State. The quantity of pig iron shipped from the blast furnaces fell to 206,622 long tons, for 1930, from 376,551 for 1929. Related to the iron industry, the coking of coal from outside the State yielded 641,205 short tons of coke in 1930, as against 746,004 in 1929; by value, \$5,508,979 for 1930 and \$6,478,228 for 1929. There were mined, in 1930, 693,546 long tons of the lower-grade manganiferous ore; in 1929, 1,004,420 tons; the values of these quantities were, for 1930, \$1,794,334 and, for 1929, \$2,506,081. Exclusive of coke and pig iron, the total value of the mineral production of the State was \$136,349,610 for 1929; for 1928, \$108,247,963.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering the year 1929 presented the number of the State's manufacturing establishments as 4319 (about 11 per cent more than their number in 1927). In these establishments were employed 102,408 wage earners (3.6 per cent more than in 1927), to whom were paid wages to the aggregate of \$130,949,720 (an excess of nearly 6 per cent over 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$769,477,057 (or some 6 per cent more than for 1927). The manufactured product had a total value of \$1,171,710,384 (higher than that of 1927 by 9.8 per cent). Value added by manufacture was reckoned as \$402,233,327.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$37,167,418 (of which \$10,034,147 was for local education); for interest on debt, \$3,647,869; for

permanent improvements, \$14,692,232; total, \$55,507,519 (of which \$16,325,126 was for highways, \$4,543,772 being for maintenance and \$11,781,354 for construction). Revenues were \$64,412,587. Of these, property and special taxes formed 16.6 per cent; departmental earnings and remuneration to the State for its officers' services, 8.9; sales of licenses, 53.7 (including taxes of \$6,750,331 on sales of gasoline). The State's funded debt outstanding on June 30, 1930, was \$58,034,759 (including debt for rural credits). Net of sinking-fund assets, it was \$4,018,220. On property bearing an assessed valuation of \$2,385,662,055 were levied in the year State taxes of \$12,753,261.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 8778.66. There had occurred, during the year preceding, additions of 7.23 miles, but they had been exceeded by abandonments of 44.73 miles. No building of new line or trackage in 1931 was reported.

**EDUCATION.** There were enrolled in the public schools of the State, in the school year ending in 1931, 554,014 pupils. Of these, 435,245 were in the common schools or in elementary grades; the number separately listed as attending classes for defectives was 7890; pupils in the high schools numbered 104,537; and there were in addition 7422 pupils at high schools taking special courses not in the regular grades. For the school year ending in 1930 the expenditures for public education totaled \$54,613,386, of which \$45,832,186 was for maintenance. The salaries of teachers averaged, for men, \$176.89 a month; for women, \$117.31. The campaign of the public-school teachers for a revision of the retirement law in their favor succeeded in 1931; the Legislature revised the retirement law so as to provide annuities on teachers' retirement after from 30 to 35 years of service.

**CHARITIES AND CORRECTIONS.** The State Board of Control, a body created by an act of 1901, had in 1931 general control over 18 State institutions for the care or custody of persons.

State institutions under the control of the board, with their population November 1, 1931, were: Anoka State Asylum, 1067; Hastings State Asylum, 1034; Willmar State Asylum, 1031; Fergus Falls State Hospital, 1761; Rochester State Hospital, 1509; St. Peter State Hospital, 1813; School for Feeble-minded, Faribault, 2082; Colony for Epileptics, Cambridge, 443; School for the Blind, Faribault, 101; School for the Deaf, Faribault, 303; State Public School, Owatonna, 527; State Training School for Boys, Red Wing, 374; Home School for Girls, Sauk Centre, 292; State Reformatory for Women, Shakopee, 58; State Reformatory, St. Cloud, 999; State Prison, Stillwater, 1307; Sanatorium for Consumptives, Ah-gwah-ching, 251; Hospital for Crippled Children, St. Paul, 250.

**LEGISLATION.** A regular session of the State Legislature was held, ending on April 22. It made appropriations of \$43,466,155 for the State expenditures of the ensuing two fiscal years. A bill to authorize the issuance of \$15,414,000 of State bonds for road construction in that period was passed, with the backing of those who believed that activity in highway building would supply the best means for the relief of unemployment. By a bill proposing the amendment of the State constitution so as to permit of the levying of a State income tax, the necessary constitutional change was submitted to popular vote. For

the maintenance of State institutions the Legislature granted \$11,553,383 to the Board of Control. Of this amount, \$1,880,500 was made available for institutional construction in 1931.

A Conservation Commission of five members was created, charged with directing the use and development of the State's forest and mineral resources. An effort to help agriculture was made in the form of a law to permit storage of wheat and other grains on farms in such manner that the farmers might issue warehouse receipts, upon which to obtain loans or advances, in the manner permitted in the other spring-wheat States. To the State's veterans of the war with Spain was granted a bonus totaling \$1,500,000, divisible among some 3000 individuals.

The measure to provide a joint sewage system for St. Paul and Minneapolis, a proposal over which the two cities had failed to reach entire agreement, was passed, but was vetoed by Governor Olson. See below under *Political Events*.

The Legislature united upon a site on Wabasha Street, Minneapolis, for a new \$1,500,000 State office building; required an intervening period of five days between application for marriage licenses and their issuance; memorialized Congress to provide for the early completion of the 9-foot channel in the upper Mississippi River; and recognized October 12 as Columbus Day.

**POLITICAL AND OTHER EVENTS.** The State's so-called Press Gag law was declared unconstitutional by the Federal Supreme Court in a decision rendered on June 1 by a bare majority of 5 to 4. This enactment of 1925 gave authority for the abatement, as public nuisances, of malicious, scandalous and defamatory journals. The efforts to carry forward a plan of joint sewer construction for Minneapolis and St. Paul were held back by the inability of the two cities to agree on the details of a metropolitan drainage system.

Plans were prepared for a new \$4,000,000 City Hall and Court House for St. Paul, and were submitted to the city council and the commissioners of Ramsey County in April. Work was begun on a \$1,500,000 addition to the St. Paul Auditorium. The improvement of the upper Mississippi River proceeded with the completion of the Hastings Dam and the filling of the stretch of river above it, known as Lake St. Paul. The State Railroad and Warehouse Commission sanctioned on July 20 the acquisition of the Northwestern Telephone and Telegraph Company by the Northwestern Bell Telephone Company. Both companies served the Twin Cities. An ordinance of the City of St. Paul providing automatic rise and fall of salaries of public servants in accordance with changes in the cost of living was suspended by the City Council on July 13, in response to protests from public servants facing a reduction on account of lower living costs.

Suit was brought to test the validity of the vetoed bill of the Legislative session of 1931 for the redistricting of the State into nine districts for the election of Federal Representatives. The State Supreme Court rendered a decision early in October sustaining the vetoed bill as a constitutionally valid act, on the theory that the power of gubernatorial veto did not extend to a measure of this character. Notice of appeal from this decision to the Federal Supreme Court was filed.

**OFFICERS.** Governor, Floyd B. Olson; Lieutenant-Governor, Henry Arens; Secretary of State, Mike Holm; State Treasurer, Julius A.

Schmahl; Auditor, Stafford King; Attorney-General, Henry N. Benson; Commissioner of Education, James M. McConnell.

**JUDICIARY.** Supreme Court: Chief Justice, Samuel B. Wilson; Associate Justices, Homer B. Dibel, Andrew Holt, Clifford L. Hilton, Royal A. Stone, I. M. Olsen and Charles Loring.

**MINNESOTA, UNIVERSITY OF.** A coeducational State institution for higher learning in Minneapolis, founded in 1851. The 1931 autumn registration was 12,539, while the summer session enrollment for the same year was 6210. The university staff on a full-time basis, including professors, associate professors, assistant professors, and instructors, numbered 706. The income for the year ending June 30, 1931, amounted to \$11,339,177. The permanent university fund was increased by \$503,374. Gifts received during the year included \$275,000 from the Rockefeller Foundation to be used as a fluid research fund over a period of seven years and \$75,000, each, from the Rockefeller and Carnegie Foundations for an economic and social study of unemployment and a study of the reeducation of the unemployed. Pioneer Hall, a man's dormitory accommodating 258 persons, was completed in September, 1931. The library contained 750,491 volumes. Chancellor, Lotus Delta Coffman, Ph.D., LL.D.

**MINORITIES.** See LEAGUE OF NATIONS; POLAND under *History*.

**MISSISSIPPI. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 2,009,821; in 1920 it was 1,790,618. The native white population was 989,807 (1930), 845,943 (1920). The Negro population was 1,009,718 (1930), 935,184 (1920). Thus the native whites, though not yet quite equal in number to the Negroes in 1930, had increased at a rate sufficiently more rapid in the decade almost to overcome their numerical inferiority. The foreign-born white population, only 8019 in 1920, had decreased to 7049 in 1930. The State contained, in 1930, 1458 Indians and 1221 Mexicans; the latter group had been classed in 1920 with the foreign-born whites. Jackson, the capital and most populous city, had 48,282 inhabitants (1930), 22,817 (1920); Meridian, 31,954 (1930), 23,399 (1920); Vicksburg, 22,943 (1930), 18,072 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton	1931	3,988,000	1,725,000*	.....
	1930	4,243,000	1,484,000*	.....
Corn	1931	2,299,000	42,532,000	\$17,018,000
	1930	1,999,000	22,988,000	22,528,000
Hay, tame	1931	320,000	440,000*	4,224,000
	1930	250,000	237,000*	3,910,000
Sweet potatoes	1931	63,000	5,355,000	2,678,000
	1930	45,000	3,825,000	2,869,000
Potatoes	1931	14,000	1,134,000	850,000
	1930	9,000	504,000	832,000

\* Bales.    † Tons.

**MINERAL PRODUCTION.** Some petroleum drilling was undertaken in 1931, for the exploration of what were reported to be promising oil-sand deposits. The total value of the mineral production of the State was \$2,572,616 for 1929; for 1928, \$2,634,347.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 1912 (about 44 per cent more than in 1927).

Wage earners employed in these establishments numbered 52,039 (exceeding by 2.9 per cent the number of those thus employed in 1927). Wages paid to these earners amounted to \$42,508,069 (above 5 per cent more than had been paid in 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$113,093,147 (exceeding such cost for 1927 by about 7 per cent). The manufactured product attained the total value of \$220,209,414 (12 per cent higher than that of 1927).

**FINANCE.** State expenditures in the year ended Sept. 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$18,469,727 (of which \$5,677,539 was for local education); for interest on debt, \$1,413,242; for permanent improvements, \$4,315,278; total, \$22,198,247 (of which \$4,260,437 was for highways, \$2,557,364 being for maintenance and \$1,703,073 for construction). Revenues were \$17,071,346. Funded State debt outstanding on Sept. 30, 1930, totaled \$31,611,049. Net of sinking-fund assets, it was \$31,479,106. On an assessed valuation of \$742,504,531 the State levied in the year ad valorem taxes of \$5,940,036.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 4208.94. There had been, during the preceding year, a trifling addition of 0.35 mile of line, while operation of 75.54 miles had been abandoned. No building of new line or trackage in 1931 was reported.

**EDUCATION.** A state-wide survey of the educational system was undertaken in 1931. Its scope extended from the rural school to the college.

**LEGISLATION.** In a special session the Legislature passed, on October 1, a measure providing for the restriction of the acreage to be planted to cotton in 1932. The plan of restriction conformed to that previously adopted by Texas (see TEXAS under *Legislation*). Provision was made for a State Agricultural Credit Corporation, carrying a \$1,000,000 bond issue. A highway act was passed, raising the tax on gasoline to 5½ cents and authorizing an issue of \$5,000,000 in road bonds as means to meet the requirements for entitling the State to the Federal contribution of highway aid. The heavy deficit of the State Treasury was handled in similar fashion, an issue of \$6,000,000 of the State's bonds being authorized for the purpose of covering it.

A delay in the working of the previous year's act for the issue of State bonds so as to enable the State to take up its outstanding bank-guarantee certificates was corrected by the passage of an act amending defects in the earlier measure authorizing the issue of \$5,000,000 of the State's indebtedness. As a lightening of the incidence of the tax burden, the Legislature provided that the tax payments of 1932 might be made in quarterly installments. The State having had trouble with tax-dodging in the sale of gasoline, a law was passed making the "boot-legging" of this commodity a misdemeanor.

**POLITICAL AND OTHER EVENTS.** The State was troubled early in the year by insufficiency of funds in its treasury. Members of the Legislature, largely opponents of Governor Bilbo, met informally in April and took the occasion to petition him to call a special session to make the necessary provisions for financing. Bilbo, suspecting his opponents of intention to attack his course in office, refused to call the session. The State

Bond Commission, however, negotiated the sale to bankers of some \$2,000,000 in bonds and notes of the State at the end of April. Of this, \$1,000,000 was to provide for the building of a State Hospital for the Insane, and the remainder, in short-term notes, was to defray deficiency in running expense of the State government to the end of 1931.

A law of the Legislature of 1930 providing for an issue of \$5,000,000 of bonds of the State to provide the means to pay off guarantee certificates issued to creditors of failed banks, in excess of the resources of the guarantee fund obtained from the banks, was contested by interests in Jackson. The State Supreme Court decided on March 23 that the proposed bond issue was lawful and valid. The Democratic primary elections, held on August 4, resulted in the choice of H. L. White as regular and of Martin S. Conner as independent candidate for Governor. A run-off primary, held on August 25, gave Conner the nomination over White, assuring his election because of the solidly Democratic politics of the State. Mississippi offered in December one-half of its bonds authorized by the special session of the Legislature, but was unable to sell them.

**OFFICERS.** Governor, Theodore G. Bilbo; Lieutenant-Governor, Bidwell Adam; Secretary of State, Walker Wood; Attorney-General, George T. Mitchell; Treasurer, H. C. Yawn; Auditor, C. C. White; Superintendent of Education, W. F. Bond.

**JUDICIARY.** Supreme Court: Chief Justice, Sydney Smith; Associate Justices, W. D. Anderson, James G. McGowan, George H. Ethridge, W. H. Cook, V. A. Griffith.

**MISSISSIPPI, UNIVERSITY OF.** A coeducational, State institution of higher learning in University, Miss., chartered in 1844 and opened in 1848. The university consists of a college of liberal arts and schools of law, engineering, medicine, pharmacy, education, and commerce and business administration. The enrollment for the autumn of 1931 was 1156, while that for the 1931 summer session was 350. There were 70 faculty members. The library contained approximately 40,000 volumes. The income (appropriation) for the biennium was \$405,000; students' fees amounted to approximately \$180,000. Erection of a new hospital completed the \$1,600,000 building programme which was made possible through special legislative appropriation in 1928. Chancellor, J. N. Powers, M.A., M.Pd., LL.D.

**MISSISSIPPI RIVER.** See FLOODS AND FLOOD PREVENTION.

**MISSOURI POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 3,629,367, in 1920 it was 3,404,055. The native white population increased to 3,249,497 (1930), from 3,039,018 (1920). The foreign-born whites decreased to 149,390 (1930), from 186,026 (1920). The number of Negro inhabitants rose to 223,840 (1930), from 178,241 (1920). The percentage of the Negroes in the whole population rose to 6.2 (1930), from 5.2 (1920). In 1930 the State contained 4989 Mexicans (previously grouped with foreign-born whites) and 578 Indians and 634 Chinese.

Of 1,458,054 persons reported in 1930 as having gainful occupations, 371,251 were in agriculture, 370,787 in the manufacturing and mechanical industries (these including 74,573 in the building industry), 245,020 in trade, 145,379 in transportation, 141,849 in domestic and personal

service, and 86,879 in professional service. St. Louis, the most populous city, had 821,960 inhabitants (1930), 772,897 (1920); Kansas City, 399,746 (1930), 324,410 (1920); St. Joseph, 80,935 (1930), 77,939 (1920); Springfield, 57,527 (1930), 39,631 (1920); Jefferson City, the capital, 21,596 (1930), 14,490 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1931	6,184,000	170,060,000	\$56,120,000
	1930	6,123,000	85,722,000	64,292,000
Hay, tame	1931	2,787,000	2,784,000*	18,931,000
	1930	8,112,000	2,242,000*	26,904,000
Wheat	1931	1,497,000	29,938,000	13,476,000
	1930	1,275,000	17,888,000	13,186,000
Oats	1931	1,865,000	50,355,000	11,078,000
	1930	1,727,000	41,448,000	16,165,000
Cotton	1931	350,000	270,000*	.....
	1930	869,000	161,000*	.....
Potatoes	1931	49,000	8,675,000	2,572,000
	1930	48,000	4,848,000	4,848,000
Sweet potatoes	1931	10,000	900,000	675,000
	1930	9,000	765,000	842,000
Tobacco	1931	8,100	8,505,000*	936,000
	1930	6,200	5,678,000*	875,000

\* Tons. \* Bales. \* Pounds.

**MINERAL PRODUCTION.** The mining of the ores of the State continued in 1930 about as actively as in 1929. There were produced from these ores, in 1930, 199,632 short tons of lead and, in 1929, 198,649 tons. The value of lead produced fell to \$19,963,200 for 1930, from \$25,007,094 for 1929. The mine production of zinc for 1930 was 10,811 short tons and, for 1929, 11,017 tons; by value it fell to \$1,037,856 for 1930, from \$1,454,244 for 1929. Ores yielded also minor values in silver and copper. The clay products of 1929 amounted to \$14,994,548; those of 1928 to \$14,891,273. The cement production of 1930 was somewhat down from 1929, but was exceeded by the shipment from mills, which ran to 8,030,528 barrels for 1930, as against 7,984,337 for 1929; by value, \$11,470,751 for 1930 and \$11,557,905 for 1929. The coal mines, producing 3,408,000 short tons in 1930, were less active than in 1929, when they produced 4,030,311 short tons, valued at \$9,778,000. There were produced, in 1929, 4,397,800 short tons of stone and, in 1928, 3,445,690 tons; in value, \$7,085,323 for 1929 and \$6,137,631 for 1928. The sales of lime producers fell to 261,000 short tons for 1930, from 316,579 for 1929; and by value, to \$1,813,000 for 1930, from \$2,319,886 for 1929. The total value of the State's mineral production was \$78,948,484 for 1929; for 1928, \$74,981,382.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 rendered the number of the State's manufacturing establishments as 5757 (about 5 per cent in excess of their number in 1927). Wage earners in these establishments numbered 201,174 (3 per cent above their number for 1927). Wages paid them amounted to \$238,432,655 (3.6 per cent more than for 1927). The cost of materials for manufacture and of fuel and purchased electricity was \$1,124,967,658 (nearly 12 per cent greater than for 1927). The manufactured product was valued at \$1,876,140,033 (an excess of 12.7 per cent over the figure for 1927). The value added by manufacture was reckoned at \$751,172,375. St. Louis led as a manufacturing centre, having 2704 establishments, 107,468 wage earners on payrolls, a total of \$133,051,352 paid in wages, and a manu-

factured product of \$983,823,009. It thus accounted for about one-half of the manufacturing done in the State in 1929. Kansas City, Mo., ranked next, with 904 establishments, 29,865 wage earners there employed, a wage bill of \$38,402,756, and a product of \$340,890,312.

**FINANCE.** State expenditures of the year ended Dec. 31, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$30,988,165 (of which \$7,373,924 was for local education); for interest on debt, \$3,505,595; for permanent improvements, \$33,408,041; total, \$67,941,801 (of which \$39,116,031 was for highways, \$6,145,687 being for maintenance and \$32,970,344 for construction). Revenues were \$50,749,141. Of these, property and special taxes formed 32.8 per cent; departmental earnings and remuneration to the State for officers' services, 13.5; sale of licenses, 43.5 (including gasoline sale taxes amounting to \$8,602,175). The State's funded debt outstanding on Dec. 31, 1930, was \$92,312,839; of this, \$74,000,000 was for highways. Net of sinking-fund assets, debt was \$90,699,700. On a property valuation of \$4,730,949,500 were levied in the year taxes of \$5,677,139.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 7896.66. Additions of line totaling 13.28 had been made during the preceding year, but 56.53 miles of line had been abandoned. In 1931 were built 85.53 additional miles of first and 45.53 of second track.

**EDUCATION.** With a view to rendering it possible to reconstruct the system of school districts on a basis of greater areas, the Legislature in 1931, according to State Superintendent Lee, in the *Journal* of the National Education Association, enacted a law under which the school districts of the entire State would have the option of joining to make larger districts. A State school fund of approximately \$8,500,000 a year was provided, chiefly to serve as an equalizing fund. In order to furnish support to every elementary teaching unit at the rate of \$750 a year and to every high-school teaching unit at \$1000 a year, there was enacted a law permitting the imposition of a local school tax at the rate of 20 cents on every \$100 of property.

As reported in December, 1931, the number of the State's inhabitants of school age was 948,220. There were enrolled in the public schools, in 1930, 656,073 pupils. Of these, 524,023 were in common schools or elementary grades; in high schools, 132,050. The year's expenditures for education totaled \$55,462,083. Salaries of teachers, by the year, averaged \$932 for men and \$703 for women.

**CHARITIES AND CORRECTIONS.** The State Board of Charities and Corrections, as functioning in 1931, was the central organization in matters of the State's welfare activities. It exercised supervisory duties with regard to jails, almshouses, workhouses, and many hospitals. It performed many duties relating to the safeguarding of unprotected children, and maintained a State home for neglected children committed to its care. Through a Children's Bureau it supervised the treatment of all dependent or neglected children. It licensed maternity hospitals, supervised poor relief, acted in an advisory capacity to county superintendents of public welfare. Hospitals for the insane and a colony for the feeble-minded were under the control of another body, the Eleemosy-



nary Board. The penal institutions, also, were separately operated. The control of the State custodial and eleemosynary institutions was thus only incompletely centralized. Among the institutions of the State were four State hospitals, the Missouri Colony for the Feeble-minded and Epileptic, Missouri State Sanatorium, Confederate Home, State Soldiers' Home, State Penitentiary, Reformatory, Industrial Home for Girls, and Industrial Home for Negro Girls.

**LEGISLATION.** The Legislature met in regular session and enacted a new graduated income tax designed to add about \$5,500,000 to the State's yearly revenue. About \$3,250,000 of the proceeds were to be applied to improving the public schools of the State, chiefly the rural schools. Appropriations made by the session from anticipated general revenue were estimated as exceeding such revenue by \$5,580,000 for the ensuing two years, and were largely cut by Governor Caulfield, exercising the power to veto separate items of appropriation. A school bill was enacted, to assure a minimum of eight months of operation in all the public schools of the State and a guarantee of \$750 a year, at least, for each class or teaching unit. The State law rendering it a felony for bank officers and directors to permit a bank to receive deposits when insolvent and rendering subsequent suspension *prima facie* evidence of such knowledge on their part had been criticized as unjust, and it was repealed. A State highway patrol force of 115 was created. April 13, the anniversary of the birth of Thomas Jefferson, was made a State holiday.

The prevailing Democratic Legislature passed a measure to redistrict the State into 13 districts, in accordance with the new Federal apportionment, for the election of members of the Federal House of Representatives. This measure, providing what were regarded as eight Democratic and five Republican districts, was obnoxious to the Republicans. Governor Caulfield vetoed it. This left the State without any means for the election of its reduced number of Representatives severally by districts. The Governor vetoed likewise an anti-lynching law and a measure for additional aid to disabled children.

**POLITICAL AND OTHER EVENTS.** As the Legislature had failed to redistrict the State for the election of State Senators, Governor Caulfield, later in the year, had recourse to executive proclamation in the effort to obtain the rearrangement of districts that the Republicans had long demanded in vain. The Senatorial districts had remained the same for some 30 years, during which the Democrats had lost control of the State Senate but once. On July 14 Governor Caulfield filed with the Secretary of State a proclamation altering the bounds of the 34 districts, to take effect at once. The authority cited for his action was a provision of the State Constitution to the effect that the Governor, Secretary of State, and Attorney General should establish new district lines within 30 days after the adjournment of the Legislature in case that body had failed to perform the duty. The effort to redistrict by executive action had been made previously under Governor Hyde and had been held invalid in 1921 by a close majority of the State Supreme Court divided on strictly partisan lines. The Democratic State Committee took steps to sue against the proclamation.

The Baltimore & Ohio R.R. system, effecting the final steps in the acquisition of the Chicago

& Alton Railroad Co., extended its territory by this means into Missouri as far as Kansas City. Kansas City adopted a ten-year plan of public improvements involving large capital outlay. The plan provided for the expenditure of \$4,000,000 on a new City Hall, \$2,750,000 for parks and playgrounds, \$2,000,000 for hospitals, \$8,300,000 for traffic arteries, \$3,500,000 for a water-softening plant and allied work, \$4,500,000 for a public auditorium, \$1,000,000 for an incinerating plant and considerable sums for markets, a stadium, river improvement, sewers, an airport, and police and fire stations. At county expense were to be built a court house costing \$4,000,000 and other buildings. The bond issues for the entire plan were voted at a special election held on May 26; they totaled \$39,575,000.

The old Kansas City Joint Stock Land Bank was sold by the Federal receiver on June 4. Its resources of some \$26,000,000 were acquired by a new organization, the Phoenix Joint Stock Land Bank, established in Kansas City and chartered to make farm loans in Missouri and Kansas. In a special election held on September 29 to fill the vacancy of a Federal Representative in the Seventh District, Robert D. Johnson, Democrat, was elected, defeating John W. Palmer, Republican, and a third independent candidate, by a majority of 5 to 4, in what had been mainly Republican territory.

**OFFICERS.** Governor, Henry S. Caulfield; Lieutenant-Governor, Edward H. Winter; Secretary of State, Charles U. Becker; Auditor, L. D. Thompson; Treasurer, Larry Brunk; Attorney-General, Stratton Shartel; Superintendent of Public Schools, Charles A. Lee.

**JUDICIARY.** Supreme Court: Chief Justice, William T. Ragland; Associate Justices, Berryman Henwood, Frank E. Atwood, Earnest S. Gantt, William F. Frank, John Turner White, George R. Ellison.

**MISSOURI, UNIVERSITY OF.** A State institution of higher education in Columbia and Rolla, Mo., founded in 1839. The enrollment for all divisions for the first semester of 1931-32 was 4668, of whom 3373 were men and 1295 women. The total enrollment for the 1931 summer session was 2741, of whom 1250 were men and 1491 women. The total annual enrollment of all classes of students, including those in correspondence and extension courses, was 8473. There were 456 faculty members. The endowment of the university was approximately \$2,500,000, and the total income from all sources was approximately \$4,200,000. The libraries contained 287,117 volumes. President, Walter Williams, LL.D.

**MIXED CLAIMS COMMISSION.** See ARBITRATION, INTERNATIONAL; MEXICO under *History*.

**MODERNIST ART.** See ART EXHIBITIONS.

**MODERN LANGUAGE STUDIES.** See PHILOLOGY, MODERN.

**MOHAIR.** See WOOL.

**MOLDAVIAN SOCIALIST SOVIET REPUBLIC.** See UKRAINE.

**MOLUCCA ARCHIPELAGO.** See NETHERLAND EAST INDIES.

**MONACO**, mōn'ă-kō. A principality on the Mediterranean coast, surrounded on the land sides by the French Department of Alpes Maritimes. Area, about 8 square miles; population at the census of 1928, 24,927. It is chiefly known for its gambling resort, Monte Carlo (population in 1928, 11,055). Other towns are Monaco (2085) and La Condamine (11,787). Under the constitu-



tion of Jan. 7, 1911, the Government consists of the Prince, assisted by a Council of State and a National Council elected by universal suffrage. Revenue is mainly derived from the gambling concession, which is leased for about \$450,000 annually. Receipts of the gambling resort, the Monte Carlo Casino, for the fiscal year ended Mar. 31, 1931, totaled \$5,250,000 and gross expenditures were nearly \$3,000,000. The ruler in 1931 was Prince Louis II. A decree issued by Prince Louis, Dec. 20, 1930, dissolved the Council of State and National Council and suspended some of the constitutional guarantees (see 1930 YEAR BOOK).

**MONASH, GEN. SIR JOHN.** An Australian soldier and engineer, died Oct. 8, 1931, in Melbourne where he was born June 27, 1865. He attended the Scotch College and Melbourne University, and on graduation in 1884 practiced as a civil engineer. Made brigade commander in the Australian Army in 1915, he served in the Gallipoli campaign after which, in recognition of his bravery, Monash Valley at Anzac was named for him. He also participated in the Suez Canal defense, and was then transferred to France where during 1916-18, he commanded the 3d Australian division. In May, 1918, he was made a lieutenant general and succeeded Sir William Birdwood in command of the Australian Army Corps in France, achieving distinction at the Battle of Amiens and the subsequent battles which led to the Allied victory. After the Armistice he became director-general of the Department of Repatriation and Demobilization of the Australian Imperial Force in Europe, Africa, and Asia. After 1920 he was chairman of the State Electricity Commission, appointed by act of Parliament, and was a member of the Commonwealth Council of Defense, retiring from the Australian Army in 1930 with the rank of general.

**MONEY.** The table on page 525 from the annual report of the director of the United States Mint shows the distribution of the stock of money in the United States on June 30, 1931, June 30, 1930, Oct. 31, 1920, Mar. 31, 1917, June 30, 1914, Jan. 1, 1879.

**MONEY RATES.** See FINANCIAL REVIEW.

**MONGOLIA.** A huge and vaguely defined region lying west of Manchuria and south of the Siberian territories of the Soviet Union. It is divided politically into Inner Mongolia, which is administratively a part of China, and Outer Mongolia, an independent soviet republic in close relations with the Soviet Union. The total area is estimated at from 1,367,000 to 1,875,000 square miles and the total population at 750,000 Mongols and 100,000 others, chiefly Chinese and Russians. The nomadic Mongol and Kalmuk tribes live mainly by stock raising and furs, skins, hides, horns, and wool are the principal exports. The soil is naturally fertile but needs irrigation to be productive. Gold, iron, coal, copper, silver, and tin are found, but are not worked extensively.

**INNER MONGOLIA.** In 1928, the Nationalist Government of China made provinces of the former special administrative districts of Jehol, Suiyuan, and Chahar, into which Inner Mongolia had been divided (see CHINA under *Area and Population*). Chengteh, Kweisui, and Kalgan are the respective provincial capitals. In recent years there has been a steady influx of Chinese settlers, who are extending the area under cultivation.

**OUTER MONGOLIA.** Established as an independent republic along soviet lines in May, 1924, Outer Mongolia has an area of 714,000 square

miles and a population (1928) of 676,000, of whom 579,000 are Mongols, 90,000 Russians, and 7000 Chinese. The capital, Ulan Bator Khoto (City of the Red hero), formerly known as Urga, has about 60,000 inhabitants. Shale coal mines at Nalaiha, near the capital, produced 10,000 tons in 1927; salt and precious stones are mined. The net national income is estimated at about \$10,000,000 annually.

Foreign trade has shown a steady increase. In 1927 exports were valued at 25,259,000 tuhriks and imports at 24,608,000 tuhriks (1 tuhrik, the unit of currency, equals about \$0.36 U. S. currency). In the same year 63.6 per cent of the total trade was with China and 36.4 per cent with the Soviet Union. There are no railways, but motor transportation is developing, particularly on the main trade route to China via Ulan Bator Khoto and Kalgan. A small steamer plies on Lake Kosogol and there is an air line between Ulan Bator Khoto and Verkhneudinsk on the Trans-Siberian Railway.

For political developments in 1931, see CHINA under *History*. Also consult I. I. Serebrennikov, "A Soviet Satellite: Outer Mongolia Today," *Foreign Affairs* (April, 1931).

**MONOPLANES.** See AERONAUTICS.

**MONTANA.** POPULATION. According to the Federal Census of 1930 the population of the State on Apr. 1, 1930, was 537,606; in 1920 it was 548,889. The number of native whites increased slightly to 444,366 (1930), from 440,640 (1920). Foreign-born whites decreased to 72,961 (1930), from 93,620 (1920). There were 1256 Negroes (1930), 1658 (1920); 2571 Mexicans (1930) previously classed as foreign-born whites; 14,798 Indians, 486 Chinese, and 753 Japanese were also numbered in the population of 1930. The urban population (living in communities of at least 2500) increased during the decade to 181,036, from 172,011; the rural declined to 356,570, from 376,878. Of 216,471 persons listed as in gainful occupations in 1930, 79,678 were in agriculture, 26,982 in manufacturing and mechanical industries, 24,303 in trade, 23,379 in transportation and 17,655 in mining, quarrying, and petroleum extraction. The population of Butte was 39,532 (1930), 41,611 (1920); Helena, the capital, had 11,803 inhabitants (1930), 12,037 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Wheat .....	1931	2,182,000	14,684,000	\$ 8,053,000
	1930	4,217,000	35,313,000	17,096,000
Hay, tame ..	1931	1,636,000	1,492,000*	13,428,000
	1930	1,619,000	1,726,000*	18,986,000
Oats .....	1931	183,000	2,654,000	876,000
	1930	305,000	6,948,000	1,844,000
Flaxseed ..	1931	144,000	331,000	364,000
	1930	481,000	1,780,000	2,332,000
Potatoes ...	1931	19,000	1,805,000	1,083,000
	1930	18,000	1,764,000	1,040,000
Corn .....	1931	123,000	1,722,000	982,000
	1930	141,000	1,692,000	1,117,000
Barley .....	1931	189,000	1,946,000	817,000
	1930	232,000	3,828,000	1,569,000
Sugar beets .	1931	54,000	614,000*	...
	1930	45,000	572,000*	4,191,000
Dry beans ..	1931	87,000	355,000*	568,000
	1930	49,000	529,000*	2,169,000

\* Tons.    † 100-lb. bags.

**MINERAL PRODUCTION.** Of copper, zinc, silver, lead and gold, which normally constitute in their aggregate much the greater part of the value of the State's yearly mineral yield, the value pre-

LOCATION, OWNERSHIP, AND PER-CAPITA CIRCULATION OF UNITED STATES MONEY, JUNE 30, 1931  
[From Annual Report of the Director of the Mint, 1931]

Kind of money	Money held in the Treasury				Money outside of the Treasury			
	Amount held in trust against gold and silver certificates (and Treasury notes of 1890)	Reserve against United States notes (and Treasury notes of 1890)	Held for Federal reserve banks and agents	All other money	Total	Held by Federal reserve banks and agents*	In circulation Amount	Per capita*
Gold coin and bullion . . .	\$3,696,076,869	\$1,701,514,389	\$156,039,088	\$1,776,690,378	\$61,835,014	\$1,259,842,230	\$363,020,200	\$2.93
Gold certificates . . . . .	.....	.....	.....	.....	1,701,514,389	\$896,822,030	705,004,841	\$2.93
Standard silver dollars . .	498,497,281	494,586,776	.....	.....	41,461,046	7,135,008	34,326,038	8.03
Silver certificates . . . . .	.....	.....	.....	3,908,505	493,349,026	116,200,102	377,148,924	28
Treasury notes of 1890 . .	.....	.....	.....	.....	493,349,026	.....	877,148,924	3.04
Subsidiary silver . . . . .	5,692,865	.....	.....	.....	1,239,750	.....	1,239,750	.01
Minor coin . . . . .	4,607,053	.....	.....	5,692,865	302,926,500	29,779,482	273,147,018	.20
United States notes . . . .	3,523,480	.....	.....	4,607,053	122,279,980	4,886,964	117,393,016	.95
Federal reserve notes . . .	1,402,130	.....	.....	3,523,480	343,157,536	43,730,245	299,427,291	2.41
Federal reserve bank notes .	42,487	.....	.....	1,402,130	2,100,176,320	391,747,538	1,708,428,782	13.77
National bank notes . . . .	17,890,685	.....	.....	42,487	2,931,475	2,097	2,929,378	.02
Total June 30, 1931 . . . .	\$4,227,734,850	\$2,196,103,165	\$156,039,088	\$1,776,690,378	\$98,902,219	\$7,047,992,013	\$4,821,933,298	\$38.86
Comparative totals:								
June 30, 1930 . . . . .	\$4,021,936,763	\$1,978,447,640	\$156,039,088	\$1,796,239,235	\$91,210,800	\$6,263,074,941	\$4,531,987,962	\$36.71
Oct. 31, 1920 . . . . .	2,436,864,530	718,674,378	152,979,026	1,212,360,791	352,850,336	6,761,430,672	1,063,216,060	53.21
Mar. 31, 1917 . . . . .	2,952,020,313	2,681,691,073	152,979,026	.....	117,350,216	5,126,267,436	4,172,945,014	40.23
June 30, 1914 . . . . .	1,845,575,888	1,507,178,879	150,000,000	.....	186,397,009	3,458,059,755	3,458,059,755	34.92
Jan. 1, 1879 . . . . .	212,420,402	21,602,640	100,000,000	.....	90,817,762	816,266,721	816,266,721	16.92
								1,007,084,483

\* The amount of money held in trust against gold and silver certificates and Treasury notes of 1890 should be deducted from this total before combining it with total money outside of the Treasury to arrive at the stock of money in the United States.

† This total includes \$39,166,138 gold deposited for the redemption of Federal reserve notes (\$113,730 in process of redemption), \$29,415,523 lawful money deposited for the redemption of National bank notes (\$17,959,975 in process of redemption), including notes chargeable to the retirement fund, \$1,350 lawful money deposited for the retirement of additional circulation (act of May 30, 1908), and \$11,826,349 lawful money deposited as a reserve for postal savings deposits.

‡ Includes money held by the Cuban agency of the Federal Reserve Bank of Atlanta.

§ Includes any paper currency held outside the continental limit of the United States.

|| Population of continental United States (estimated) June 30, 1931, 124,076,000; June 30, 1930, 123,191,000; Oct. 31, 1920, 107,096,005; Mar. 31, 1917, 103,716,000; June 30, 1914, 99,027,000; Jan. 1, 1879, 48,231,000.

¶ Does not include gold bullion or foreign coin other than that held by the Treasury, Federal reserve banks, and Federal reserve agents. Gold held by Federal reserve banks under earmark for foreign account is excluded, and gold held abroad for Federal reserve banks is included.

\* These amounts are not included in the total since the money held in trust against gold and silver certificates and Treasury notes of 1890 is included under gold coin and bullion and standard silver dollars, respectively.

† Non-Gold certificates are secured dollar for dollar by gold held in the Treasury for their redemption: silver certificates are secured dollar for dollar by standard silver dollars held in the Treasury for their redemption; United States notes are secured by a gold reserve of \$156,039,088 held in the Treasury. This reserve fund may also be used for the redemption of Treasury notes of 1890, which are also secured dollar for dollar by standard silver dollars held in the Treasury; these notes are being canceled and retired on receipt. Federal reserve notes are obligations of the United States and a first lien on all the assets of the issuing Federal reserve bank. Federal reserve notes are secured by the deposit with Federal reserve agents of a like amount of gold or of gold and such discounted or purchased paper as is eligible under the terms of the Federal reserve act. Federal reserve banks must maintain a gold reserve of at least 40 per cent, including the gold redemption fund which must be deposited with the United States Treasurer, against Federal reserve notes in actual circulation. Lawful money has been deposited with the Treasurer of the United States for the retirement of all outstanding Federal reserve bank notes. National bank notes are secured by United States bonds except where lawful money has been deposited with the Treasurer of the United States for the retirement. A 5 per cent fund is also maintained in lawful money with the Treasurer of the United States for the redemption of National bank notes secured by Governmental bonds.

duced in 1930 fell severely, to \$32,720,416, from \$71,779,547 for 1929. The decline was due in part to lower prices obtainable for all of these metals, in 1930, except gold. It resulted, in part, also from much reduced mining activity. There were treated in 1930 but 2,686,669 short tons of ores bearing any of these metals, as against 4,723,445 tons treated in 1929. In consequence, the mine production even of gold declined to 43,489 fine ounces for 1930, from 54,758 for 1929; by value, to about \$900,000 for 1930, from about \$1,137,000 for 1929. That of silver was reduced to 7,052,889 fine ounces for 1930, from 12,716,977 for 1929; by value, to about \$2,700,000 for 1930, from about \$6,750,000 for 1929. The yield of copper, the principal feature of the State's mineral industry, fell to 196,187,523 pounds, for 1930, from 297,725,973 pounds for 1929, for which year the value of the product was \$52,399,771. The yield of lead for 1930 was 21,306,044 pounds, and for 1929, 39,213,707 pounds with a value of \$2,470,464. Zinc produced in 1930 amounted to 52,841,108 pounds; in 1929, to 136,351,704 pounds, having a value of \$8,999,214. The quantity of coal mined declined to 2,845,000 short tons for 1930, from 3,407,526 tons, in value \$7,561,000, for 1929. There were produced 3,139,000 barrels of petroleum in 1930, as against 3,980,000 in 1929; by value, \$5,300,000 (estimated) in 1930 as against \$7,260,000 in 1929. Increasing natural gas output, for 1929, attained 9,659,000 M cub. ft., in value \$2,377,000. The total value of the State's mineral production was \$93,842,135 for 1929; for 1928, \$74,752,309.

The value of gold, silver, copper, lead, and zinc produced from Montana mines in 1931, according to estimates of the U. S. Bureau of Mines, was about \$18,073,000. This decrease of nearly 45 per cent from the value of \$32,720,416 in 1930 was caused chiefly by the sharp decline in the sales price of copper and the inactivity of nearly all the large producers of silver, lead, and zinc. The value of the gold output decreased from \$899,001 in 1930 to about \$875,600 in 1931. The output of silver decreased from 7,052,889 ounces in 1930 to about 3,920,000 ounces in 1931; it was the lowest output since detailed production figures were first recorded. Copper output decreased from 196,187,523 pounds in 1930 to about 184,482,000 pounds in 1931, and the value from \$25,504,378 to about \$15,312,000, the lowest output and value since 1921. The production of lead decreased from 21,306,044 pounds valued at \$1,065,302 in 1930 to about 8,168,000 pounds valued at \$310,400 in 1931, the smallest output since 1912. The output of zinc recovered from ore mined in Montana decreased from 52,841,108 pounds in 1930 to about 11,550,000 pounds in 1931, and the value from \$2,536,373 to about \$438,900, the lowest output since 1909.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 rendered the number of the State's manufacturing establishments as 583. These employed 13,673 wage earners (slightly fewer than in 1927), to whom were paid wages totaling \$21,718,995 (nearly 5 per cent more than had been thus paid in 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$173,594,372 (some 14 per cent more than the corresponding aggregate for 1927). The manufactured product was valued at \$247,952,720 (exceeding that of 1927 by 21.8 per cent). The value added by manufacture was estimated as \$74,358,348.

**FINANCE.** State expenditures in the year ended

June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$7,404,970 (of which \$1,802,094 was for local education); for interest on debt, \$410,879; for permanent improvements, \$5,626,551; total, \$13,442,400 (of which \$6,293,033 was for highways, \$890,498 being for maintenance and \$5,402,535 for construction). Revenues were \$13,135,098. Of these property and special taxes formed 18.2 per cent; departmental earnings and remuneration to the State for its officers' services, 6; sales of licenses, 36.8 (including taxes of \$3,005,015 on sales of gasoline). The State's funded debt outstanding on June 30, 1930, was \$5,605,252. Net of sinking-fund assets, it was \$3,121,226. On property bearing an assessed valuation of \$443,082,816 were levied in the year State taxes of \$2,023,042.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 5228.14. Additions of line totaling 6.03 miles had been made during the year preceding, while operation of 8.49 miles of line had been abandoned. In 1931 were built 9 miles of additional first track.

**EDUCATION.** For the academic year 1929-30, the number of persons of school age (from 6 to 21 years) was reported as 154,413. There were enrolled in that year, in the public schools of the State, 120,337 pupils. Of these enrolled, 95,769 were reported to be in common schools or in elementary grades, and 24,787 were in high schools. The year's expenditures for public-school education totaled \$15,106,521. Salaries of teachers were stated to range from about \$600 to \$1200 a year in rural schools and from about \$900 to \$1800 in towns and cities. The Legislature of 1931 adopted a codified law covering all the public high schools. This law was described as rendering the provisions for the financing of high schools more nearly dependent upon the needs of the different types.

**CHARITIES AND CORRECTIONS.** The central agency for the institutions having the care and custody of persons is the State Board of Charities. This Board in 1931 consisted of 3 members, each holding under appointment of the Governor, confirmed by the State Senate, for a term of 6 years. The Board had supervisory and advisory powers over charitable and correctional institutions receiving State aid. A Bureau of Child Protection, having as its head a Secretary (Maggie Smith Hathaway), performed extensive duties in the way of safeguarding minors.

**LEGISLATION.** The State Legislature held a regular 60-day session, which ended on March 7. It passed a measure providing, subject to popular referendum, an issue of \$6,000,000 of tax-anticipation warrants on receipts from the tax on gasoline. The proceeds were to enable the State to make, without raising a corresponding amount on taxes, the expenditure necessary to secure it the Federal highway subsidy. A commission of five was created to examine the State's existing system of taxation. A license tax on coal dealers was put under the control of the State Board of Equalization. A constitutional amendment was proposed, to the effect that only taxpayers might vote on tax levies or bond issues. The Board of Equalization was charged with the duty of studying the problem of reducing the expenditure of the State government.

Branch banking was rendered permissible for State institutions, to the limited extent that they

might establish branches in their home counties or counties adjoining, through consolidation with existing banks in such counties. The American Bankers' Association's uniform bank-collection code was adopted. The sale of securities was further regulated by requiring that security salesmen must reside in the State six months in order to become eligible for license and must be bonded for \$1000. Mining and oil companies were required to show at least 75 cents used in property development, out of every dollar of receipts from stock sales, to render their securities legal for sale.

Commercial motor carriers were required to operate under certificates from the Public Service Commission and to pay an annual fee of \$10 for each vehicle operated. Provision was made for the restoration of Fort Owen. The corporation law, unchanged for 35 years, was liberalized. The law on the State high schools was codified, and a system of school budgets was created. A budget system, likewise, was provided for cities. An issue of \$3,000,000 in bonds, later invalidated by the courts, was made for institutional construction.

**POLITICAL AND OTHER EVENTS.** The \$6,000,000 in tax-anticipation warrants which the Legislature had voted as a means to capitalize expected receipts from the gasoline tax were ratified by the people in a special election of May 5 and were subsequently declared valid by the State Supreme Court. Difficulties among the wheat farmers of the State were common by reason of the collapse of prices for their staple, combined with an inferior crop of spring wheat. The North-Dakota-Montana Wheat Growers' Association, with a membership of about 25,000, was reported in April to have severed connection with the Federal Farm Board, against whose policies much opposition was raised.

**OFFICERS.** Governor, J. E. Erickson; Lieutenant-Governor, Frank A. Hazelbaker; Secretary of State, W. E. Harmon; Treasurer, F. E. Williams; Superintendent of Public Instruction, Elizabeth Ireland.

**JUDICIARY.** Supreme Court: Chief Justice, Lew L. Callaway; Associate Justices, John A. Matthews, Albert J. Galen, S. C. Ford, Albert H. Angstman.

**MONTANA, STATE UNIVERSITY OF.** A State institution for the higher education of men and women in Missoula, Mont., founded in 1895. The enrollment for the autumn of 1931 was 1482. In the 1931 summer session 618 students were registered, of whom 205 were men and 413 women. The faculty had 102 members. The productive funds and income for the year amounted to \$700,000. There were about 200,000 volumes in the library, including government documents. President, Charles H. Clapp, Ph.D.

**MONTE CARLO.** See **MONACO**.

**MONTENEGRO,** mŏn'tŭ-nŭ'grŏ. A former Balkan kingdom incorporated in Yugoslavia in 1921. See **YUGOSLAVIA**.

**MONTERRAT,** mŏnt'sŕŕ-tŭ'. One of the presidencies of the Leeward Islands. See **LEEWARD ISLANDS**.

**MONUMENTS, NATIONAL.** See **PARKS, NATIONAL**.

**MOON.** See **ASTRONOMY**.

**MOONEY-BILLINGS CASE.** See **CALIFORNIA** under *Political and Other Events*; **CRIME**.

**MOORE, CLARENCE LEMUEL ELISHA.** An American mathematician, died in Newton, Mass., Dec. 5, 1931. Born near Bainbridge, O., May 12, 1876,

he was graduated from the Ohio State University in 1901 and received the A.M. degree from Cornell University in 1902 and the Ph.D. degree in 1904. He also studied at the universities of Göttingen, Turin, and Bonn. In 1904 he was called to the Massachusetts Institute of Technology as instructor in mathematics, becoming assistant professor in 1909, associate professor in 1916, and professor in 1920. Among the subjects in which he made special investigations were geometry of the sphere and of the circle in space and the differential geometry of hyperspace.

**MOORE, CLIFFORD HERSCHEL.** An American classicist, died in Cambridge, Mass., Aug. 31, 1931. He was born in Sudbury, Mass., Mar. 11, 1866, and was graduated from Harvard University in 1889, receiving the Ph.D. degree from the University of Munich in 1897 and the Litt.D. degree from Colorado College in 1914. After teaching Greek at Phillips Andover Academy for two years, he became instructor in Latin at the University of Chicago in 1894 and assistant professor the following year. In 1898 he transferred to Harvard where he served as assistant professor of Greek and Latin until 1905 and as professor of Latin thereafter. In 1905-06 he was also professor of Latin at the American School of Classical Studies in Rome, and in 1925 was appointed Pope professor and dean of the faculty of arts and sciences at Harvard. He edited Allen's edition of Euripides' *Medea* (1899) and Horace's *Odes and Epodes* (1902) and was the author of *A First Latin Book* (1903); *The Elements of Latin* (with J. J. Schlicher, 1906); *Religious Thought of the Greeks* (1916); and *Pagan Ideas of Immortality* (1918). He also contributed to the **NEW INTERNATIONAL ENCYCLOPEDIA**.

**MOORE, FRANK FRANKFORT.** A British novelist and dramatist, died at Saint Leonard's, East Sussex, May 11, 1931. He was born in Limerick, Ireland, May 15, 1855, and attended the Royal Academical Institution, Belfast. He was engaged in journalism during 1876-92, recounting his experiences in *A Journalist's Note-Book* (1894). His novels were generally of a sensational kind, and included: *Coral and Coconut* (1890); *I Forbid the Banns* (1893); *A Gray Eye or So* (1893). He also wrote *Life of Oliver Goldsmith* (1910) and *Truth about Ulster* (1914).

**MOORE, GEORGE FOOT.** An American theologian, died in Cambridge, Mass., May 16, 1931. He was born in West Chester, Pa., Oct. 15, 1851, and was graduated from Yale in 1872 and from the Union Theological Seminary in 1877. Ordained to the Presbyterian ministry, he was pastor of the Putnam Presbyterian Church in Zanesville, Ohio, for five years. From 1883 to 1902 he was Hitchcock professor of Hebrew at the Andover Theological Seminary. He then became professor of theology at Harvard, and after 1904 was Frothingham professor of the history of religion. He was retired as professor emeritus in 1928. He was for several years editor of the *Journal of the American Oriental Society*, whose president he was in 1911-12. He was also president of the American Academy of Arts and Sciences from 1921 to 1924. His publications include *The Literature of the Old Testament* (1913); *History of Religions* (2 vols., 1913 and 1919); *Metempsychosis*, the Ingersoll lecture at Harvard (1914); and *Judaism* (2 vols., 1927).

**MOORE, MARY.** (LADY WYNDHAM). A British actress, died Apr. 6, 1931, in London where she

was born July 3, 1861. She first appeared on the London stage under the management of John Hollingshead, but soon retired into private life on her marriage in 1878 to James Albery, the dramatist. She returned to the stage in 1885, appearing in Bradford and London as Lady Dorothy in *The Candidate* under the management of Charles Wyndham. Her first stellar rôle was Lady Amaranth in *Wild Oats*, and during 1886-87 she played Ada Ingot in *David Garrick*.

Her other important rôles include: Mrs. Mildmay in *Still Waters Run Deep* (1889); Grace Harkaway in *London Assurance* (1890); Lady Susan Harabin in *The Case of Rebellious Susan* (1894); and Lady Bagley in *Our Mr. Hepplewhite* (1919). She continued under Wyndham's management until 1912, when he discontinued acting, and from 1897 until his death in 1919 was associated with him as joint proprietor of the Criterion, New, and Wyndham's Theatres. She was married to Sir Charles in 1916. At the time of her death she was president of the Actors' Benevolent Fund and chairman of Wyndham Theatres, Ltd., which she organized in 1924.

**MOORE, RICHARD BISHOP.** An American chemist, died in New York City, Jan. 20, 1931. He was born in Cincinnati, Ohio, May 6, 1871, and was educated in England and France and at the University of Chicago, from which he was graduated in 1896. He was instructor in chemistry at the University of Missouri during 1897-1905 and professor of chemistry at Butler College, Indianapolis, during 1905-11. In 1912 he became connected with the U. S. Bureau of Mines as physical chemist in charge of the chemistry and metallurgy of rare metals, and was chief chemist during 1919-23. After 1926 he was dean of science and head of the chemistry department at Purdue University. His original investigations were largely concerned with the properties of rare gases in the atmosphere, such as helium, and the metallurgy of rare metals, especially tungsten, uranium, vanadium, and radium, on which he wrote valuable papers. In 1906 he made a survey for the U. S. Geological Survey of the thermal waters of the Yellowstone National Park for radio-active properties. He was also instrumental in establishing the Radium Institute in New York City.

**MOORE, VERANUS ALVA.** An American veterinarian and bacteriologist, died in Ithaca, N. Y., Feb. 11, 1931. He was born in Houndsfield, N. Y., Apr. 13, 1859, and was graduated from Cornell University in 1887 and with the M.D. degree from Columbian (later George Washington) University in 1890. In the U. S. Department of Agriculture he was engaged in investigation of infectious diseases for the Bureau of Animal Industry from 1890 to 1896 and was chief of the division of animal pathology during 1895-96. He then went to Cornell University where he was professor of comparative pathology, bacteriology, and meat inspection from 1896 to 1929 and was also dean of the New York State Veterinary College after 1908. On his retirement he became superintendent of the Ithaca Memorial Hospital.

**MORATORIUM ON REPARATION AND WAR DEBTS.** See REPARATIONS and WAR DEBTS; GERMANY under *History*; UNITED STATES under *Administration*, *Foreign Affairs*; BANKS and BANKING; PUBLIC FINANCE.

**MORAVIA AND SILESIA.** A Province of Czechoslovakia. See CZECHOSLOVAKIA under *Area and Population*.

**MORAVIANS.** A religious denomination comprising, in the United States, three branches: The Moravian Church (Unitas Fratrum); the Evangelical Union of Bohemian and Moravian Brethren in North America; and the Independent Bohemian and Moravian Brethren Churches. It was formed in Bohemia in 1457 under the leadership of John Hus and Jerome of Prague. The doctrine is evangelical, without a creed peculiar to itself, and in its polity the denomination follows a modification of the episcopacy, having a ministry of three orders: Bishops, presbyters, and deacons.

THE UNITAS FRATRUM, the largest branch, is organized in the United States in two coördinate provinces: the Northern, with a provincial synod meeting every fifth year; and the Southern, of which the provincial synod meets every third year. The church maintains the following four educational institutions: Linden Hall, Lititz, Pa., Moravian College and Theological Seminary, and Moravian Seminary and College for Women, Bethlehem, Pa.; and Salem Academy and College for Women, Winston-Salem, N. C. Missionary workers are maintained in southern California and Alaska, and in Nicaragua, Honduras, the West Indies, Jamaica, Labrador, Surinam, South America, the Himalayas, Unyamwesi, Central Africa, and South Africa. The official periodical, *The Moravian*, is published weekly in Bethlehem, Pa.

On Jan. 1, 1931, there were in the United States 145 churches; 170 ministers; 27,371 communicant members, although the actual membership was estimated at 38,075; and 137 Sunday schools with 24,226 pupils. The five "home provinces" of the American and European branches had a total membership of 58,218. In Europe there were also affiliated societies, known as "Diaspora," with a membership of about 30,000. The foreign missions had a membership of 140,823. A world conference of Moravians was held in Herrnhut, Saxony, in June and July, 1931, for the purpose of reestablishing the International Moravian Church (Unitas Fratrum) on a somewhat different administrative basis than heretofore.

**MORMONS.** See LATTER-DAY SAINTS, CHURCH OF JESUS CHRIST OF.

**MOROCCO.** Occupying the northwestern corner of the continent of Africa, Morocco is divided into three zones: First and most important, the French protectorate, including approximately 85 per cent of both area and population, with Rabat as the political capital and Casablanca as the leading port and commercial centre; second, the Spanish protectorate, a narrow strip of land extending for about 300 miles from the Atlantic Ocean along the Mediterranean, with Ceuta, Melilla, and Tetuan as the principal localities; and third, the international Tangier zone ruled in accordance with the terms of the Paris protocol of July 25, 1928, adhered to by France, Great Britain, Spain, and Italy. The total area is about 218,525 square miles, of which the area claimed by Spain was about 18,300 square miles. In 1931 the area effectively held by the French was estimated at 162,200 square miles.

A census of the French zone taken in March, 1926, placed the population at 4,016,882 native Moslems, 107,552 native Jews, 74,558 French, and 104,712 foreigners, making a total of 4,229,146. That of the Spanish zone was estimated at about 1,000,000 and that of the Tangier zone at about



80,000. The largest towns in the French zone, with their populations in 1931, are Marrakech, 193,852; Casablanca, 161,113; Fez, 107,843; and Rabat, 53,000. In the Spanish zone the largest town is Tetuan, with a population of about 24,000. The population of Tangier is approximately 60,000. The chief languages are French, Spanish, Moorish, Arabic, and Berber dialects. In 1929 there were 48,827 pupils in schools in the French zone.

**PRODUCTION.** Agriculture is the predominant industry. In the French Zone in 1929, there were 8,476,000 acres of arable land, or 8 per cent of the total area, on which wheat, barley, oats, corn, flax, grapes, and olives were grown. Wool production (1929) was about 19,400,000 pounds. Livestock in the same year included 2,107,000 cattle and 8,848,000 sheep. Phosphate exports from the French Zone in 1930 totaled 1,779,000 metric tons. Important manganese deposits at Bou-Arfa were in process of development in 1931; iron ore, coal, zinc, and lead are also found. Agriculture, some iron mining, and tunny fishing are the chief industries in Spanish Morocco.

**COMMERCE.** Imports of the French Zone in 1930 were valued at 2,209,700,000 francs (\$86,621,000) and exports at 712,800,000 francs (\$27,943,000); for 1929 imports were valued at 2,549,800,000 francs and exports at 1,231,000,000 francs. France in 1929 supplied 55 per cent of all imports and took 43 per cent of all exports.

**FINANCE.** Ordinary budget operations in the French Zone for 1930 resulted in receipts of 787,826,620 French francs and expenditures of 802,288,294 francs. The public debt on Dec. 31, 1929, totaled 1,030,624,000 francs (about \$40,400,000). The budget of the Spanish Zone for 1928 balanced at 55,913,441 pesetas, with the help of a Treasury subvention. For 1930, estimated revenues of the Tangier Zone were 25,423,500 francs and expenditures 25,349,569 francs.

**COMMUNICATIONS.** Railways in the French Zone in 1929 extended 1433 miles; there were about 72 miles of line in the Spanish Zone. Motor highways extended 2764 miles in the French, 350 miles in the Spanish, and about 65 miles in the Tangier Zones. A total of 3879 vessels of 4,793,000 tons entered ports of French Morocco in 1930 in the foreign and coastwise trade.

**GOVERNMENT.** The Tangier Zone is permanently neutralized and demilitarized and is governed by an international control organization. The French Zone constitutes a protectorate, under a French and native administration. The office of Sultan continues, but the Sultan is obliged to follow the advice of the French Resident General in all matters. The Spanish Zone is a protectorate, governed by the Spanish High Commissioner. The Sultan in 1931 was Sidi Mohammed. French Resident General, Lucien Saint (appointed Jan. 2, 1929); Spanish High Commissioner, Lopez Ferrer (appointed June 17, 1931); Administrator of the Tangier Zone, M. Le Fur.

**HISTORY.** The overthrow of the monarchy in Spain was accompanied by a mutiny against republican officials among units of the Spanish Foreign Legion at Ceuta in May, 1931, and by riots and a general strike among Moorish workmen in Tetuan and other communities in the Spanish Zone. Order was restored by troops loyal to the republic. Toward the end of the year, the French extended the area under their control south of the Atlas Mountains by a combination of military force and political negotiation. These

operations were understood to be preliminary to the projected construction of a railway from rich mining areas of the South Atlas to Agadir.

**MORROW, DWIGHT WHITNEY.** An American Senator and ex-Ambassador to Mexico, died in Englewood, N. J., Oct. 5, 1931. He was born in Huntington, W. Va., Jan. 11, 1873, and was graduated from Amherst College in 1895 and from the Columbia University Law School in 1899. Admitted to the bar in the latter year, he became associated with the firm of Simpson, Thacher and Bartlett in New York City, becoming a member in 1905. After 1914 he was a member of the banking firm of J. P. Morgan & Co., resigning in September, 1927, to accept appointment as U. S. Ambassador to Mexico. As Ambassador, he was brilliantly successful in promoting friendly relations between the two countries, his outstanding accomplishment being the settlement of the long-standing controversy over Mexico's nationalization of petroleum deposits. He also aided the Mexican Government, under Presidents Calles and Portes Gil, in solving its financial problems and played an important rôle, as a friendly mediator, in the settlement of the struggle between the Roman Catholic Church and the State in Mexico.

He was a delegate to the Sixth Pan-American Conference at Havana in 1928 and to the London Naval Conference in 1930. Following his resignation of the ambassadorship, he was elected Senator from New Jersey in November, 1930, for the unexpired term of Walter E. Edge in the 71st Congress and for the full term in the 72nd Congress, his campaign being conspicuous for the frank and outspoken stand which he took in favor of the repeal of the Eighteenth Amendment. During the World War he served with the Military Board of Allied Supply and was adviser to the Allied Maritime Transport Council, receiving the Distinguished Service Medal for these services. In 1925 he was chairman of the President's Aircraft Board, and two years later sponsored the goodwill flight to Mexico of Col. Charles A. Lindbergh, who later became his son-in-law. He also took an active part in military, civic, and philanthropic matters in his State, being director of the War Savings Committee of New Jersey in 1918 and chairman of the Prison Inquiry Commission of New Jersey in 1917 and of the New Jersey State Board of Institutions and Agencies in 1918-20.

**MORTALITY RATES.** See VITAL STATISTICS and each country under *Area and Population*.

**MORTON, MICHAEL.** A British dramatist, died in Tadworth, Surrey, Jan. 11, 1931. Born in London in 1864, he attended the South Kensington School of Art and in 1883 came to the United States as an actor under Daniel Frohman's management. On his return to London in 1902 he was associated for several years with Sir Herbert Tree as literary adviser and producer. His plays include *Miss Francis of Yale* (1897); *Training a Husband* (1898); *A Rich Man's Son* (1899); *The Yellow Ticket* (1914); *My Superior Officer* (1916); *Jeff* (1916); *On with the Dance!* (1917); *Woman to Woman* (1921); *The Talking Shop* (1921); and *Five Minutes Fast* (1925). He also collaborated with Paul Gavault and Peter Traill in writing numerous plays.

Among his important adaptations are: *Resurrection* (from Tolstoy's novel, 1903); *Colonel Newcome* (from Thackeray's novel, *The Newcomes*, 1906); *Riceyman's Steps* (from Arnold



Bennett's novel, 1926); and *Beauty* (from the French of Jacques Devat, 1929).

**MOSLEM CONGRESS.** See PALESTINE under *History*.

**MOSUL PETROLEUM PIPE LINE.** See IRAQ, SYRIA, and PALESTINE under *History*.

**MOTHERS' PENSIONS.** See MATERNITY PROTECTION; CHILD WELFARE.

**MOTHS.** See ENTOMOLOGY, ECONOMIC.

**MOTION COMMISSION.** See HAITI under *History*.

**MOTION PICTURES.** During 1931 the cinema shared with everything else the burden of depression. It was a difficult period for the producing organizations, with the value of their stocks collapsing, the bankers engaged in assuming control of the industry, the cost of manufacture remaining excessive, the quality of the product showing scant improvement, and the public revealing signs of staying away from their choicest products. In the endeavor to find a way out of their difficulties, the producers tried, however, few novelties, and concentrated on the careful exploitation of familiar lines of story development, rather than upon any strikingly original ideas or methods.

The chief advance made by the motion picture as a dramatic form consisted of a certain suggestion of sophistication, a certain hint of willingness to contemplate something more than the usual cinema topics of material success and the triumph of young love, which slowly seemed to be creeping into the minds of the Hollywood producers. There was, for example, *Five Star Final*, which, though adapted from a stage play, revealed for an ordinarily non-controversial medium a surprisingly controversial propensity for attacking, with considerable indignation, the methods of the more sensational tabloid press. There was, in addition, a fairly large number of photoplays, which had about them a new air of unsentimental boldness, that, though it did not find favor in some quarters, seemed to many a definite sign of intellectual growth.

Despite everything, the favorite topic of the films was the gangster. Though the organization headed by Will Hays was unfriendly towards them and the censors showed signs of extreme dislike, Hollywood continued to turn out a succession of melodramas dealing with the activities of the racketeers. It was the contention of the defenders of this type of photoplay that, since the cinema is essentially a topical dramatic form, it could not be expected to overlook a subject which appeared on the front pages of every newspaper with decided regularity. It was generally conceded, too, that, whatever might be thought of the ethics of these gangster pictures, they were almost invariably handled by their producers with a vigorous dramatic reality and resourcefulness, which were frequently lacking in pictures dealing with more sedate topics.

The two most successful films in this field were *Little Caesar* and *The Public Enemy*. Both of them were stark and bitter in their earnestness and in their realism, but, while *Little Caesar*, despite its merciless treatment of the killer who served as its central figure, provided him with a death which had a touch of tragedy about it, *The Public Enemy* possessed a grim, chilling quality which revealed the gangster as a murderous insect, rather than as an anti-social, but picturesque, adventurer. Among other things, these films established their stars as distinguished

actors of the cinema. Edward G. Robinson, who also played the leading rôle in *Five Star Final*, achieved his position in the screen hierarchy by his work in *Little Caesar* and James Cagney gained recognition by his portrayal in *The Public Enemy*.

It was in *The Public Enemy*, incidentally, that the raciest and most vigorous playwrights of the screen made their appearance. During the year, it had been an axiom of the motion picture that the defects of the medium were chiefly the fault of the writers in charge of story construction and dialogue. In most of the films, the direction was expert, the sets and the lighting admirable, the camera work skillful and the dramatic movement properly dynamic. In nearly every case, however, the quality of the writing was thin, imitative and generally ineffective. Kusbek Glasmon and John Bright, who, in addition, to writing *The Public Enemy*, were the authors of *Smart Money* and *Blonde Crazy*, developed a vein of vigorous, credible, earthy, and heartily sardonic prose, which seemed definitely to belong to the medium of the motion picture. With the exception of Edwin Burke, who wrote effective realistic dialogue for *Bad Girl*, the adaptation of a popular novel by Vina Delmar, Glasmon and Bright were the only writers who appeared to be complete and original screen playwrights.

One of the tendencies of the cinema was towards the manufacture of films about children. The success of *Tom Sawyer* the year before resulted in the making of *Huckleberry Finn*, which was considerably less successful. The most popular of the narratives dealing with juvenile adventures was *Skippy*, based on Percy Crosby's comic strip, which, thanks to the dialogue by Don Marquis and the acting of little Jackie Cooper, proved to be immensely popular. *Sooky*, a sequel to *Skippy*, appeared at the end of the year and gave signs of encountering the usual unhappy fate of sequels. After his success in his first picture, young Cooper appeared, opposite Wallace Beery, in *The Champ* where he became definitely the most admired child actor since Jackie Coogan played with Chaplin in *The Kid*.

It was, incidentally, Charlie Chaplin who provided the only important silent film of the year in *City Lights*. Playing his familiar rôle of the wistfully misfit tramp, Chaplin proved himself as effective and well-beloved as ever in his first comedy in several years, but, although *City Lights* was accepted as one of his best pictures and proved a financial success wherever shown, it did not, as many had hoped, prove to be a harbinger of the return to the pantomimic cinema. For non-dialogue films, the picture-goers were forced to depend on the Russians, but, although the Soviet films continued to be brilliantly photographed and dramatically in earnest, none of them attracted either popular or critical attention during the year when shown in the United States.

The most controversial work of 1931 was Theodore Dreiser's *An American Tragedy*, as adapted by Samuel Hoffenstein and directed by Josef von Sternberg. Before the picture was shown publicly, the author denounced it earnestly and went to court in a futile effort to suppress it as a faithless distortion of the book's viewpoint and literary quality. It was, however, the general belief among screen observers that the picture was an earnest effort to be faithful to



Charles Chaplin and Virginia Cherrill in "City Lights"



Helen Hayes and Ronald Colman in "Arrowsmith"

SCENES FROM TWO OF THE NOTABLE FILM PLAYS OF 1931



*Wide World Photos*

ANNUAL MEETING OF THE ACADEMY OF MOTION PICTURE ARTS AND SCIENCES

From Left to Right Louis B. Mayer, Mrs. Dolly Gann, Marie Dressler, William LeBaron Vise President Curtus, Lionel Barrymore, Mabel Walker Willebrandt, and Governor Rolph

the original and that most of its faults were those which were found by unfriendly observers in the novel itself.

There was no real effort made during the year to restore the general interest in either filmed musical comedies or photoplays in color. *The Smiling Lieutenant*, with Maurice Chevalier in the leading rôle, was in the nature of an operetta, and *Palmy Days*, with Eddie Cantor, was a conventional musical comedy in cinema form. Both of them were economically successful and there was considerable talk about a general return to the medium, but, although a few works of the *Palmy Days* school were tried, in particular *Flying High*, there was no general trend in that direction. Color was used in but a few films, and none of them proved particularly popular.

In addition to *An American Tragedy*, the popular novels which were filmed included Edna Ferber's *Cimarron* and Sinclair Lewis's *Arrowsmith*. The adaptations were carefully faithful in both cases, and in the instance of *Arrowsmith* the work was enthusiastically approved by the author, one of the rare occasions where such a thing had happened. Another tendency in the cinema was towards the production of travel pictures, which would be somewhat out of that routine, to which the public had grown so familiar. There was, in particular, Douglas Fairbanks's *Around the World in Eighty Minutes*, a combination of travelogue and interpolated comedy.

Throughout the year Greta Garbo remained the most discussed and the most spectacular player of the motion pictures. Despite even the chilling medium of sound she was able to maintain herself as a sort of distant, legendary person, even more completely than she had managed during the days when she was enveloped in silence. There were those who insisted that she was less distinctive as a player than as a personality, but it was generally conceded that, with the presentation of her two latest vehicles, *Susan Lenox: Her Rise and Fall* and *Mata Hari*, she proved herself, even more strongly than ever, the most distinguished acting figure of the audible motion pictures.

Among the other players, who were outstanding during 1931, were, as already mentioned, Edward G. Robinson and James Cagney, and, in addition, Helen Hayes, of the stage, for her work in *The Sin of Madelon Claudet*; Jackie Cooper, Wallace Beery, James Dunn, Adolphe Menjou, Marlene Dietrich, Janet Gaynor, Lionel Barrymore, Norma Shearer, Robert Montgomery, Joan Crawford, Jimmy Durante, Estelle Taylor, Sylvia Sydney, Pat O'Brien, the Marx Brothers, Richard Dix, Sally Eilers, Dudley Digges, George Arliss, Claudette Colbert, Miriam Hopkins, Tallulah Bankhead, Ronald Colman, Clive Brook, and Clark Gable. It was Mr. Gable who gave every evidence of being the current matinee idol of the feminine film-goers.

The important photoplays of the year included *Five Star Final*, *Little Caesar*, *The Public Enemy*, *The Front Page*, *Skippy*, *City Lights*, *Smart Money*, *Bad Girl*, *Arrowsmith*, *Street Scene*, *Touchdown*, *Monkey Business*, *Private Lives*, *Frankenstein*, *The Criminal Code*, *Cimarron*, *Dracula*, *Rango*, *Dishonored*, *Tabu*, *The Skin Game*, *The Dreyfus Case*, *Waterloo Bridge*, *The Guardsman*, and *Le Million*. *The Skin Game* and *The Dreyfus Case* were made in England and *Le Million* was produced in France. See EDUCATION

IN THE UNITED STATES under *Motion Pictures and Radio*; PHOTOGRAPHY.

**MOTOR ACCIDENTS.** See PSYCHOLOGY under *Applied Psychology*.

**MOTORBOATS.** An event that occupied the front pages of newspapers all over the world and caused arguments and discussions that were being waged, even as the year closed, was the race in September on the Detroit River, for the British International Trophy, known as the Harmsworth Trophy, the most valued trophy in the motorboat world. Kaye Don of Great Britain, representing Lord Wakefield, was matched against Gar Wood, the holder of the Harmsworth Trophy, and his brother, George Wood.

Don, racing *Miss England II*, won the first heat in record time, but in the second, on Labor Day, Gar Wood in *Miss America IX* flashed across the starting line eight seconds ahead of the signal, followed by Kaye Don who also crossed ahead of the signal. George Wood, who was behind Don, went across the line on time. On the first turn Gar Wood, in *Miss America IX* cut wide and Don flashed across the foaming wake of the roaring American boat. The *Miss England II* hit the wake, bobbed, reared, tossed its driver and mechanics clear, and plunged to the bottom of the Detroit River, to the consternation of the hundred and fifty thousand spectators lining the banks. The authorities, despite the fact that George Wood finished alone, disqualified both boats that had beaten the gun and declared the race "no contest" and the trophy remained in the United States.

Then the bitter controversy began. Wood's action of going over the line ahead of the gun, and drawing Don along with him, was characterized as a "smart Yankee trick" and drew expressions of rage from British and American newspapers and sportsmen. In the first heat of the Harmsworth *Miss England II* was timed in 89.913 m. p. h. for the 30 miles, and 93.017 for one lap, five miles.

Even before the races at Detroit a battle of speed had raged between Don and the veteran Wood. On the Indian River in Florida, March 20, Wood had set a record of 102.256 m. p. h. and April 2, Don, on the Parana River, in Argentina had flashed 103.49. Wood then failed to break this mark, but set the American record when *Miss America IX* was driven at 103.069. Don, however, shattered all marks, and drove a boat the fastest any had ever gone, when on Lake Garda, in Italy, July 9, his *Miss England II* was timed in 110.223.

Victor Kleisrath's *Hotsy Totsy* of Port Washington, N. Y., defending champion, won the Gold Cup at Montauk, establishing a new record of 53.59 for three 30-mile heats.

*El Lagarto*, owned by George Reis of Lake George, N. Y., won the National Sweepstakes at Red Bank, N. J. This same boat had led *Hotsy Totsy* at Montauk for nine laps but was forced out of the race by engine failure. The two boats met again at Washington, D. C., in the President's Cup race, and *El Lagarto* won in two straight heats. The third was called off on account of the first death in American speedboat racing in thirty years. William Frietag of Philadelphia, a veteran driver, was pinned in his seat when *Miss Philadelphia*, which he was driving at high speed, overturned. In the same regatta at Washington, C. Roy Keys' *Core-naught* retired the Secretary of the Navy Cup

by winning it for the third consecutive time.

Outboard racing was again popular and where there was only one American record of more than 50 miles an hour at the start of the year, at the end of the year there were five on the books of more than 51 m. p. h. In October at Salton Sea, Calif., Tommy Estlick of Waukegan, Ill., traveled a mile straightaway in 56.525 seconds, and Charles Harrison, an Englishman, almost tied the mark at Welsh Harp, November 20. Wade Woodworth, former Northwestern University football player, won the annual Albany-New York marathon in the spring, and Ben Rhymers won the 100-mile marathon held at Lake Quinsigamond, Worcester, Mass.

**MOTOR CARS, BUSES, TRUCKS, ETC.** See AUTOMOBILES; RAILWAYS; ROADS AND STREETS; TAXATION under *Vehicle and Gasoline Taxes*.

**MOTOR RACING.** See AUTOMOBILE RACING.

**MOTOR VEHICLES.** See AUTOMOBILES.

**MOUNTAINS, MOUNTAIN CLIMBING, ETC.** See EXPLORATION; GEOLOGY.

**MOUNT HOLYOKE COLLEGE.** An institution for the higher education of women in South Hadley, Mass., founded in 1837. The registration for the autumn session of 1931 was 1019. The faculty, including professors, associate professors, assistant professors, instructors, and chief administrative officers, numbered 138, and there were 55 assistants, graduate assistants, curators, and secretaries. The endowment funds amounted to \$4,001,118 and the income for the year was \$1,260,332. The total amount of gifts and bequests during the year 1930-31 was \$139,563. There were 120,000 volumes in the library. President, Mary Emma Woolley, LL.T.D., L.H.D., LL.D.

**MOVING PICTURES.** See MOTION PICTURES.

**MOZAMBIQUE (PORTUGUESE EAST AFRICA)**, mō'zām-bêk'. A colony of Portugal, occupying the east coast of Africa between Tanganyika Territory and the Union of South Africa. Area, 287,756 square miles; total population in 1929, 3,701,000, including about 17,842 Europeans. The colony is divided into the state-administered Province of Mozambique (area, 235,700 square miles) and the territory of Manica and Sofala administered from Beira by the Mozambique Company under royal charter; area, 52,056 square miles; population, 313,927 (3616 Europeans) in 1928-29. Lourenço Marques (population 37,307) is capital of the Province. The chief products are sugar, maize, cotton, and minerals. For 1929, imports into the Province totaled 14,001,545 escudos gold; exports, 11,335,517 escudos gold (1 escudo gold equals \$1.08). Imports and exports of the chartered territory (1928) were 6,336,000 and 2,436,000 escudos, respectively. Revenues of the Province in 1930-31 were estimated at 331,982,780 escudos. In the chartered colony receipts for 1928 totaled about 64,758,000 escudos and expenditures about 44,570,000 escudos.

The principal ports are Mozambique, Beira, Lourenço Marques, Porto Amelia, and Quelimane. A total of 838 vessels of 3,889,199 tons entered the port of Lourenço Marques in 1929 and 835 vessels of 3,872,453 tons cleared. In the same year, 432 vessels of 1,644,271 tons entered Beira. New port works under construction at Beira in 1931 and the completion of a direct railway route from Beira to Lake Nyasa were expected greatly to increase the traffic of the port. The Province is

under a governor-general, assisted by a governor in each of the six districts. There is a military force of about 3900 men (2400 natives). Governor-General in 1931, José Cabral.

**MOZART ANNIVERSARY.** See MUSIC.

**MÜLLER**, mū'lër, HERMANN. A German statesman, died in Berlin, Mar. 20, 1931. He was born in Mannheim, May 18, 1876. In 1899 he became editor of the Socialist newspaper, *Görlitzer Volkszeitung*, and from 1906 onwards was a leader of the Social Democratic party. In addition to acting as delegate to several international socialist congresses, he conferred on the outbreak of the World War with the French socialists in Paris, but his attempt to determine if an international concerted action of the socialists could avert the war was unsuccessful. He was a member of the Reichstag from 1916 to 1918 and of the National Assembly at Weimar in 1919. He served as Minister for Foreign Affairs during the chancellorship of Gustav Bauer (1919-20) and in this capacity was one of the German signatories of the Versailles Treaty. He was reelected to the Reichstag in 1920. He was twice chancellor, his first term lasting from March to June, 1920, and his second term from June, 1928, to March, 1930.

**MUMMIES.** See ARCHÆOLOGY.

**MUNICH GLASPALAST MUSEUM,** BURNING OF. See ART MUSEUMS.

**MUNICIPAL GOVERNMENT.** The year saw some important changes in the framework of municipal government, mostly additional adoption of the council-manager plan, with a return to the mayor-council plan at Cleveland after eight years of the council-manager plan, and with the adoption of a quite mixed type of city charter at San Francisco. The industrial and financial depression increased the necessity for unemployment relief and other human welfare work in many cities and put some in financial straits. Some cities curtailed expenditures for public improvements while others felt it imperative to do more work of the sort in order to reduce the army of the unemployed. Reduction of salaries became increasingly common through the year, either applying to the higher salaried or all down the scale, even taking in the lower classes of wage earners. A relatively small number of cities postponed for longer or shorter periods meeting payroll demands. Outside of Chicago and associated district and county governments where delayed payrolls began still earlier owing largely to complications over the basis of tax assessments, the most notable example of temporary embarrassment over municipal payrolls was in Philadelphia in December. This was caused by a combination of circumstances including old deficits due to lack of a true budgeting system, delinquencies in paying taxes and inability to market bonds in the usual manner owing to dissatisfaction of bankers and dealers with the city's financial status. The delay in paying salaries in Philadelphia was brief, the city virtually obtaining money by buying its own bonds, "over the counter," with money taken from its sinking fund accumulation. For various details relating to more than a hundred of the larger cities of the United States see Bird, *The Present Financial Status of 135 Cities in the United States and Canada*, a bulletin published by the Municipal Administration Service, New York City; for difficul-

ties in a single city see Fishack, "A Financial Dictatorship for Fall River," *National Municipal Review* (April, 1931).

The return of Cleveland to the mayor-council plan by a charter amendment adopted Nov. 3 (61,000 for and 52,000 against) strikes from the city-manager list the largest city of the United States operating under that plan after failures of three previous attempts to the same end (see earlier YEAR BOOK issues). For detailed critical comment on this change see Fessler, "Why Cleveland Abandoned the Council-Manager Plan," *Public Management* (December, 1931). Three of the larger cities to adopt the council-manager plan during the year were San Diego (148,000 by the 1930 census), Utica, N. Y. (191,000), Binghamton, N. Y. (77,000). The plan was defeated at Toledo, Ohio (291,000 population), on November 3, where the alternatives of the city manager combined with a large or with a small council were both defeated by substantial majorities. At Oakland, Calif. (284,000 population), the council-manager plan voted the previous year went into effect on July 1, following an attempt to baffle it by an intermediate vote on the proposed charter amendment providing for the appointment of the manager by the mayor and the consolidation of all city departments under mayor and manager. The office of manager at Oakland was filled by the appointment of a veteran in the service, O. E. Carr, an engineer who began his city-manager career at Cadillac, Mich., in 1914 and subsequently was manager successively at Niagara Falls, Springfield, Ohio; Dubuque, Iowa; and Fort Worth, Texas. The new form of city charter adopted by San Francisco March 26, by a vote of 59,000 to 46,000 was to become effective Jan. 8, 1932. It is a combination of the old "strong-mayor" type of charter with the city-manager plan. The mayor is chief appointing and executive officer. Under him is a chief of administration in charge of all singleheaded departments: public works, electricity, purchasing, financial, and records. In the matter of removal, the superintendent of operations is at the mercy of the mayor, a two-thirds vote of the supervisors (city council) and also subject to popular recall. The utilities commission has charge of the municipal street railway system, the waterworks, the municipal airport and any other utilities that may be acquired as time goes on.

The recall was successfully applied to the mayor of Seattle in July on charges of giving false reasons for dismissing the superintendent of public utilities and appointing, it was alleged, an incompetent man in his place as head of the city lighting department. The dismissed superintendent, who had served in the capacity named for 25 years, was subsequently reappointed. Seattle recalled its mayor in 1911, but subsequently elected him to office twice. In the first successful recall election in the history of Pasadena, Calif., on December 28, the entire Board of City Directors were recalled and replaced by candidates sponsored by the Pasadena Association. The resignation of the City Manager, R. V. Orbison and the appointment of J. W. Charleville to that post was one of the principal points at issue.

Changes in the government of greater Berlin, Germany, took effect during the year. (For de-

tails see Prof. Dr. Walter Norden, "Berlin's New Government," *National Municipal Review*, December, 1931.)

**BIBLIOGRAPHY.** Among the more important books of the year in this field are: *Who's Who in Government* (New York); Walker, *Municipal Expenditures* (Baltimore); National Industrial Conference Board, *State and Local Taxation of Property* (New York); Manny, *Rural Municipalities* (New York); Fairlie and Knier, *County Government and Administration* (New York); Studenski, *The Government of Metropolitan Areas in the United States* (New York).

**MUNICIPAL LEAGUE.** NATIONAL. See NATIONAL MUNICIPAL LEAGUE.

**MUNICIPAL OWNERSHIP.** The city of Elizabeth, N. J., took over the distribution system of the privately owned waterworks supplying that city on July 15, paying \$4,000,000 to the Elizabethtown Water Co. and \$275,000 to the Plainfield-Union Water Co. The city will buy water from the two companies named, which still supply other municipalities in the vicinity, and also from the city of Newark. On April 15 New York City took title to the property of the Long Island Water Corporation, paying \$2,000,000 for works that supplied the Rockaway section of the city. The city of Peoria, Ill., opened a rail and water terminal, built by the city, on June 15, 1931. Extension at a great total cost of the rapid transit subway system in New York City was being continued. A new plan for acquiring and unifying the street transportation facilities of New York City was reported in December. It provides for the purchase of the Interborough and Brooklyn Rapid Transit systems for \$475,000,000. Public hearings on the proposal were to be held in March, 1932. See RAPID TRANSIT. During the year Detroit, Mich., obtained full control of the transportation system of the city.

The municipally owned Berlin Electric Company, supplying Greater Berlin, Germany, with electric light and power, was changed to a "mixed economic undertaking" in March in order to relieve the financial straits of the city due to a large volume of short-term debts. The stock of the company was divided between the government of the city of Berlin, Prussia, and the Reich and a number of European and American bankers (see *National Municipal Review*, December, 1931).

**MUNICIPAL PLANNING.** See CITY AND REGIONAL PLANNING.

**MURAL PAINTING.** See PAINTING.

**MURDER.** See CRIME.

**MURDOCK.** REAR ADMIRAL JOSEPH BALLARD, U. S. N., RET. An American naval officer, died in Manchester, N. H., Mar. 20, 1931. He was born in Hartford, Conn., Feb. 13, 1851, and was graduated from the U. S. Naval Academy in 1870. He was executive officer of the *Panther* during the Spanish-American War and of the *New York* during 1899-1901. Murdock became commander in 1901, captain in 1906, and rear admiral in 1909. He commanded the *Rhode Island* in the cruise around the world in 1907-09, was commandant of the New York Navy Yard in 1909-10, and served as commander of the second division of the Atlantic fleet in 1910-11 and as commander-in-chief of the Asiatic fleet in 1911-12. He was retired in 1913, but during the World War was ordered to duty at the Portsmouth



(N. H.) Navy Yard. He published *Notes on Electricity and Magnetism* (1884).

**MUSCLE SHOALS.** See ALABAMA under *Political and Other Events*.

**MUSEUMS.** See ART EXHIBITIONS; ART MUSEUMS.

**MUSIC.** GENERAL NEWS. Musical activities during 1931 were, naturally, not unaffected by the unfavorable economic conditions that prevailed during the year, although, all things considered, the adverse effect was less than might have been expected. In the American concert field, reports issued by the two large managerial alliances, the Columbia Concerts Corporation and the NBC Artists Service, stated that advance bookings in September were substantially ahead of those recorded at the corresponding period in 1930. That business depression had not, however, left American musical activities entirely unscathed was indicated in the fall, when it was announced that General Manager Gatti-Casazza and the other non-union members of the Metropolitan Opera Company had accepted a voluntary salary reduction of 10 per cent—whereupon the Chicago Civic Opera Company announced that its members had accepted a 20 per cent reduction.

In Europe, reports from various centres indicated less than normal concert activities. Poor houses and fewer concerts marked the first two months of the year in Vienna, but a slight upward trend was recorded for March and April. A Paris report in April styled the local concert season as the leanest since the World War, with only noted artists able to draw good houses. *Le Guide Musical* recorded a drop of 109 events for the season of 1930-31, as compared with 1929-30. In October, concert bookings in London were said to be only about 50 per cent of normal.

Conditions in Germany led to the organization, in January, of the League of German Concert Givers, which began a movement to correct unnecessarily unfavorable factors, especially high rents for concert halls. In achieving lower rental rates, the League's activities scored some success.

In France, early in the year, a committee was organized for propaganda for music, with a membership including 200 musicians, as well as directors of operatic organizations and conservatories, editors, manufacturers, and social and political leaders.

Apart from the closing of the Kroll Opera in Berlin, a move determined the year before, most of the existing operatic organizations of Western and Central Europe survived 1931, although financial stress led to administrative reorganizations in certain centres. Both the German and Austrian governments passed laws limiting the salaries of the artistic personnel in state-controlled institutions. In Berlin, the "festival weeks" projected for May and June were abandoned, and opera houses in some smaller Central European cities had to close their doors.

Another economy move in Austria, besides the limitation of operatic salaries, was the merging of the State Academy of Music with the State High School of Music.

Musicians suffered from unemployment on both sides of the Atlantic. One remedial move was the organization of orchestras of unemployed musicians; such an orchestra in Berlin began its activities in February, when 160 musicians played under Fritz Steidry's direction. In Paris, an Association of Jobless Musicians, organized under the presidency of Edouard Herriot, began

a series of concerts under Paul Bremond. In America, the competition of the radio and of mechanically reproduced music had made unemployment among musicians a serious problem even before the business depression. The Roxy Theatre, one of the principal motion picture houses of New York, increased its orchestra by 75 previously unemployed players for a series of Sunday morning concerts during the winter.

The concentration of concert management in the United States into the hands of two large alliances was continued with the effecting of an agreement between the NBC Artists Service and the Civic Concert Service of Chicago, and the engagement by the Columbia Concerts Corporation of the two principal Pacific Coast managers, L. E. Behymer of San Francisco and Selby C. Oppenheimer of Los Angeles, as its Western representatives. Both alliances aimed to decentralize musical activities in the United States by promoting concert courses in the smaller communities.

The 175th anniversary of Mozart's birth passed with relatively little notice in America, but there were special programmes and observances both in Berlin and Vienna. The Austrian government designated 1931 as Mozart year, and ordered observances of the anniversary on January 27 in the public schools. At the same time, there was an extraordinary revival of interest in Mozart's nearly forgotten opera *Idomeneo*. The most heralded revision was that made by Richard Strauss and finally produced, after postponement, under his direction at the Vienna State Opera on April 16. Impressions were mixed; some praising Strauss's work on the old score, while others found too much Strauss in the refurbished music.

On declining to conduct the Fascist anthem and the Royal March at a memorial concert of Martucci's works on May 14 in Bologna, considering that their inclusion would not be in harmony with the spirit of the occasion, Arturo Toscanini was assailed and beaten by a group of young Fascists outside the concert hall. As a protest against the treatment of Toscanini, Serge Koussevitzky cancelled an engagement to conduct in Milan during the month of June.

Mr. Toscanini, as in 1930, scored an artistic triumph at Bayreuth, but after the festival it was reported that he was not in sympathy with the prevailing policies at Bayreuth, and would not return for the next festival in 1933.

Mr. Toscanini resumed his work with the New York Philharmonic-Symphony Orchestra on November 23, but, owing to continuing pain in his arm, had to end the first part of his season on December 20, instead of January 10.

As in previous years, there were several discoveries of little known works by famous composers. Early in 1931, the Warsaw pianist, Marie Mirska, discovered a Chopin mazurka in A flat in the Musée Mickiewicz in Paris. The manuscript of Bach's chorale *Sei gegrüsst, Jesu gütig* was discovered in the library of Carpentras, in southern France; it had formerly belonged to the painter and composer, J. J. Bonaventura Laurena. In the summer, at Vienna, Prof. Otto Deutsch discovered 12 German Dances by Haydn, composed in 1792. At Eisenach, Hans Loeffler discovered a valuable eighteenth century treatise on organ playing in the Bach collection of Manfred Gorles. In the University library at Upsala, Sweden, Prof. Bruno Grusnick discovered a "sacred concerto" for five instruments which he

considered, almost beyond doubt, to be the work of Heinrich Schütz.

In October, it was announced that Mrs. Mary Louise Curtis Bok had bought the famous Burrell collection of Wagneriana and brought it from England to Philadelphia.

Steps were undertaken to establish a Berlioz museum in France at La Côte St. André, his birthplace. A Bellini museum was opened in the spring in the composer's house at Catania, Sicily, and was made a national monument.

In January, the first general phonograph record convention was held in Mannheim, Germany, before a gathering of 600. In the spring, the International Concerts Federation held its first congress in Rome, which was attended by delegates from ten countries, including Japan. At a German congress of electrical and radio instruments in the summer at Munich, several new or improved devices were exhibited, including the "Trautonium" and "Mellerton."

The National Federation of Music Clubs held its biennial convention in June at San Francisco, where the programme included the biennial contests for young musicians and performances of works which had won the Federation's prizes.

**ARTISTS.** The most sensational success to be scored during the year by a hitherto little known artist was that of Lily Pons, a young French coloratura soprano, who made her début with the Metropolitan Opera Company in New York on January 3 in the title rôle of *Lucia di Lammermoor*. The singer, whose previous experience had been limited to opera in the French provinces, was immediately acclaimed as an artist of unusual promise, with a voice clear in quality, of notable fluency and wide range. It was noted that her voice sometimes lacked fullness, and had occasional unevenness in the quality of tone, and that her capacity for emotional expression in song was still limited, but, with her vocal assets, intelligence and musicianship, the general impression was that Mme. Pons had begun an unusually brilliant career. Besides singing at the Metropolitan for the rest of the season, she sang in several spring festivals and made an extensive fall tour in the United States, and appeared during the summer in the opera season at the Teatro Colon in Buenos Aires, where she duplicated her North American successes.

Although seventy years old, Ignace Jan Paderewski filled 80 engagements on his 1930-31 American tour, which closed May 22 at the Westchester, N. Y., festival. He played in Paris in June, and made further European appearances in the fall before returning to America.

The fourteen-year-old violinist, Yehudi Menuhin, was honored in June in Paris by being made an honorary member of the "Association Amicale des Prix du Violin du Conservatoire." As before, he gave a limited number of concerts, in America in the winter and in Europe in the spring and fall. In September, he underwent an operation for appendicitis, but was able to resume his concert work later in the autumn. Ruggiero Ricci, eleven-year-old violinist, who had been withdrawn from the concert stage late in 1930 after the legal dispute over his guardianship, resumed his appearances in the autumn of 1931.

One result of the successes of these youthful violinists was the appearance of several other violinists of relatively few years upon the American concert stage. The most promising of these seemed to be Grisha Goluboff, nine, who, like

Menuhin and Ricci, came from California. In Paris, attention was drawn to a fourteen-year-old violinist, Jean Hubeau, who won the Conservatoire's first prize for "accompaniment"—a word which, in this sense, is almost equivalent to "general musicianship."

Adolf Busch, noted German violinist, made his first American tour in the autumn, appearing only as soloist with several prominent orchestras, including the New York Philharmonic-Symphony under Toscanini. Mr. Busch's playing did not cause a sensation, but he was hailed as an accomplished master of his art.

Another German musician who made his American début in the fall of 1931 was the tenor, Richard Tauber, who, in a visit of three weeks, gave six recitals in New York, besides a few appearances in other cities, with programmes specializing in German lieder and songs from the operettas of Franz Lehar.

Carlo Zecchi, a young Italian pianist, made his American début during the winter, scoring a fair degree of success, while not duplicating the sensation caused by Vladimir Horowitz and José Iturbi in their first American appearances. The latter, who returned for another tour in the fall, continued to be the most acclaimed of the younger pianists active in America.

A French pair of pianists, Jean Wiener and Clement Doucet, made their American début in October, with programmes including American jazz as well as more familiar concert numbers. In this field, a loss was sustained when Guy Maier and Lee Pattison concluded an artistic association of 12 years in April; this left the British musicians, Ethel Bartlett and Rae Robertson, as the foremost exponents of two-piano music, among those known in America.

Fewer American musicians than before attempted European appearances, but Charles Kullman, tenor, an American exchange student at the Hochschule für Musik, won much praise after his operatic appearances in Berlin. With a New York recital on November 22, Geraldine Farrar made the last appearance in a career of 25 years before the American public, remaining faithful to her decision to retire before reaching the age of fifty. The soprano planned, however, to sing occasionally over the radio.

**CHAMBER MUSIC.** The fifth festival in the series given at the Library of Congress in Washington under the provisions of the Elizabeth Sprague Coolidge Foundation was held from April 23 to 25. In the choice of material for the programmes the term "chamber music" was interpreted in a very liberal sense. The opening programme, which was repeated in New York on April 26, was devoted to "music with stage action": interpretations, with the aid of a group of mimes and dancers, of Bach's organ toccata and fugue in D minor, troubadour songs arranged by Carlos Salzedo, and Ernest Bloch's string quartet. Hugh Porter was the organist; the Gordon String Quartet played the Bloch work. The stage action had been devised by Irene Lewisohn.

In later programmes, Nina Koshetz sang Russian and French songs; the Spanish guitarist, Manuel Llobet, and Hugo Holle's madrigal singers from Stuttgart made their first American appearances; a small orchestra under Ossip Gabrilowitsch played a symphony in G by Frederick the Great, and the Brosa Quartet of London played Serge Prokofiev's quartet, Op. 50, which he had composed especially for this fifth festival.

The only European chamber music ensemble to make its American debut during the year was the Budapest String Quartet (Emil Hauser and José Roisman, violins; Stephen Ipolyi, viola; Emil Schneider, cello), which was first heard in New York January 4.

**CHORAL MUSIC.** Choral activities in New York sustained a serious loss when the Society of the Friends of Music found it necessary to discontinue its activities in November, shortly after the death of its president and principal sponsor, Mrs. Harriet Bishop Lanier, who, during the Society's 18 years, had contributed between \$500,000 and \$1,000,000 to its support.

The Society of the Friends of Music had been organized in 1913, and at first engaged artists or groups to present music of various types which was considered of artistic value, but seldom heard on the concert stage. In 1921, the Society organized its own chorus, and Artur Bodanzky, a conductor of the Metropolitan Opera Company, became its musical director. This heralded an increasing specialization in music for chorus with orchestra. On Jan. 17, 1931, the Friends gave what was probably the first American concert performance of Beethoven's *Mass in C*, and, for the first time in America, Pfitzner's arrangement of eight choruses by Schumann for women's voices. On October 25, the Society gave Anton Bruckner's *Mass in F minor* for the first time in New York; its only previous American performances had been in 1900, in Cincinnati and Chicago.

The disbandment of the Friends of Music left the Oratorio Society, under Albert Stoessel, and the Schola Cantorum, under Hugh Ross, as the principal concert choruses of New York. The Schola Cantorum, on January 29, introduced to the United States Karol Szymanowski's *Stabat Mater*, and to New York, Constant Lambert's *The Rio Grande*, which, during the year, had hearings in several other American cities.

On June 3, a meeting was held to organize the American Choral and Festival Alliance under the presidency of Mrs. William Arms Fisher, with the increase of public interest in choral singing as one of its principal objects.

**AMERICAN MUSIC FESTIVALS.** The spring festival season in the United States began with the annual event at Lindsburgh, Kansas, April 3 to 5. The Virginia State Choral Festival was held at Charlottesville April 14 to 17, with the Virginian pianist, John Powell, as its principal proponent, and a folk-music programme as an important feature. The biennial festival at Cincinnati, May 5 to 9, was the first under the musical direction of Eugene Goossens. Its principal feature was an impressive performance of Mahler's eighth symphony, the *Symphony of a Thousand*, which had not been heard in America since the performances in Philadelphia and New York in 1916. Two English singers, Muriel Brunskill and Walter Widdop, made American debuts in this festival.

The annual Mozart festival at Harrisburg, Pa., took place May 7 to 9 under the direction of Ward Stephens. On May 15 and 16, Dr. J. Fred Wille conducted the twenty-fifth festival of the Bethlehem, Pa., Bach Choir, presenting nine church cantatas of Bach and the B minor Mass.

The Eastman School of Music at Rochester, N. Y., celebrated its anniversary with a four-day festival of American music under the direction of Dr. Howard Hanson and others. Among works heard for the first time were *Sahdji*, a choral

ballet by the Negro composer, William Grant Still, and *The Marriage of Aude*, a lyric drama with music by Bernard Rogers. Frederick A. Stock and the Chicago Symphony Orchestra took part in the thirty-eighth annual festival at Ann Arbor, Mich., May 14 to 16, and the twenty-third Chicago North Shore Festival at Evanston, Ill., May 18 to 23.

An innovation in the seventh annual Westchester Music Festival, held May 20, 22, and 23 at White Plains, N. Y., under Albert Stoessel's direction, was a performance of opera, Gluck's *Orpheus*, in English, with Margaret Matzenauer in the title rôle. Lily Pons sang in the Cincinnati and Evanston festivals; Ignace Jan Paderewski played in the Ann Arbor, Evanston, and White Plains events. George Sawyer Dunham conducted the twenty-ninth annual festival at Keene, N. H., May 20 to 22. The second annual Talbott Music Festival at Ithaca, N. Y., was held under John Finley Williamson's direction from June 18 to 20, with a volunteer choir of 2500 taking part.

Under Albert Stoessel's direction, the seventy-second annual festival at Worcester, Mass., was held October 7 to 10. The first concert included the first American performance of Arthur Bliss's war memorial cantata *Morning Heroes* and the first performance of Percy Grainger's *Tribute to Stephen Foster*, with a score including musical glasses in its instrumental line-up. In Canada, the Mendelssohn Choir held its annual Toronto festival February 12 to 14.

**EUROPEAN FESTIVALS.** The International Society for Contemporary Music held its ninth annual festival, the first to take place in England, from July 21 to 28 at Oxford and London. Three American works were heard.

In the chamber music concerts at Oxford, Lyeffer Knipper, Josef Koffler, Marcel Delannoy, Otto Jokl, Jean Cartan, Ernesto Halffter and Mario Pilati were represented in the instrumental numbers and Egon Wellesz, Jean Hure, and Jan Malakiewicz in the choral works offered.

In the two London concerts, Gregor Fitelberg, Hermann Scherchen, Constant Lambert and Ferdinand Quinet conducted orchestral works by the two latter composers, Roman Palester, Anton von Webern, Virgilio Mortari, Vladimir Vogel, and the Gershwin and Dukelsky numbers. The choral list included music by Ferenc Szabo, Vaughan Williams and Albert Roussel. The 211th Three Choirs Festival was held at Gloucester, England, from September 6 to 11. Novelties were Gustav Holst's *Choral Fantasia*, Robin Milford's *A Prophet in the Land* and R. O. Morris's *Sinfonia in C major*.

The first festival of American music to be held in Europe was given in Germany at Bad Homburg from July 6 to 8, with programmes selected by Irving Scherke. The repertoire included music by Frederick Jacobi, Roger Sessions, Quincy Porter, Leo Sowerby, MacDowell, Charles Griffes, William Grant Still, and Carl McKinley, besides a programme of music of the Colonial period. Press comment was polite, but noted a lack of originality and profundity.

The Wagner festival at Bayreuth opened July 21 and closed August 19. As in 1930, the repertoire consisted of *Tannhäuser*, *Tristan and Isolde* and the *Ring* cycle, but there were some changes of conductors, Arturo Toscanini again conducted five performances of *Tannhäuser* and also conducted the five performances of *Parsifal*, previously conducted by Dr. Karl Muck, who had retired from Bayreuth activities after the 1930

festival. The three performances of *Tristan und Isolde* were transferred from Mr. Toscanini to Wilhelm Furtwaengler, making his Bayreuth debut; Karl Elmendorff again conducted the two *Ring* cycles.

*Parsifal*, under Mr. Toscanini, was hailed as the highest artistic achievement of the festival, which, despite uncertain conditions in Germany at the time, registered an 8.3 per cent increase in attendance over the 1930 figure. With a delegation of 845, Americans were in a plurality among the foreign visitors at the festival.

The annual opera festival at Munich, which opened July 15, was primarily devoted, as usual, to performances of Wagner's works at the Prinzregenten Theatre and of Mozart's operas at the Residenz Theatre. Pfitzner's *Palestrina* and Strauss's *Der Rosenkavalier* also had two performances each.

Eleven operas were heard in the August festival at Salzburg, Austria, where Bruno Walter, Robert Heger, and Clemens Krauss conducted five Mozart works and *Fidelio*, *Orpheus*, and *Rosenkavalier*.

ORCHESTRAS. The Philharmonic-Symphony Society of New York completed its eighty-ninth season, counting from the organization of the original Philharmonic in 1842, on April 19. Arturo Toscanini conducted until January 19, and returned for the last eight weeks of the season, after Bernardino Molinari had been in charge for a five-week period. The ninetieth season began October 8, when Erich Kleiber returned for a six weeks' stay, lengthened to seven owing to the delay in Mr. Toscanini's return. After the great Italian conductor's departure on December 23 (see above under *General News*) the remaining concerts of 1931 were led by Vladimir Golschmann, of the St. Louis Symphony, and Hans Lange, of the Philharmonic-Symphony.

In April, Mr. Toscanini conducted three works for the first time anywhere, including *Parade and Flirtation in a Chinese Garden*, the latter a transcription of a piano work, by Abram Chasins, a young American composer, and Ildebrando Pizzetti's *Introduction to the Agamemnon of Eschylus*. On December 10, he gave the first American performance of Castelnuovo-Tedesco's overture to *The Taming of the Shrew*. Mr. Molinari's only novelty was *Rossiniana*, a transcription by Respighi of piano pieces of Rossini, introduced January 22.

Scipione Guidi resigned as concertmaster of the Philharmonic-Symphony in April, and was engaged for the corresponding post with the St. Louis Symphony. His successor was Mishel Piastro, formerly concertmaster of the San Francisco Symphony. Ernest Schelling continued as conductor of the orchestra's junior series.

The Manhattan Symphony Orchestra, under Henry Hadley, moved its regular concerts to the new Waldorf-Astoria Hotel for the new season beginning in October. Novelties heard during the year were Dr. Hadley's *Mirtil in Arcadia*, for chorus and orchestra, February 8, and *Halcyone* for tenor and orchestra, March 15.

The training orchestra of the National Orchestral Association gave eight concerts during the year under Leon Barsin's direction; works presented for the first time were *Mayan Legend* by Raul Paniagua, Guatemalan composer-pianist, and *Night on an Island of Phantasy* by Quinto Maganini, a Californian.

The Boston Symphony Orchestra, under Serge

Koussevitzky, continued the observance of its semi-centennial with a Bach festival from March 24 to 29, given as a memorial tribute to the orchestra's founder, the late Major Henry L. Higginson. The presentation of works written for the orchestra's fiftieth season was completed by a symphony by Arthur Honegger, February 13, and Paul Hindemith's *Konzertmusik* for six brass instruments, April 3. Other 1931 novelties were the second symphony of Edward Burlingame Hill, of Harvard University, February 27; Arthur Lourié's *Sonate Liturgique*, in January; Gustav Mahler's Ninth Symphony, October 16; Respighi's orchestration of five *Études-Tableaux* by Rachmaninoff, November 13.

In March, the Philadelphia Orchestra Association created the new post of Musical Director for Leopold Stokowski, giving him entire charge of its musical affairs. A rearrangement of the conductor's schedule divided Mr. Stokowski's time with the orchestra into several periods throughout the season, instead of concentrating it in the autumn and the spring. Ossip Gabrilowitsch, who conducted the orchestra from January until late in March, had to decline an invitation to return the next season.

On April 10, 11 and 13, in Philadelphia and April 21 and 22 in New York, Mr. Stokowski conducted the orchestra in the first American stage performances of Stravinsky's opera-oratorio *Oedipus Rex* and Serge Prokofiev's *Le Pas d'Acier*.

The new season opened October 10. Mr. Stokowski conducted the first three pairs of concerts. The next two weeks, originally planned for Mr. Toscanini, were under the direction of Eugene Ormandy. Fritz Reiner alternated with Mr. Stokowski for the next four weeks, and Alexander Smallens conducted on December 11 and 12.

Novelties heard under Mr. Stokowski's direction were Kurt Weill's *Lindbergh's Flight*, for tenor, chorus and orchestra, and the overture to *The Diadem of Stars* by Ruth Deyo, American composer-pianist, April 4; *Sinfonia Dialectica* by Arthur Lourié, April 17; four études by Stravinsky, October 23; Alexander Tansman's *Toccata*, Anton von Webern's symphony for small orchestra, two études by Wladimir Vogel and Robert Russell Bennett's *Abraham Lincoln, a Likeness in Symphonic Form*, all on October 24. Mr. Bennett's symphony, despite some lack of variety of mood, was held to be a work of considerable consequence, promising much for the future career of this American composer. Mr. Reiner, on November 13, gave the American première of the overture to Toch's *The Fan*.

On February 5, the Cleveland Orchestra moved into its new home, Severance Hall, giving a programme of which Charles Martin Loeffler's *Evocation*, written for the occasion, was the principal feature. The principal donor of the hall, John L. Severance, had contributed \$2,500,000 for the building as a memorial for his wife. On March 26 and 27, the orchestra and the Neighborhood Playhouse of New York gave a programme of mimed interpretations of orchestral works.

For its forty-first season, beginning October 16, the Chicago Symphony Orchestra transferred its evening concerts from Saturdays to Thursdays. Frederick A. Stock conducted most of its concerts; a few others were directed by the assistant conductor, Eric De Lamar, who introduced a suite from his own *Dance of Life* on February 27. In his choice of novelties, Mr. Stock was hospitable towards Chicago composers, who were represented

by Albert Noelte's suite for wind, percussion and harp, March 13; Adolf Bruno's *Overture to a Tragedy*, April 17; Wesley La Violette's violin concerto, *Dedications*, November 26; and Edward Collins's Concert Piece in A minor, December 3.

Fritz Reiner completed his ninth and last season with the Cincinnati Symphony on April 18, and was succeeded by Eugene Goossens, formerly conductor of the Rochester (N. Y.) Philharmonic.

During Mr. Gabrilowitsch's absence in the winter, the Detroit Symphony Orchestra was conducted by Bernardino Molinari, Howard Hanson, Arnold Volpe, and Victor Kolar. Mr. Gabrilowitsch, who was in charge for the remainder of the year, conducted the Detroit Symphony Orchestra and Choir on April 1 in their annual performance of Bach's St. Matthew Passion.

After four seasons under guest conductors, the St. Louis Symphony Orchestra returned to the régime of a permanent conductor, engaging Vladimir Golschmann, who had appeared as a guest leader for two weeks in January, as regular conductor, beginning in October. In November, Mr. Golschmann gave the first American performance of Tansman's *Triptyque* in its revised form for string orchestra.

In November, Henri Verbrugghen, conductor of the Minneapolis Symphony, had to discontinue his work owing to a long illness. Eugene Ormandy, who had been called to Minneapolis as a substitute leader, was engaged as regular conductor.

Issaye Dobrowen, who conducted the San Francisco Symphony Orchestra in the second half of the 1930-31 season, was reengaged to share the following season with Basil Cameron and to return as regular conductor for three seasons.

Karl Krueger, conductor of the Seattle Symphony Orchestra, tendered his resignation, effective at the end of the season, in November, stating that the lack of adequate financial support prevented further growth of the organization.

In Washington, D. C., which long had had to depend on organizations from other cities for its symphonic music, the National Symphony Orchestra made its debut November 2, with Hans Kindler as the conductor.

The thirteenth season of New York summer concerts at the Lewisohn Stadium of City College was held from July 7 to August 31. Willem van Hoogstraten conducted the Philharmonic-Symphony Orchestra in the first three weeks and Albert Coates conducted during the last three; the intervening fortnight was under Fritz Reiner. Hans Lange also conducted several programmes. The special features were two performances apiece of Beethoven's Ninth Symphony and Verdi's Requiem with chorus, two evenings partly devoted to singing by the Hall Johnson Negro Choir and two to dancing by Anna Duncan; three evenings occupied by the Denishawn Dancers, who gave the first American performances of Vaughan Williams's masque, *Job*, and an all-American programme including new music by Robert Russell Bennett and Allan Lincoln Langley. In the second season of the Philadelphia summer concerts, the conductors were Alexander Smallens, Ormandy, van Hoogstraten, Reiner and Coates.

The San Francisco Symphony divided its summer season between the Civic Auditorium in San Francisco and the Woodland Theatre at Hillsborough. In the first concert, Walter Damrosch conducted the first performance of *Eccabibur* by the late Louis Adolphe Coerne, which had won the prize of the National Federation of Music

Clubs for a symphonic work. Other conductors were Sir Hamilton Harty, Pierre Monteux and Dr. Rodzinski.

The same five conductors shared the direction of the summer concerts in the Hollywood Bowl, where the season ran from July 7 to August 29, with four concerts each week. The total attendance for this series, which was completed without a deficit, marked an increase of 36,218 over the 1930 record. Among other American summer series were those of the new Chicago Philharmonic under Adolphe Dumont and the San Diego "Midsummer Nights" under Nino Marcelli.

Despite unfavorable conditions, London suffered no diminution of orchestral activity during 1931. The principal orchestras were the B.B.C. (British Broadcasting Corporation) Orchestra, whose regular conductor was Adrian Boult, and the London Symphony, which was heard under Willem Mengelberg, Nicolai Malko, Sir Thomas Beecham, Hans Weisbach and others. London's senior orchestral society, the Royal Philharmonic, adhered to the guest conductor system, appearing, among others, under John Barbirolli, Vaclav Talich, Alfredo Casella, Ernest Ansermet and Basil Cameron. The Courtauld-Sargent concerts, a recently established series that has become one of the most important features in London's musical life, presented programmes under conductors including Malcolm Sargent, Bruno Walter, Otto Klemperer and Igor Stravinsky.

The annual Promenade Concert season in London began August 8 and closed October 3, with Sir Henry Wood conducting the B.B.C. orchestra. Among novelties performed were Elgar's new *Nursery Suite*, Delius's *Song of Summer*, Eric Fogg's bassoon concerto and Lord Berners's *Luna Park*. Richard Strauss conducted the B.B.C. orchestra in a concert on November 21.

The Berlin Philharmonic Orchestra, under Wilhelm Furtwaengler, made a three weeks' tour of England, Belgium, and Holland in March, and visited Paris in May; the Gewandhaus Orchestra of Leipzig appeared in Paris in June. In the fall, the Orchestre Symphonique de Paris, under Pierre Monteux, made the first trip to Germany to be taken by a French orchestra since the World War, and gave a French programme in Berlin November 19. On October 23, in Berlin, Igor Stravinsky conducted the world premiere of his violin concerto, with Samuel Dushkin as soloist. The work was not hailed as a masterpiece; virtuosity and striking effects were noticed, but there were complaints of slowness of musical substance.

Despite high taxes, Paris continued to have an imposing number of orchestral concerts given by eight organizations, including the Colonne under Pierre, the Lamoureux under Albert Wolff, the Padeloup under Rhene-Baton, the Orchestre Symphonique de Paris under Monteux, a series under Gaston Poulet, and W. Straram's series.

OPERA. During its home season of 1930-31, the Metropolitan Opera Company of New York gave 169 performances, offering 45 works 181 times, in addition to 24 Sunday concerts. Twenty-four works were given in Italian 89 times; 11 works 55 times in German; 9 works 31 times in French; and one work in English 6 times. Ten Italian composers were represented by 76 performances of 21 operas; 8 French composers by 32 performances of 9 operas; 2 Russian composers by 9 performances of 2 operas; and 1 American composer by 6 performances of 1 opera. The most popular composer was Wagner,



with 9 works given 42 times. Six operas of Verdi were heard 24 times, and 4 by Puccini 13 times.

The company began its season of 1931-1932, the forty-seventh regular season at the Metropolitan Opera House and the twenty-fourth under the general management of Giulio Gatti-Casazza, on November 2. During the year, the Metropolitan gave its usual quota of performances at the Academies of Music in Philadelphia and Brooklyn, besides three performances at the Westchester County Centre, White Plains, N. Y., and one in Hartford, Conn. The spring tour, which closed May 4 at Rochester, N. Y., included, as in 1930, a week shared by Baltimore and Washington and a week in Cleveland, but the visit to Richmond and Atlanta was not repeated.

On February 7, the Metropolitan gave the first performance of *Peter Ibbetson*, the second opera by the American composer, Deems Taylor, who adapted his libretto from John N. Randolph's play based on Du Maurier's novel.

The style of the work was musico-dramatic with the orchestra, rather than the voices, as the principal agent of musical expression. Dramatically *Peter Ibbetson* was more effective than Mr. Taylor's first opera, *The King's Henchman*. Critical comment on the music varied; praise was mingled with some disappointment that the composer had not fused the elements influencing his score into a more individual style.

Aided by the appeal of its story, *Peter Ibbetson* had a notable initial success, with six performances at the Metropolitan and four elsewhere. Another American opera, *Merry Mount*, book by Richard L. Stokes and music by Howard Hanson, was first scheduled by the Metropolitan for 1931-1932, but was postponed until the next season.

In the autumn, the Metropolitan produced two more operas for the first time in the United States. Jaromir Weinberger's *Schwanda, der Dudelsackpfeifer*, the most successful novelty of recent years in Central Europe, was produced November 7. While not sensationally acclaimed, the Czech composer's first opera was cordially welcomed; despite some unevenness of merit and occasional derivativeness in its musical ideas, the score pleased through its fresh tunefulness, vivacity and adroitness of construction.

Italo Montemezzi's *La Notte di Zoraima*, which had had its world première at La Scala in Milan January 31, was produced at the Metropolitan December 2. The critical verdict was almost unanimously adverse, noting that Montemezzi had merely repeated musical formulas of his *L'Amore dei Tre Re*, while his new score lacked the former's eloquence and vitality.

The Metropolitan's other novelty of 1931 was Franz von Suppé's *Boccaccio*, produced January 2. The Viennese operetta met with a varied reception at the hands of the critics, some of whom did not consider it among the best representatives of this genre, but it proved successful at the box-office, and Mr. Gatti-Casazza announced another Suppé work, *Donna Juanita*, for 1932.

On October 26, Otto H. Kahn, who had held this office since the beginning of the Gatti-Casazza régime, resigned the chairmanship of the company's board of directors, and was succeeded by Paul D. Cravath, who announced that no change would be made in the general policy maintained by his predecessor.

Among the Metropolitan's new singers, the most striking success was scored by Lily Pons

(see under *Artists*). Georges Thill, Parisian tenor, and Maria Ranzow, German contralto, were first heard in March; the former was reëngaged for the following season. The most prominent new artist appearing in the fall was Max Lorenz, tenor, from the Dresden Opera, who made his American début in *Die Meistersinger*, November 12. Marie von Essen, American contralto, made her Metropolitan début in the same performance, and Carlton Gould, American basso, was first heard in *Die Walküre* November 15.

To replace Wilhelm von Wymetal and Ernst Lert, the Metropolitan engaged two new stage directors for the season of 1932-1933, Alexander Sanin, a Russian, from the Royal Opera in Rome, and Hanns Niedecken-Gebhard, from the Berlin State Opera.

In the matter of new productions of opera in the United States, the most important event of 1931 was the American première of Alban Berg's *Wozzeck*, given by the Philadelphia Grand Opera Company in the Metropolitan Opera House of that city on March 19. Most of the critics considered the music as notably poetic and expressive, poignantly eloquent, and in marked contrast to the externalism, the avoidance of emotion, that has been in vogue with many of Berg's contemporaries. The production, with settings by Robert Edmond Jones, also won warm praise.

The Chicago Civic Opera closed its Chicago season on January 26 and reopened it November 2; the annual tour began late in January with a fortnight in Boston. In Chicago, during the year, the company gave 78 performances of 33 operas by 21 composers; the repertoire also included a ballet, *Chopiniana*, and a scene from *Prince Igor*.

The two works given for the first time in Chicago during 1931 were Max von Schillings's *Mona Lisa*, November 21, and Leonï's *L'Oracolo*, December 7.

Among artists making their first appearances with the company in the fall were Jean Kiepura, Polish tenor; Noel Eadie, English soprano; Claire Clairbert, Belgian coloratura; Paolo Marion, Italian tenor; Iva Paretto, Italian soprano; Serafina di Leo and Leola Turner, American sopranos; and Augusto Boef, Italian baritone.

The annual statement of finances for the home season of 1930-31 disclosed some falling off in attendance and receipts, resulting in the large deficit of \$1,079,483 to be shared by the guarantors. In June, Herbert Witherspoon, as vice president in charge of opera, became the artistic head of the company, while Herbert M. Johnson remained its business head.

In the annual summer season given under Louis Eckstein's direction at Ravinia, north of Chicago, 34 works were performed, mostly in Italian and French. The Ravinia Company also had to face an increased deficit, \$279,829, of which two-thirds was met by Mr. Eckstein.

The operatic division of the Juilliard School of Music in New York gave as its first production in the school's new uptown auditorium a new opera, *Jack and the Beanstalk*, with libretto by John Erskine and music by Louis Gruenberg, November 19 to 21.

In London the spring season at Covent Garden, the first to be aided by a government subsidy, began April 27 and continued for 10 weeks. The German repertoire included Wagner's *Ring* cycle, *Tristan und Isolde* and *Lohengrin*, Mozart's *Die Zauberflöte*, Richard Strauss's



*Der Rosenkavalier* and Johann Strauss's *Die Fledermaus*. The English Opera Company, organized by the Blois-Szarvasy syndicate, began a six weeks' season at Covent Garden September 14.

In Berlin, the State Opera on the Platz der Republik, generally known by its former title of Kroll Opera, closed its doors on July 3, despite strenuous attempts made to preserve it during the preceding months.

Jaromir Weinberger's second opera, *Die Geliebte Stimme*, was first produced at Munich on February 28, under Hans Knappertsbusch's direction. It was found inferior to its predecessor, *Schwanda*. Leos Janacek's last opera *Aus einem Totenhaus*, with a libretto adapted from Dostoevsky, was first produced at Prague in February, and had its Berlin première at the Kroll Opera May 25. Hans Pfitzner's *Das Herz*, produced simultaneously in Berlin and Munich November 12, was well spoken of.

In Vienna, where attendance at the State Opera had fallen off early in the year, the government passed laws limiting salaries drastically and conferring on the management the right to cancel existing contracts as of September 1 and to renew them on its own terms. The highest fee was limited to 1100 schillings (about \$154) per performance.

In Paris, M. Ricou, one of the directors of the Opéra-Comique, resigned in May, pointing out that a state subsidy of 3,000,000 francs, over double the actual annual contribution, would be needed to maintain adequate artistic standards. His colleague, Louis Masson, was elected as sole director in August.

Mme. Anita Colombo, general director of La Scala in Milan, resigned her position in September after a tenure of 14 months. The objection of conductors to taking orders from a woman director was reported to be one of the reasons forcing Mme. Colombo to resign, although her management was said to be efficient.

Meanwhile plans for the reorganization of La Scala placed it under the control of a board of 11 and an executive committee of three, whose chairman was to be chosen by Mussolini. The process of placing the leading Italian opera houses under closer government control was continued. Moscow was operatically active in 1931 with three houses engaged in this form of art. In Liège, Eugene Ysaÿe's *Peter the Miner* was first produced March 5.

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**MUSSOLINI.** See ITALY under *History*.

**MUTATION.** See ZOOLOGY.

**MUTTON.** See LIVESTOCK.

**NAGATELITE.** See MINERALOGY.

**NATAL, ná-tál'.** An original Province of the Union of South Africa. Capital, Pietermaritzburg. See SOUTH AFRICA, UNION OF.

**NATIONAL ACADEMY OF DESIGN.** An institution in New York City, established in 1825 and incorporated in 1828 for the purpose of "the cultivation and extension of the arts of design." The academy holds two exhibitions of contemporary art each year, to which an artist of any country may submit his work. The works which are accepted by the jury of selection are exhibited without charge to the artists; members

of the academy may exhibit one work without approval by the jury. The total number of associate members in 1931 was 150; the number of academicians was 146, including 111 painters, 27 sculptors, 7 architects, and 1 engraver. The following academicians were elected in 1931: Painters, Barry Faulkner, Jules Guerin, Lillian Westcott Hale, William H. Singer, Jr., Van D. Perrine; sculptors, Laura Gardin Fraser and Malvina Hoffman; and architect, J. Monroe Hewlett. The associate members elected were: Painters, Louis F. Berneker, Frederick S. Bosley, Alexander Bower, Ettore Caser and Andrew Winter; and sculptor, Frances Grimes. The officers in 1931 were: President, Cass Gilbert; first vice president, H. W. Watrous; second vice president, Robert Aitken; corresponding secretary, Charles C. Curran; assistant corresponding secretary, Albert P. Lucas; recording secretary, Hobart Nichols; treasurer, Henry Prellwitz; and assistant treasurer, F. Ballard Williams. The council members were: Louis Betts, Sidney Dickinson, Eugene Savage, James Earle Fraser, Roy Brown, and Ernest D. Roth. Headquarters are at Amsterdam Avenue and 109th Street, New York City. See ART EXHIBITIONS.

**NATIONAL ACADEMY OF SCIENCES.** A body of American scientists incorporated by act of Congress, approved by President Lincoln in 1863, for the purpose of investigating, examining, experimenting, and reporting upon any subject of science or art when called upon by any department of the Government. The actual expense of such investigations, examinations, experiments, and reports are met from appropriations made for the purpose, without compensation for any services to the Government. Membership in the academy is limited to 300 active members and 50 foreign associates. New members are elected on nominations from the 10 sections: Mathematics, astronomy, physics, engineering, chemistry, geology and paleontology, botany, zoology and anatomy, physiology and pathology, anthropology and psychology. The following new members were elected in 1931: Henry Bryant Bigelow (zoologist), Edwin Broun Fred (bacteriologist), Edwin Crawford Kemble (physicist), Adolph Knopf (geologist), Robert Harry Lowie (ethnologist), Joseph Haines Moore (astronomer), Robert Lee Moore (mathematician), Hermann Joseph Muller (geneticist), George Linus Streeter (anatomist), and Margaret Floy Washburn (psychologist). One additional foreign associate was elected: Peter Debye (physicist), of the University of Leipzig, Germany.

The academy's annual meeting was held in Washington Apr. 27-29, 1931, and its autumn meeting in New Haven, Conn., Nov. 16-18, 1931. These meetings are devoted to the transaction of business and the presentation of scientific papers by members of the academy or by persons introduced by them. At the April meeting, the Daniel Giraud Elliot Medal for the year 1929 was presented to Henry Fairfield Osborn for his monograph entitled *The Titanotheres of Ancient Wyoming, Dakota, and Nebraska*, published as Monograph 55 of the U. S. Geological Survey; and the Mary Clark Thompson Medal was presented to Edward Oscar Ulrich for his outstanding contributions to geology and paleontology, especially of the Paleozoic of America. At the autumn meeting, the Henry Draper Medal was presented to Miss Annie Jump Cannon for her outstanding contributions to astronomical sci-

ence; and the Agassiz Medal for Oceanography was presented to Henry Bryant Bigelow in recognition of his outstanding contributions to that field of scientific research.

The academy publishes a series of *Memoirs*, consisting of monographs by academicians or sponsored by them and reports of investigations conducted for the Government. The *Proceedings*, issued monthly, are devoted to condensed reports of the most recent scientific discoveries. The following officers, who were elected at the April meeting, assumed their official duties on July 1, 1931: President, William Wallace Campbell (succeeding Thomas Hunt Morgan); vice president, David White (succeeding Fred E. Wright); home secretary, Fred E. Wright (succeeding David White). The foreign secretary, Dr. Robert A. Millikan, and the treasurer, Dr. Joseph S. Ames, continued their respective offices, as these terms expired at other times. Headquarters are at B and 21st Streets, Washington.

**NATIONAL BANKS.** See BANKS AND BANKING.

**NATIONAL CIVIC FEDERATION, THE.** This movement was organized in 1900 to seek the solution of some of the great problems related to social and industrial progress. It provides especially for the discussion of questions of national import, aids in the crystallization of enlightened public opinion, and promotes legislation when desirable.

The organization was active in 1931 through the following departments and committees. The commission on industrial inquiry drafted a proposed bill to amend the Federal Trade Commission Act by adding certain powers to enable it to determine whether proposed or existing mergers intended to or were engaged in practices in violation of the Anti-Trust Acts. The commission also issued a report on *The Writ of Injunction in Industrial Disputes*, describing how it can be shorn of its abuses and made a weapon of righteous defense. The department on subversive activities carried on its programme of opposition to the recognition of the Soviet government, making an intensive study of the Soviet police organization O.G.P.U. and of subversive propaganda promoted by that government in American colleges and universities, public schools, churches, and other institutions. The industrial welfare department issued critical findings against State pensions for the aged and in opposition to compulsory State unemployment insurance. The woman's department continued its activities in favor of restrictive Federal immigration legislation; and the department of active citizenship aimed to interest citizens in participating actively in political organizations.

The officers of the federation in 1931 were: Elihu Root, honorary president; W. N. Doak, honorary vice president; Matthew Woll, acting president; Ralph M. Easley, chairman executive council; Samuel McRoberts, treasurer; and Ellis Searles, secretary. Headquarters are at 570 Lexington Avenue, New York City.

**NATIONAL CONFERENCE OF SOCIAL WORK.** See WELFARE WORK.

**NATIONAL CREDIT CORPORATION.** See BANKS AND BANKING; FINANCIAL REVIEW; UNITED STATES under *Administration*.

**NATIONAL DEBTS.** See articles on each country under *Finance*.

**NATIONAL DEFENSE.** See MILITARY PROGRESS; NAVAL PROGRESS.

**NATIONAL EDUCATION ASSOCIATION OF THE UNITED STATES.** An organization of persons actively engaged in educational work and others interested in education, organized Aug. 26, 1857, at Philadelphia under the name of the National Teachers' Association and on June 30, 1907, incorporated by Congress under its present name. At the annual meeting in July, 1920, the association was reorganized, and provision was made for a representative assembly composed of delegates from State and local educational associations. The other governing bodies are a board of directors, an executive committee of five, a board of trustees, departmental organizations, standing and special committees, and a staff at headquarters which is held responsible for carrying out the decisions of the governing bodies. In 1931 there were 20 departments, each having its own officers, as follows: Adult education, business education, classroom teachers, deans of women, educational research, elementary school principals, kindergarten-primary education, lip reading, rural education, school health and physical education, science instruction, secondary school principals, social studies, special education, superintendence, supervisors and directors of instruction, supervisors and teachers of home economics, teachers' colleges, visual instruction, and vocational education. There were also more than 15 standing and special committees actively at work on professional problems.

The association's sixty-ninth annual meeting was held in Los Angeles, Calif., June 27-July 3, 1931, with a registered attendance of more than 15,000. There were held, in addition to the general session, meetings of the representative assembly, the departments of the association, and a number of allied organizations, at which the progress of the year in education was reviewed. Among the important resolutions adopted on this occasion was that urging the establishment of a department of education, with a secretary in the President's Cabinet, and the efficient integration in this department of the educational activities of the Federal Government. There was also held at this meeting the first national conference on rural education, which was sponsored by the National Education Association, the U. S. Office of Education, and the National Congress of Parents and Teachers. The conference recommended that there be held in Washington a national conference on rural education and culture, following the general plan of the White House Conference on Child Health and Protection.

The association's department of superintendence held its winter convention in Detroit, Mich., the last week in February. The subject of the year book, prepared for presentation at this meeting, was "Five Unifying Factors in American Education," while "Character Education" was selected as the theme of the 1932 year book. The *Journal of the National Education Association* is the organization's monthly publication. It also publishes an annual volume of *Proceedings* and numerous reports on its activities. Research bulletins, containing statistical information on educational subjects, are issued regularly. The enrollment of the association on Dec. 31, 1930, was 216,188. Officers elected for 1931-32 were: President, Florence Hale, Augusta, Me.; secretary, J. W. Crabtree, Washington; and treasurer, Henry Lester Smith, Bloomington, Ind. Headquarters are at 1201 Sixteenth Street, N. W., Washington.

**NATIONAL FORESTS.** See **FORESTRY**.

**NATIONAL GUARD.** See **MILITARY PROGRESS**.

**NATIONALITY.** See **LAW, PROGRESS AND DEVELOPMENTS**.

**NATIONALITY OF WOMEN.** See **LEAGUE OF NATIONS**.

**NATIONAL KINDERGARTEN ASSOCIATION.** An organization founded and incorporated in New York City in 1909, with the object of helping to secure the advantages of kindergarten education for all of the children of the United States. The association is supported entirely by private subscriptions which amount annually to approximately \$45,000. These funds are used for the purpose of promoting a knowledge of, and an interest in the value of the kindergarten as an integral part of the public school system. By the end of 1931 the association had been instrumental in securing the establishment of 1824 kindergartens.

The association has secured kindergarten training for one child for each dollar that it has ever received. It supports no classes but, through its State field secretaries, arouses communities to support them for their own children. During 1928, 1929, and 1930, through the generosity of its members, it was able to set aside a fund from which to aid in the purchase of equipment for 48 classes which otherwise could not have been opened.

The officers in 1931 were: President, Maj. Bradley Martin; honorary president, Hon. P. P. Claxton; first vice president, Mrs. Henry Phipps; second vice president, Mrs. Charles Cary Rumsey; secretary, Mrs. Roger C. Aldrich; executive secretary, Miss Bessie Locke; and treasurer, Julian M. Gerard. Headquarters are at 8 West Fortieth Street, New York City.

**NATIONAL MUNICIPAL LEAGUE.** An organization which acts as a central clearing house for current information on improvements in State and local government throughout the United States, founded in 1894 and incorporated in 1923. Its aim is to promote efficient and democratic government in city, county, State, and nation. Under its direction, committees of experts are constantly at work developing sound principles of governmental methods and administration. Those active in 1931 were as follows: Committee on New Municipal Programme; Committee on Model Administrative Code; Committee on Park and Playground Administration; Committee on Citizen Organization for Municipal Activity; Committee on Organized Citizens' Participation in City Government; Committee on County Government; National Committee on Municipal Standards; and National Committee on Municipal Reporting.

The Committee on Park and Playground Administration, of which Jay B. Nash of New York University was secretary, published in August, 1931, its final report, "Standards of Play and Recreation Administration," as a supplement to the official magazine of the league, the *National Municipal Review*. The first report of the National Committee on Municipal Reporting, entitled "Public Reporting," was also issued in 1931 as a number of the Municipal Administration Service pamphlet series.

The thirty-seventh annual meeting of the league was held in Buffalo, N. Y., Nov. 9-11, 1931, under the general title of the National Conference on Government. The Governmental Research Association, the National Association

of Civic Secretaries, the Proportional Representation League, and the American Legislators' Association cooperated in this conference. The officers elected for 1932 were: President, Murray Seasongood of Cincinnati; first vice president, Louis Brownlow of Chicago; second vice president, Mrs. F. Louis Slade of New York City; treasurer, Carl H. Pforzheimer; secretary, Russell Forbes; honorary secretary, Clinton Rogers Woodruff; editor of the *National Municipal Review*, H. W. Dodds; and public relations secretary, Howard P. Jones. Headquarters are at 261 Broadway, New York City.

**NATIONAL PARKS.** See PARKS, NATIONAL. **NATIONAL RECREATIONAL ASSOCIATION** (formerly PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA). An association organized in 1906 by Theodore Roosevelt, Jacob A. Riis, Luther H. Gulick, and others for the purpose of binding together in a national movement the efforts growing up in various parts of the country to provide safe and adequate areas where children might play under experienced leadership. A staff of field workers is maintained to assist cities in organizing year-round recreation programmes for children, adults, and the community as a whole, to strengthen existing programmes, and to help secure State legislation for facilitating the development of municipal recreation. The association publishes a monthly magazine, *Recreation*, maintains a bulletin service, and publishes pamphlets and books pertaining to recreation.

The community drama service of the association supplies practical suggestions and literature to amateur dramatic groups and prepares programmes for holiday and special-day celebrations. The community music service promotes this form of recreation and provides an exchange for community music information. The national physical education service is active in sponsoring physical education legislation. The association maintains a bureau which gives assistance to Negro groups in securing recreation opportunities and, in cooperation with the U. S. Department of Agriculture, has assigned three full-time workers to help in the training of rural leaders for recreation. The officers of the association for 1931 were: President, Joseph Lee; treasurer, Gustavus T. Kirby; secretary, Howard S. Braucher. Headquarters are at 315 Fourth Avenue, New York City.

**NATIONAL RESEARCH COUNCIL.** A co-operative organization of American scientists, established in 1916 by the National Academy of Sciences, at the request of President Wilson, for the purpose of coordinating the research facilities of the United States for work on war problems involving scientific knowledge. Reorganized by the Academy as a permanent body in 1918, it has maintained close relations with governmental scientific bureaus and has the formal recognition and cooperation of 78 national scientific and technical societies, its membership being composed in large part of appointed representatives of these societies.

The activities of the council are conducted by 11 divisions, each of which has a chairman and from 20 to 40 members. These divisions are composed of two groups, science and technology and general relationships. The science and technology group consists of divisions representing physics, mathematics, and astronomy; engineering and industrial research; chemistry and chemical

technology; geology and geography; the medical sciences; biology and agriculture; and anthropology and psychology. The general relationships group consists of government, foreign, States, and educational relations divisions. Each of these divisions maintains a number of administrative and technical committees.

Among the important undertakings of the council during 1931 were the administration of about 150 post-doctorate research fellowships, and the completion of the series of seven volumes of the *International Critical Tables of Numerical Data, Physics, Chemistry, and Technology*. There were also being prepared, in a series of ten bulletins, a comprehensive treatise on the physics of the earth, and an annual survey of American contributions in chemistry.

The general administrative officers of the council in 1931 were: Chairman, George K. Burgess, director, U. S. Bureau of Standards; first vice chairman, David White, principal geologist, U. S. Geological Survey; second vice chairman, Simon Flexner, director, Rockefeller Institute for Medical Research; treasurer, Joseph Sweetman Ames, president of the Johns Hopkins University; and permanent secretary, Vernon Kellogg. Headquarters of the council are on Constitution Avenue between 21st and 22d Streets, Washington, D. C.

**NATIONAL SAFETY COUNCIL.** A non-profit, co-operative association, not only national but international in scope, devoted to the conservation of human life through a continuous campaign of accident prevention. In 1931, there were 5300 members including industrial corporations, firms, individuals, public officials, schools, Chambers of Commerce, clubs, and civic organizations; about 70 per cent of the memberships were industrial concerns. Allied to accident prevention is the council's work in improving health conditions and preventing vocational diseases in industry.

Affiliated with the National Safety Council are 59 local councils in as many communities throughout the United States. They carry on intensive safety work in approximately 12,000 plants in 150 different lines of industry, reaching more than 10,000,000 persons.

During 1931 the council's activities laid especial emphasis on the highway accident problem. A "safety city" contest was conducted among community council cities. Educational work was intensified among cities and schools throughout the United States, and valuable engineering studies were made in highway safety. Council experts also made special studies of the mental aspects of accidents, and accident research, not only in the highway field but also in industrial and home-safety fields, was greatly broadened.

The council publishes *The National Safety News*, for industries; *Public Safety*, for public officials, police chiefs, etc.; *Safety Education*, for schools; *The Safe Worker*, which is distributed each month to 200,000 workers; and *The Safe Driver* with a monthly circulation of 60,000 copies. It also issues safe practices and health practices pamphlets for industry and carries on extensive work through 27 sections represented in the industrial division, for the exchange of new ideas, new plans, and new practices among members.

The twentieth annual safety congress was held in Chicago in October, 1931, with an attendance of approximately 6000 delegates and visitors. The officers elected were: President, C. W. Bergquist,

Chicago; managing director, W. H. Cameron, Chicago; treasurer, Will Cooper, Chicago; vice president for industrial safety, Arthur M. Tode, New York City; vice president for membership, Howard B. Fonda, New York City; vice president for business administration, G. T. Hellmuth, Chicago; vice president for public safety, Edward Dana, Boston; vice president for engineering, J. E. Culliney, Bethlehem, Pa.; vice president for territorial councils, John E. Long, Albany; vice president of education, A. W. Whitney, New York City; vice president for health, Dr. C. E. A. Winslow, New Haven, Conn.; and vice president for finance, J. I. Banash, Chicago. Executive offices of the council are at 20 North Wacker Drive, Chicago.

**NATURAL GAS.** See GAS, NATURAL.

**NATURALIZATION.** See LAW, PROGRESS AND DEVELOPMENTS.

**NAVAL PROGRESS.** The world-wide economic depression led to such insistent demands for reduction of expenditures for armaments that governments throughout the globe were obliged to give naval appropriations the closest scrutiny.

Naval thought was largely centred around

this entire problem of limitation of armaments. The experts in the inner sanctuaries of sea armaments offices over the entire globe were busily engaged in juggling statistics, devising budgetary equivalents for world monies, comparing tons and guns, yardsticking horse powers, separating reserves from regulars, and performing a thousand and one other diversified functionary details pertinent to armament limitation endeavor.

In this connection Foreign Minister Dino Grandi, of Italy, proposed to the League Assembly and Council at their September sessions that in preparation for the General Disarmament Conference the nations concerned enter into an immediate general agreement on suspension of new armament programmes. Following acceptances from some 50 governments this one-year truce was declared in effect on Nov. 1, 1931. The agreement affected only new naval construction, not building, already under way, or contracted for, and was regarded as having little practical significance save as creating a favorable atmosphere for the February, 1932, conference.

The accompanying table gives the strength of the principal navies at the time the General

STRENGTH OF PRINCIPAL NAVIES, DECEMBER 31, 1931

Type	Under age		Built Over age		Total		Building		Appropriated For		Grand Total	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
<b>United States</b>												
Capital ships ...	15	455,400	...	...	15	455,400	..	...	..	...	15	455,400
Aircraft carriers .	3	77,500	...	...	3	77,500	1	13,800	..	...	4	91,300
Cruisers —												
Category "A" .	8	72,900	1	7,350	9	80,250	7	70,000	3	30,000	19	180,250
Category "B" .	10	70,500	...	...	10	70,500	...	...	...	...	10	70,500
Destroyers .....	69	81,450	186	190,620	255	272,070	5	7,500	6	9,000	266	288,570
Submarines .....	65	58,220	16	8,030	81	66,250	3	3,800	..	...	84	70,050
Total .....	170	815,970	203	206,000	373	1,021,970	16	95,100	9	39,000	398	1,156,070
<b>British Empire</b>												
Capital ships ...	18	555,050	...	...	18	555,050	..	...	..	...	18	555,050
Aircraft carriers .	6	115,350	...	...	6	115,350	..	...	..	...	6	115,350
Cruisers —												
Category "A" .	19	183,686	...	...	19	183,686	..	...	..	...	19	183,686
Category "B" .	30	139,140	6	23,445	36	162,585	4	28,000	3	19,000	43	209,585
Destroyers .....	33	42,211	127	132,170	160	175,381	14	19,290	9	12,375	183	207,046
Submarines .....	48	49,919	11	6,610	59	56,529	6	5,825	3	2,850	68	65,204
Total .....	154	1,085,356	144	162,225	298	1,248,581	24	53,115	15	34,225	337	1,335,921
<b>Japan</b>												
Capital ships ...	10	298,400	...	...	10	298,400	..	...	..	...	10	298,400
Aircraft carriers .	3	61,270	...	...	3	61,270	1	7,600	..	...	4	68,870
Cruisers —												
Category "A" .	8	68,400	2	15,720	10	84,120	4	40,000	..	...	14	124,120
Category "B" .	17	81,455	3	11,920	20	93,375	1	8,500	3	25,500	24	127,375
Destroyers .....	79	95,685	18	16,000	97	111,685	7	11,578	11	15,158	115	138,421
Submarines .....	67	70,973	...	...	67	70,973	5	8,269	8	10,300	80	89,542
Total .....	184	676,183	23	48,640	207	719,823	18	75,947	22	50,958	247	846,728
<b>France</b>												
Capital ships ...	6	133,134	3	52,791	9	185,925	..	...	..	...	9	185,925
Aircraft carriers .	1	22,146	...	...	1	22,146	..	...	..	...	1	22,146
Cruisers —												
Category "A" .	5	50,000	5	54,424	10	104,424	2	20,000	..	...	12	124,424
Category "B" .	6	38,280	4	20,361	10	58,641	1	5,886	2	14,000	13	78,527
Destroyers .....	44	75,494	35	25,719	79	101,200	13	32,501	1	1,500	93	135,201
Submarines .....	57	53,748	22	14,850	79	68,598	31	29,282	..	...	110	97,875
Total .....	119	372,802	69	168,145	188	540,929	47	87,669	3	15,500	238	644,098
<b>Italy</b>												
Capital ships ...	4	86,532	...	...	4	86,532	..	...	..	...	4	86,532
Aircraft carriers .	...	...	...	...	...	...	..	...	..	...	...	...
Cruisers —												
Category "A" .	4	40,000	4	33,642	8	73,642	3	30,000	..	...	11	108,642
Category "B" .	4	19,584	7	22,386	11	41,970	4	21,502	..	...	15	63,472
Destroyers .....	47	53,787	29	22,947	76	76,734	10	12,593	..	...	86	89,327
Submarines .....	30	25,537	16	5,321	46	30,858	29	21,002	..	...	75	52,760
Total .....	89	225,440	56	84,296	145	309,736	46	85,897	..	...	191	395,733

\* Cruisers: Category "A"—Those carrying a gun above 6.1 inches in calibre.  
Category "B"—Those carrying a gun not above 6.1 inches in calibre.

† The 1931-32 programme provided money for the plans of a capital ship of about 23,000 tons.



Disarmament Conference was scheduled to convene. The age limits of various types of ships are as agreed upon in the Washington and London treaties. These limits are 20 years for capital ships and aircraft carriers; 20 years for cruisers laid down since January 1, 1920, and 16 years for those laid down earlier; 16 years for destroyers laid down since Jan. 1, 1920, and 12 years for those laid down earlier, and 13 years for submarines.

In the earlier part of the year attention was centred on the negotiations to bring about a naval settlement between Italy and France to complete the accord reached among the five powers in London in 1930. See FRANCE under *History*.

Mutiny in the navies of Chile and Great Britain caused the widest interest throughout the world. In both instances threat of pay cuts was the primary cause of the disturbance. See CHILE and GREAT BRITAIN under *History*.

ARGENTINA. The naval budget for 1931 was \$56,128,000. The government accepted delivery of the twin cruisers *Almirante Brown* and *Veinticinco de Mayo*, which were ordered from Italian yards and launched in August, 1929. They were handsome and, for their tonnage, very powerful vessels. Displacing only 6800 tons, they were able to steam at 32 knots. Six 7.5-inch guns in double turrets, 12 3.9-inch anti-aircraft guns, and six torpedo tubes constitute the armament. Three flotilla leaders, *Mendoza*, *Tucuman*, and *La Rioja*, of 1520 tons and 36 knots, were completed for the Argentine Navy by J. Samuel White and Company, of Cowes. All bettered their contract speed, *Mendoza* and *Tucuman* maintaining 38 knots for six hours and *La Rioja* reaching 39.4 knots without exceeding the designed horse power. The submarine *Santa Fé* was launched at Taranto, Italy, on July 19. This and the other two Argentine submarines being built by the Tosi yard were to have a cruising radius of 9000 miles. Details were given in the 1930 YEAR BOOK.

AUSTRALIA. In a strenuous effort to balance her budget Australia made further curtailments in naval expenditures. The submarines *Otway* and *Ozley*, which were completed by Vickers-Armstrong in 1927, were transferred to and joined the Royal Navy. As they were similar to the British "O" class they fitted in well with the Mediterranean forces which they joined. The flotilla leader *Anzac* was paid off, and the destroyer *Tattoo*, from the reserve, took her place. There was only one vessel of this class in commission to provide for destroyer training in the commonwealth service, as all others were laid up for economy's sake. The active force included four vessels, the cruisers *Canberra* (commodore's ship) and *Australia*, the aircraft carrier *Albatross*, and the destroyer *Tattoo*.

BRAZIL. The naval budget for 1931 was \$14,741,948. At the expiration of the last four-year contract of the United States Naval Mission, the Brazilian government found itself unable, for economic reasons, to renew the contract. Accordingly the mission was withdrawn on January 31 when a United States naval attaché was accredited to Brazil. While she was taking on ammunition an explosion occurred on the submarine *Humayta* in Rio de Janeiro. The damage was so great that repairs could not be effected. The *Humayta*, one of Brazil's four submarines, was built in the dockyards of La Spezia, Italy.

She is similar in general design to the Italian *Balilla* type. Although completed in 1927 she did not reach Brazilian waters until two years later. The government signed a contract with the Italian ambassador for the purchase of General Balbo's hydroplanes, in which his squadron flew from Italy to Brazil, for 870,000 lire each payable in cash or coffee.

CANADA. The new destroyers *Saguenay* and *Skeena* built by the Thornycroft firm at Southampton were commissioned in May and June, respectively. Characteristics of these ships were given in the 1930 YEAR BOOK. Canada's two remaining destroyers, the *Champlain* and the *Vancouver*, were still in commission at Halifax and Esquimalt, respectively, and it was understood that they would be retained for training purposes.

CHILE. The naval budget for 1931 was \$21,231,082. The six *Serrano* class destroyers, built by Thornycroft's, the three large submarines and the submarine depot ship *Araucano*, all built by Vickers-Armstrong, were delivered. Complete satisfaction was expressed by Chilean naval officers with the performance of these craft. The battleship *Almirante Latorre*, after an extensive refit, including new machinery, at Devonport, returned home. But during this refit Communist agents from Moscow and Berlin established an influence with the sailors. The first week of September, seamen, threatened with pay cuts, took over control of vessels at the Coquimbo naval base. Initial overtures made by the government through Admiral van Schroeder were unsuccessful. Naval cadets at Valparaiso and forces at the Talcahuano base joined the revolt but were overcome, the latter after considerable fighting. The ships off Coquimbo, short of food and coal, and generally demoralized, finally surrendered after a 15-minute airplane bombardment which did little or no actual damage. In subsequent courts-martial the death penalty was invoked for only a few leaders. In new skeleton crews for the ships, about 10 per cent of the old crews were retained. See CHILE under *History*.

CHINA. Early in the year the British, in accordance with the naval agreement, signed in June, 1929, in Nanking, sent an officer to arrange preliminaries for the establishment of a mission to assist the Ministry of the Navy of the Nationalist government in the projected reorganization and modernization of the Chinese Navy. During the strife with the Japanese in Manchuria the naval forces played no part.

DENMARK. The 1930 YEAR BOOK told of the drastic reductions in naval armaments being made by the Socialist government. On Mar. 11, 1931, the lower House of the Danish Parliament passed a measure to abolish the standing army and reduce the navy to the status of a coast and fish patrol. Up to the end of the year, the bill had not received the approval of the upper Chamber. See DENMARK under *History*.

FINLAND. The first gunboat of the new naval programme was launched in 1931. The principal details are: tonnage, 4000; length, 302 feet; beam, 52.5 feet; draft, 15 feet; horse power 4000; speed, 16 knots; armament, four 10-inch guns, eight 4.3-inch, and four rapid fire guns. It was not expected, however, that she would be ready for service before 1934. It may be recalled that, while discussions regarding the establishment of a navy in Finland had been going on



since 1921, the law creating one was not passed until December, 1927.

FRANCE. The naval budget for 1931 amounted to \$134,421,968. This did not include amounts expended by the Air Ministry for naval purposes. The average naval personnel for the year was 4384 officers and 58,833 men; these figures to exclude the personnel of the Naval Air Force that were under control of the Air Ministry. Despite the very large superiority of France over other nations in total number of airplanes in their armed forces only 89 machines (exclusive of spares) were carried on board ship.

The steady increase in the French navy continued. There was probably no other period in French history in which their naval power had developed so steadily and progressively as in the years since the World War. The handicap of frequent cabinet changes did not check the continuity of the development. Cruisers and destroyers particularly, grouped in homogeneous classes, each group marking an advance over its predecessor, were ordered, laid down, and completed according to schedule. Since the Washington treaty France had 152 vessels with a total tonnage of 329,646 built, building, or appropriated for. The number of such ships exceeded that of any other nation, although Great Britain's tonnage was slightly larger.

The 4800-ton mine laying cruiser *Pluton*, on her trials during the year, was considered to be the most up-to-date mine layer in existence. The leading officials of the French navy stressed the potential value of mining tactics on warfare, especially in some of the narrow European waters. The point was never lost sight of in framing combined manœuvres. Not only had new construction continued apace but older vessels were thoroughly modernized. Work on the *Jean Bart* class was finished, the 24,000-ton *Provence* was being extensively refitted at Brest, the 10,000-ton *Duquesne* and *Tourville* were to go to Toulon and Brest, respectively, the 8000-ton *Primauguet* was already in Bizerta, while the 24,000-ton *Paris* was having less extensive work done while remaining in commission.

Between Apr. 1, 1932, and Mar. 31, 1933, the government proposed to place on the stocks four second-class cruisers, one torpedo boat, one destroyer, one hydrograph boat, and one river gunboat, at a total cost of over 1,000,000,000 francs, that is over \$40,000,000. Considerations of a man-of-war of about 25,000 tons to surpass Germany's *Deutschland* still were under way. The Chamber of Deputies appropriated money for the plans of such a ship but final action was not taken in regard to credits for actual construction. The submarine *Espoir* launched at Cherbourg on July 18 was the first of a new group of six vessels similar to the 17 of the *Pascal* type but more heavily armed. The *Espoir* has one 5.5-inch gun instead of one 3.9-inch and a smaller gun for anti-aircraft purposes. It is fitted with 11 torpedo tubes. The submarine cruiser *Surocouf* of 2880 tons, with two 8-inch guns was having exhaustive trials.

All the recently built destroyers were assembled in the Mediterranean. While all later ones carry 5.5-inch guns, the *Verduns* were armed with 1924 model long-range guns good for not over eight rounds per minute; the *Aigle* class mounts a 1927 design with shorter range, but more handy and with a much higher rate of fire. Further improvement was being made in the

## FRANCE: WARSHIPS BUILDING IN 1931

Class and name	Laid down	Tonnage	Speed
<b>Light cruisers:</b>			
<i>Algérie</i>	1931	10,000	31.5
<i>La Galissonnière</i>	No	7,700	!
<i>Jean-de-Vienne</i>	No	7,700	!
<b>Mine-layer:</b>			
<i>Emile Bertin</i>	1930	5,886	30
<b>Net-layer:</b>			
<i>Gladiateur</i>			
<b>Submarine tender:</b>			
<i>Jules Verne</i>	1929	6,000	!
<b>Fuel ships:</b>			
<i>Var</i>	1931	15,000 Est.	
<i>Elorn</i>	1931	15,000 Est.	
<b>Destroyers:</b>			
<i>Fantasiaque</i>	1930	2,569	
<i>Audacieux</i>	1930	2,569	
<i>Main</i>	1930	2,569	
<i>Triumphant</i>	1930	2,569	
<i>Terrible</i>	1930	2,569	
<i>Indomitable</i>	1930	2,569	
<i>Chevalier</i>		2,440	36
<i>Brass</i>		2,440	36
<i>Tartu</i>		2,440	36
<i>Cassard</i>		2,440	36
<i>Kersaint</i>		2,440	36
<i>Vauquelin</i>		2,440	36
<i>Epervier</i>	1929	2,440	
<i>Mulan</i>	1929	2,440	
<i>Vautour</i>	1929	2,440	40
<b>Submarines:</b>			<i>Surface</i>
<i>Ondine</i>	1929	558	14
<i>Oreade</i>	1929	571	13.7
<i>Orpheus</i>	1929	571	13.7
<i>Rubus</i>	1929	668	12
<i>Phoenix</i>	1928	1,379	17
<i>Pégase</i>	1928	1,379	17
<i>Protes</i>	1928	1,379	17
<i>Persee</i>	1928	1,379	17
<i>Prométhée</i>	1929	1,379	17
<i>Atlante</i>	1928	565	13.7
<i>Antope</i>	1928	571	13.7
<i>Amazone</i>	1929	571	13.7
<i>Meduse</i>	1928	571	13.7
<i>Diane</i>	1928	571	13.7
<i>Argonaute</i>	1927	565	14
<i>Aréthuse</i>	1928	565	14
<i>Amphitrite</i>	1928	571	13.7
<i>Argo</i>	1927	1,379	10
<i>Nautilus</i>	1928	668	9
<i>Tonnant</i>	1930	1,379	17
<i>Espoir</i>	1930	1,379	17
<i>Diamant</i>	1929	668	12
<i>Psyche</i>	1930	571	
<i>Sybilie</i>	1930	571	
<i>Vestale</i>	1930	565	
<i>Sultane</i>	1930	565	
<i>Glorieux</i>	1929	1,379	17
<i>Centaure</i>	1929	1,379	17
<i>Héros</i>	1929	1,379	17
<i>Conquerant</i>	1929	1,379	17
<i>Minerva</i>		571	
<i>Junon</i>		571	
<i>Venus</i>		571	
<i>Iris</i>		571	
<i>Perle</i>		668	
<i>Agouta</i>		1,379	
<i>Beveziers</i>		1,379	
<i>Ouessant</i>		1,379	
<i>Sidi-Ferruch</i>		1,379	
<i>Staz</i>		1,379	
<i>Casablanca</i>		1,379	

guns being manufactured for the 12 destroyers of the 1928-1930 programme. As they were to be semiautomatic the ships were given greater ammunition supply. The two 7500-ton cruisers already started were to carry heavier armor and make less speed than France's recent cruisers. The armor was designed to resist 6-inch shells from a distance of 16,000 yards. These ships were to have eight 6.1-inch guns, together with torpedo tubes, and would carry aircraft.

The vessels of importance completed in 1931 were: light cruisers *Dupleix*, *Foch*, and *Colbert* (10,000 tons); school ship *Jeanne d'Arc* (6500); destroyers, *Aigle*, *Albatross*, *Gerfaut*, *Lion*, and *Vauban* (2440); submarine *Surocouf* (2880); submarines *Saphir* and *Turquoise* (668); and

submarine *Orion* (558). The vessels under construction Dec. 31, 1931, and those for which construction was authorized but may or may not be laid down are listed in the accompanying table.

GERMANY. The naval budget for 1931 amounted to RM 186,994,293 (Reichsmark equals \$0.2382). This budget provided for 1500 officers and 13,500 men. The construction programme was divided into two parts. The first part declares that the replacement of the four oldest battleships cannot and will not be undertaken. The other part says that when the financial situation will permit, the replacement of the other four battleships and three light cruisers authorized by the Peace Treaty will be considered. The new budget estimates call for RM 18,800,000 for the *Deutschland*, armament included, RM 29,700,000 for other new construction, RM 2,100,000 for armaments for destroyers, and RM 18,100,000 for naval gunnery. Incidentally the 1931 expenditures for new construction are reported to have reached RM 50,000,000, that is about RM 10,000,000 more than estimated. On recommendation of the Minister for Defense a subsidy of RM 2,500,000 was granted the Deutsche Werke of Kiel, in order to insure that they might be able to make repairs on naval vessels.

The building programme in 1931 provided for continuation of the work on the *Deutschland*, and the *Lothringen* (laid down in 1931). The *Braunschweig* was to be laid down in 1932 and completed in 1936 while the *Elsass* was not to be begun until 1934. The estimated cost was RM 50,000,000 annually. The cost of the "pocket battleships" was estimated at RM 75,000,000. Although effort was made to keep the work load at Kiel and Wilhelmshaven even the ministry seemed inclined to have one of the cruisers built at the Deutsche Werke in Kiel. The target ship *Zähringen* was badly damaged by fire but was repaired. The old battleship *Hannover*, after taking part in the autumn manoeuvres, was dismantled at Kiel, and her crew transferred to the recently completed light cruiser *Leipzig*.

The old cruiser *Hamburg* was being converted to a naval museum. Machinery was being removed, but her external appearance was being changed as little as possible. Officers' quarters were to contain busts and photographs of distinguished officers of the World War. Many old vessels were being sold. Yugoslavia purchased the cruiser *Niobe* and renamed it the *Dalmazia*. Others sold (none to foreign powers) were the old battleships *Braunschweig*, *Elsass*, and *Lothringen*; surveying ship *Panther*; destroyers *S-18*, *S-19*, *T-152*; and cruisers *Nympe* and *Amazona*.

The two dispatch boats *Weser* and *Elbe* were launched. Built primarily for protecting fisheries, they were equipped for scientific experiments and research; a well equipped sick bay, and an efficient wireless equipment were provided. They are of 600 tons, 800 horse power, maximum speed about 16 knots, maximum cruising radius 7000 miles. The school ship *Bremse*, which was completed in 1931 for training purposes, displaces 1425 tons. Her oil engine propelling machinery can drive her at a speed of 27 knots an hour.

With the completion of the *Leipzig*, Germany concluded the cruiser portion of her post-war construction programme. The cruiser material was deemed to be in the worst condition and was replaced first. Those previously built were the *Emden*, completed in 1925; the *Karlsruhe* and

*Königsberg*, 1929; and the *Köln*, 1930. All are of 6000 tons, but design was developed, so that the *Leipzig* was faster and more heavily armed—with nine 5.9-inch guns instead of eight—while her horse power was 72,000, as compared with 65,000 in the *Köln* and 46,500 in the *Emden*. Full accounts of these appear on pages 520 and 521 of the YEAR BOOK for 1930.

On May 19 the whole fleet was assembled at Kiel to participate in the launching ceremonies of the *Deutschland*. Through some mischance she was suddenly and unexpectedly launched while President von Hindenberg was in the midst of his dedicatory speech. In her design, by utilizing every device for saving weight, such as welding instead of riveting, the German naval architects produced a vessel which they claimed was superior in all-around battle worthiness to any other ship of similar tonnage. She has a length of about 590 feet, beam of 67.5 feet, and draught of about 19 feet. There is an armor belt amidships incorporated as part of the hull, and two protective decks. The vessel will be the first armored ship in the world to be driven by motor engines, and was expected to have a radius of action of more than 10,000 miles at a speed of 20 knots. Her propelling machinery consists of eight M.A.N. double-acting two-stroke engines, with a total shaft horse power of 54,000, the designed maximum speed being 26 knots. The reliability and durability of such engines, compared with steam machinery, was a subject of much discussion. The armament will include six new model Krupp 11-inch guns, firing 670-pound projectiles at a range of 30,000 yards, with an elevation of 60 degrees, at which elevation the main armament might be used against air attack. There are also eight 5.9-inch and four 3-inch anti-aircraft guns, and six 19.7-inch above water torpedo tubes. She was scheduled for completion in 1932.

GREAT BRITAIN. The naval budget for the fiscal year ending Mar. 31, 1931, was \$274,132,976 but this sum does not include appropriations for the Air Force nor the cost of the Dominion navies. Neither does it include sums donated by possessions. In her report to the League of Nations Great Britain gave £49,902,540 as the expenditures for this year on her naval forces. Similarly the report for all air home forces was £19,227,924. There were reported to be 300 planes carried in aircraft carriers. There was no material change in numbers of naval personnel. The total in the reserve force was given as 71,000. The estimates for 1931-1932 are £51,605,000. The building programme included three submarines, one destroyer leader, eight destroyers, one 5000-ton cruiser and two 7000-ton cruisers of the *Leander* class. One of the naval economies for the succeeding year was a 10 per cent reduction in practice ammunition and star shell for all ships in full commission. Decision also was made to postpone all expenditures at the Singapore base upon completing the equipment of the docks and defense works. Incidentally \$2,000,000 had been spent to the end of 1931 on the Singapore Air Base.

The *Bendow* and *Tiger* were scrapped under the terms of the London treaty; the *Emperor of India* was converted to a gunnery target; the *Iron Duke* might be made a gunnery training ship after her armament and warlike stores had been removed; and the *Marlborough* was scheduled for scrapping after certain explosive tests had

## GREAT BRITAIN: WARSHIPS BUILDING IN 1931

Class and name	Laid down	Tonnage	Speed
<b>Light cruisers:</b>			
<i>Leander</i>	1930	7,000	32
<i>Neptune</i>	1930	7,000	32
<i>Orion</i>	1930	7,000	32
<i>Achilles</i>	1931	10,000	32
"		7,000	?
"		7,000	?
"		5,000	?
<b>Destroyers:</b>			
<i>Decoy</i>	1931	1,375 Est.	35
<i>Duchess</i>	1931	1,375 Est.	35
<i>Dainty</i>	1931	1,375 Est.	35
<i>Delight</i>	1931	1,375 Est.	35
<i>Diamond</i>	1931	1,375 Est.	35
<i>Daring</i>	1931	1,375 Est.	35
<i>Defender</i>	1931	1,375 Est.	35
<i>Diana</i>	1931	1,375 Est.	35
<i>Duncan</i>	1931	1,375 Est.	35
<i>Kempfenfelt</i>	1930	1,375	35
<i>Comet</i>	1930	1,375	35
<i>Crusader</i>	1930	1,375	35
<i>Crescent</i>	1930	1,375	35
<i>Oyngnet</i>	1930	1,375	35
"		1,375	
"		1,375	
"		1,375	
"		1,375	
"		1,375	
"		1,375	
"		1,375	
<b>Submarines:</b>			
<i>Thames</i>	1931	1,760	
<i>Sturgeon</i>	1931	645	
<i>Porpoise</i>	1931	640	
<i>Starfish</i>	1931	640	
<i>Sea Horse</i>	1931	1,505	
<i>Swordfish</i>	1931	640	
"		950	
"		950	
"		950	

been carried out. Six light cruisers of the *Champion* class completed in 1916 were to be scrapped. The submarine *Poseidon*, one of the newer English submarines, was sunk in a collision in Chinese waters. The destroyers *Comet* and *Crusader* launched at Portsmouth, on September 30, were the first destroyers to be built in a government yard. Since 1918 nine ships of the *Queen Elizabeth* and *Royal Sovereign* class had been brought up to date, as had also the battle cruisers *Renown* and *Repulse*, while such work on the *Barham* was in progress. The main alterations consisted in the addition of bulges, the increase in some cases of anti-aircraft armament, and improvement of bridges and tops. Ventilation and accommodations for personnel also were improved. In the *Renown* and the *Repulse* additional armor protection was given, this item alone costing approximately £2,870,000. Following the practice instituted in the American navy years ago the British abandoned the terms "starboard" and "port" for helm orders and substituted left and right orders for the rudder.

During the year 1931 the following vessels were completed and placed in commission: 32-knot light cruiser *Essex* (8400 tons); 10 35-knot destroyers, *Brilliant*, *Boreas*, *Basilisk*, *Boadicea*, *Bulldog*, *Brazen*, *Beagle*, *Blanche* (1300 tons), *Acheron* (1330 tons), and *Keith* (1400 tons); four submarines, *Rainbow*, *Regent*, *Regulus*, and *Rover* (1475 tons). Other important vessels under construction in 1931 or appropriated for are listed in the accompanying table.

ITALY. The naval budget for the fiscal year ending June 30, 1931, amounted to \$80,795,701 exclusive of Air Force appropriations. The report to the League of Nations showed 51,326 men and

3296 officers exclusive of the Air Force. No definite information was available as to the number of planes carried in the fleet. Italy had no aircraft carriers nor was she building any. The budget for 1931-32 carried a total of 1,573,000,000 lire, or 87,000,000 more than the preceding year.

The amounts assigned to naval construction for 1931 were 125,000,000 lire more than the previous year. They reached a total of 725,000,000 or 46 per cent of the total budget of the navy, against 41.5 per cent in 1930. Such at least are in the official figures. But, as was well known, it was impossible to know what Italy actually spends for her navy, or her army, as the ministers of national defense have the right to make expenditures with the consent of the council of ministers without informing either Parliament or the public. See FRANCE under *History*.

Recent cruisers and destroyers were designed for exceptionally high speeds, and hulls and machinery were of light construction in order to accomplish this. Some doubts arose as to whether the scantlings would long endure the strain of such powerful machinery if ships were frequently driven at high speed. The 10,000-ton cruisers *Zara* and *Pola* were slower than their predecessors and carried more protection. An innovation that was being watched with keen interest by gunnery officers as well as naval constructors was the installation of a Sperry gyro stabilizer (developed and made in the United States) for the 2,000-ton destroyer leader *Piguetta*. The rotor, 91 inches in diameter, weighed 38,800 lbs., and operated at 1350 revolutions per minute.

The vessels completed in 1931 were: two 10,000-

## ITALY: WARSHIPS BUILDING IN 1931

Class and name	Laid down	Tonnage	Speed
<b>Light cruisers:</b>			
<i>Bolzano</i>		10,000	36
<i>Gorizia</i>	1930	10,000	32
<i>Pola</i>		10,000	?
<i>Diaz</i>		4,896	37
<i>L. Cadorna</i>		4,896	37
<i>Montecoroh</i>		5,855	?
<i>M. Attendola</i>		5,855	?
<b>Destroyers:</b>			
<i>Baleno</i>	1930	1,220	38
<i>Folgore</i>	1929	1,220	38
<i>Lampo</i>	1929	1,220	38
<i>Fulmine</i>	1930	1,220	38
<i>Saetta</i>	1929	1,205	38
<i>A. Pigafetta</i>	1927	1,628	38
<i>Maestrale</i>		1,220	38
<i>Gracale</i>		1,220	38
<i>Scirocco</i>		1,220	38
<i>Libeccio</i>		1,220	38
<b>Submarines:</b>			
<i>Jalea</i>	1930	600	9
<i>Jantina</i>	1930	600	9
<i>Serpente</i>	1930	600	9
<i>Salpa</i>	1930	600	9
<i>Medusa</i>	1929	600	9
<i>Argonauta</i>	1929	600	9
<i>Flialia</i>	1929	600	9
<i>Diamante</i>		600	
<i>Esmeraldo</i>		600	
<i>Rubino</i>		600	
<i>Topazio</i>		600	
<i>Ametisto</i>		600	
<i>Zaffiro</i>		600	
<i>Sirena</i>		600	
<i>Natade</i>		600	
<i>Nereide</i>		600	
<i>Anfitride</i>		600	
<i>Galatea</i>		600	
<i>Ondina</i>		600	
"		800	
"		1,331	
"		1,369	
Six others of about 800 tons each.			

ton light cruisers, *Fiume* and *Zara*; four 5000-ton light cruisers, *Da Guisano*, *Da Barbiano*, *Colleoni*, and *Bande Nere*; three 1200-ton destroyers, *Freccia*, *Dardo*, and *Strale*; two 1650-ton destroyer leaders, *Da Verazzano* and *Cadamo*; and six 800-ton submarines *R. Settimo*, *Tricheco*, *Delfino*, *L. Septembrini*, *F. Corridoni*, and *M. Bragadino*.

Other important vessels under construction in 1931 or appropriated for are listed in the table on page 548.

**JAPAN.** The naval budget for the year ending Mar. 31, 1931, was \$131,468,844. A budget demand for 560,000,000 yen for new construction 1931-1936 was made by the minister of marine. This, however, was reduced to something under 400,000,000 yen. It was to be apportioned as follows: Four cruisers of 8600 tons, 12 destroyers, 1400 tons, one submarine, 1970 tons, two submarines, 900 tons, six submarines, 1300 tons, and one mine layer, 500 tons, several smaller craft; large increase in naval air force and establishment of air station at Yokohama near Yokosuka; 247,000,000 yen was for shipbuilding, 90,000,000 for naval aviation, and the balance for modernizing the various shops and laboratories of the naval establishment.

The Minister of Finance agreed to consider favorably another programme to be begun after 1934, and to obtain money for it. The Minister of the Navy requested 140,000,000 yen for this programme and expected to include, in addition to two aircraft squadrons, one aircraft carrier, six destroyers, one mine layer, one repair ship, one fuel oil ship, and other smaller units. Japan had made tremendous strides in naval aviation and continued to increase the number of planes capable of operating with her fleet. In her report to the League of Nations she gave 88,199 as the number of naval effectives. This includes 9877 naval air effectives. She reported 801 naval planes including 329 on men-of-war.

When the *Maya* was completed in 1932 Japan would have in commission her full allotment, under the London treaty, of 8-inch gun cruisers. The aircraft carrier *Ryujo* launched on April 2 is of 7600 tons, length 548 feet, beam 60 feet, draft 15 feet; she has geared turbines, estimated speed 25 knots; armament twelve 5.1-inch guns. The Japanese destroyers have especial shields for protecting gun and torpedo crews from strafing attacks by planes and from splinters.

During 1931 the following ships were completed: three 10,000-ton, 33-knot, 8-inch gun cruis-

ers, *Okakai*, *Takao*, and *Atago*; four 1700-ton, 34-knot, 5.1-inch gun destroyers, *Ushio*, *Orado*, *Akebono*, and *Sagiri*. Other important ships building during 1931 are listed in the accompanying table.

**NETHERLANDS.** The defense estimates for 1931 were naval construction 10,408,000 florins, ordinary 85,370,290, non-military 5,952,987, total 101,731,277 florins (florin equals \$0.402). The report to the League of Nations gave the following average personnel strength for 1930; 8613 including 695 officers, and in addition 405 men at home and 426 men overseas in the navy part of the air force. The destroyer *Van Nes* completed in 1931 marked the completion of a destroyer building programme of eight destroyers. All were intended for the East Indies. Their design was from Yarrow and Company but they were built in various home yards. Included in the equipment were a seaplane, bomb throwers, and 24 mines. A new cruiser with 6-inch guns of the general type of the *Java* and *Sumatra* were approved for the East Indies station, but details regarding it were not settled.

**PARAGUAY.** The gunboats *Comodoro Deza* and *Capitan Cabral*, sister-ships, were built in Genoa, Italy, by Oddero. Their principal characteristics are as follows: 865 tons, twin screw, turbine, 1350 s. hp. 400 r.p.m., speed 17.5 knots, cruising radius 1700 miles at 16 knots, 150 tons of fuel, draft, 5 feet; armament four 4.7-inch guns, three 3-inch anti-aircraft guns, two machine guns, and six mines with releasing gear.

**PERU.** The naval budget for 1930-1931 was 824,000 Peruvian pounds (Peruvian pound equalled \$0.295). Financial reasons compelled the government to reduce to three the number of officers from the United States on the naval mission to that country. Since the outbreak of revolution the status of these was changed from executive control to an advisory capacity only.

**POLAND.** The 1931-1932 naval budget provided for 34,280,000 zlotys (approximately \$3,800,000). The navy consisted of two destroyers, 3080 tons; three submarines, 2940 tons, two gunboats, five torpedo boats, and several smaller vessels. The personnel consisted of 275 officers and 3108 men.

**PORTUGAL.** In carrying forward the construction programme given in detail on page 523, 1930 YEAR BOOK, the government awarded the contract for the four 1400-ton destroyers to Yarrow, but specified that two should be constructed in a Portuguese shipyard, while the other two might be built in England. The machinery for all of them, however, was to be made in England. The other fighting craft of the programme, two 2000-ton gunboats, two 1000-ton gunboats, two submarines, and one small aircraft carrier, were being built in various yards in Italy and England. Vickers-Armstrong had the contract to furnish the armament for all these vessels for £900,000.

**RUMANIA.** The naval budget for 1931 was £400,000 or \$2,100,000. Personnel 289 officers, 3702 men. The two new destroyers, *Regele Ferdinand I* and *Regina Marina*, built in Naples and completed in 1930, have joined the Black Sea Division. With a contract speed of 34 knots they are reported to have reached 39 knots on their trials. Each destroyer is equipped to carry 50 mines.

**SPAIN.** The Republican government changed the names of the battleship *Alfonso XIII*, and the cruisers *Reina Victoria Eugenia*, and *Prin-*

JAPAN: WARSHIPS BUILDING IN 1931

Class and name	Laid down	Tonnage	Speed
Aircraft carrier			
<i>Ryujo</i>	1931	7,600	25
Light cruisers:			
<i>Maya</i>	1928	10,000	33
"	1931	8,500	
"	1931	8,500	
Destroyers:			
<i>Inazuma</i>	1930	1,700	34
<i>Ikazuchi</i>	1930	1,700	34
<i>Hibiki</i>	1930	1,700	34
<i>Akatsuki</i>	1930	1,700	34
<i>Sazanami</i>	1930	1,700	34
"	1931	1,400	
"	1931	1,400	
"	1931	1,400	
Submarines:			Surface
I-5	1929	1,955	17
I-67	1929	1,638	19
I-66	1929	1,638	19
I-65	1929	1,638	19
I-68	1931	1,400	

*oipe Alonso to España, República, and Libertad*, respectively. The 10,000-ton cruiser *Canarias* was launched at Ferrol on May 29. The government planned to reduce the navy personnel by about 6000 or approximately one-third. Many of the older ships were to be sold or scrapped.

**SWEDEN.** The naval budget for 1931-1932 is 44,649,250 kronor (krona equalled \$0.268) and in addition there are 4,510,000 kronor for armament and operations, and 9,200,000 kronor for new construction. The active personnel was about 4300 officers and men. Interest centred in the 5000-ton aircraft cruiser *Gotland* being built at the Lindholmen Shipyard, Göteborg. As redesigned this 33-knot vessel would carry eight hydroplanes that could be launched one at a time from a centre-line catapult. A weak point seemed to be in the recovery of planes after a flight. There seemed to be a sort of scoop or sweep under the crane to facilitate this work. The *Gotland* was to carry six 6-inch and four 14-pounder anti-aircraft guns. Two destroyers and two submarines were building.

**TURKEY.** A new construction programme was to be undertaken when funds were available, meantime the 1929 amended programme provided for six large destroyers, 12 submarines, and six motor launches. Italian yards were building four destroyers, two submarines, and three motor launches for Turkey. The destroyers *Koja Tepe* and *Ada Tepe*, built in the Ansaldo yards, reached Istanbul on October 18. They were reported to have a speed of 38 knots with a standard displacement of 1350 tons.

**UNION OF SOVIET SOCIALIST REPUBLICS (RUSSIA).** The budget for army, navy, and special military units was 1,390,000,000 rubles (\$0.5146). Information as to the disposition of these funds was meagre and unreliable. The battleship *Lenin* was reported as being converted into an aircraft carrier. Three new submarines *DeKabrist*, *Narodvoietz*, and another unnamed, were reported to be under construction at Leningrad. On May 22 the submarine *Tovarisch* was lost in the Gulf of Finland. Another submarine was reported lost off Vladivostok, with all hands. On October 24 a Soviet submarine was rammed by the German steamer *Gratia* as the former emerged from a dive. At first thought lost, it was later reported that it was towed to port by a destroyer. It may have been the ex-British *L-55*. Unconfirmed German reports stated two other submarines were lost during torpedo practice in Estonian waters within two weeks of each other. Fifteen men were lost in one, 20 in the other.

**UNITED STATES.** The naval appropriation bill approved on Feb. 28, 1931, amounted to \$357,174,912 for the fiscal year 1931-1932. In his annual report to the President the Secretary of the Navy gave his expenditures for the preceding year as \$357,806,219. In preparing estimates to be submitted to Congress for 1932-1933 the Navy Department asked for approximately \$400,000,000. This increase was to be used entirely for new construction to replace fighting craft already over age or about to become so. When President Hoover directed that these estimates be reduced to \$340,000,000, his action brought forth a very violent attack from the Navy League upon him, and his policies. None the less the estimates were revised as the Chief Executive had directed. On June 30, 1931, there were on the active list of the navy 5709 line officers, 2100 staff officers, 1194 chief warrant officers, and 257

warrant officers, a total of 9260 officers. The appropriation act for 1930-1931 provided for 84,500 men but as a part of the President's economy programme this number was reduced to 79,700 in January. That the continued reduction of naval personnel was a cause for alarm to officers responsible for the national defense is indicated by the following quotation from the annual report of the head of the navy's personnel department, the chief of Bureau of Navigation:

During the past year the number of ships in active commission was materially reduced. The proposed operating force plan for the fiscal year 1933 contemplates further reductions in the number of ships in full commission and reductions in the numbers of men allowed all types of combatant ships, except submarines. Such reductions must inevitably result in materially lowered training and efficiency, and in the event of war would be of the gravest consequence. Any decrease in the strength of the Navy in ships or in personnel must result in expenditures of funds manifold greater than savings temporarily effected. This is the lesson of history.

The Marine Corps for the fiscal year 1931 had appropriations for 1030 commissioned officers, 154 chief warrant and warrant officers, and 18,000 men.

Alleged necessity for rigid economy in governmental expenditures was undoubtedly responsible for the reduction of the number of ships in commission. Sixteen destroyers, 16 submarines (11 R5s and 5 S's), one submarine tender (*Camden*), one auxiliary (*Procyon*), and one mine layer (*Aroostook*) were decommissioned but retained ready for recommissioning; nine submarines (O-class), and one battleship (*Florida*) were decommissioned for disposal on account of their age, or condition, or in accord with treaty provisions. In addition, eight destroyers and one battleship (*Arkansas*) were formed into a training squadron and operated with greatly reduced personnel allowances. The *Wyoming* was converted into a training ship and operated with reduced allowances. In addition, two old light cruisers (*Denver* and *Galveston*) and some smaller craft were placed out of commission.

The United States completed, during the fiscal year, 1930-31, the modernization of two battleships; completed three 10,000-ton cruisers; one fleet submarine.

The modernizing of the *Arizona* and *Pennsylvania* brought the total of modernized battleships to seven out of the 15 allowed under the London treaty. Three more were now undergoing this process during which additional protection against submarines and air attacks was being installed, boilers and main and auxiliary machinery replaced, turret-gun elevation increased, 5-inch anti-aircraft guns installed, new fore-and-aft fire-control stations with modernized equipment installed, and such further repairs or alterations as were necessary to place these vessels in an up-to-date condition when they were ready to return to the fleet.

The three 10,000-ton (or category "A") cruisers completed during the year were the *Augusta*, *Chicago*, and *Louisville*. This type of cruiser developed large rolling amplitudes which were reduced by increasing the area of the bilge keels already installed, or the installation of new bilge keels of different design, and also by the installation of anti-rolling tanks. Similar steps were contemplated on all of this class that had been completed, and the design of those uncompleted was altered to remedy this fault. Defective stern

castings were renewed on these cruisers, and the design changed for castings for ships to be built. The use of welding to a greater extent than ever before in the American navy effected a considerable saving in weight. Because of the inflammable qualities of cork; aluminum foil, corrugated asbestos, and aluminum sheathing were used in lieu of cork insulation. The characteristics of these vessels are given here as a means of comparison with other cruisers completed by foreign countries: Standard displacement, 9060 tons (*Chicago* 9300); speed 32.7 knots, armament nine 8-inch guns in four turrets, four 5-inch anti-aircraft guns; six torpedo tubes; four planes carried.

The *Nautilus*, 2730-ton fleet submarine, was completed during the year, and was to be the last of the large type submarines, as the new fleet type were to be appreciably smaller in order to obtain maximum offensive and seagoing qualities on a reasonable displacement. The restricted global tonnage of submarines allowed by treaty had brought about this change in design. Improved rescue devices for submarines brought out during the year included the new type rescue chamber (which had been tested to 400 feet submergence and had successfully removed personnel from the *N-4* while she was lying in 60 feet of water) and a new marker buoy for telephonic conversation with a disabled submarine while submerged.

## UNITED STATES: WARSHIPS BUILDING IN 1931

Class and name	Tons	Probable date of completion
<b>Cruisers:</b>		
<i>New Orleans</i>	10,000	6/ 2/33
<i>Portland</i>	"	8/15/32
<i>Astoria</i>	"	10/ 2/33
<i>Indianapolis</i>	"	8/15/32
<i>Minneapolis</i>	"	10/ 2/33
<i>Tuscaloosa</i>	"	3/ 3/34
<i>San Francisco</i>	"	2/11/34
<b>Aircraft carrier:</b>		
<i>Ranger</i>	13,800	5/ 1/34
<b>Fleet submarines:</b>		
<i>Dolphin</i>	1,540	8/ 1/32
<i>Cachalot</i>	1,130	9/16/33
<i>Cuttlefish</i>	"	12/29/33
<b>Destroyers:</b>		
<i>Farragut</i>	1,500	2/11/34
<i>Dewey</i>	"	6/11/34
<i>Hull</i>	"	Indefinite
<i>Macdonough</i>	"	"
<i>Worden</i>	"	"

In addition appropriation was made to begin work on six other destroyers; but the President, as part of his economy programme, did not permit contracts to be let for them. For preliminary work on three additional 10,000-ton cruisers, \$100,000 also was appropriated.

Since 1924 the line officer personnel assigned to aeronautical duties had increased from 422 to 1132; the number of enlisted men from 5296 to 12,639. On June 30, 1931, there were 737 naval aviators on active duty. The number included 715 commissioned officers and 22 warrant officers. The total number of enlisted pilots (naval aviation pilots) was 331.

The year 1931 saw the completion of the five-year building programme of 1000 planes, a full year ahead of schedule, and at a saving of \$23,307,160 over the original estimate. Large numbers of experimental service airplanes were built during the year. Forty new types, including the autogiro, were delivered to and tested by the navy during the year. The year 1931 saw continuous improvement of standard types of air-

craft engines and marked improvement of engine test facilities. In general it might be said that the power and reliability of American air-cooled engines used in the naval service were equal, if not superior, to the best engine products in the world. Safety in operation was still increasing as indicated by the fact that during the year there was an increase of approximately 50 per cent in the number of flying hours per forced landing due to engine failure.

A new method of determination of load factors for airplanes resulted in more exact knowledge of strength requirements for the various types. This is particularly important to the navy in its study of the stresses imposed by dive bombing attack. Great progress was made in the development and utilization of high strength ferrous and non-ferrous alloys; also in the study of the use of corrosion resisting steel for various airplane parts. Successful carrier operations were continued with the *Saratoga*, *Lexington*, and *Langley* operating actively throughout the year. At the close of 1931 the *Langley* made a special trip to the higher latitudes to determine the feasibility of deck landings and take-offs under the conditions of icy decks and low temperatures.

The powder type catapult continued to give satisfactory and reliable service. Air type catapults were still installed in 7500-ton cruisers and a few of the older type battleships. In the latter they were mounted on the quarter-deck only. Although catapult operations were carried on continuously during the year there were no major accidents due to improper functioning of material. It was planned ultimately to replace all air type catapults with powder catapults. The completion and successful trials of the dirigible, U. S. S. *Akron*, was one of the outstanding events of the year. Facilities were incorporated in the design of this ship to permit the carrying, launching, and recovery in flight of five fighting airplanes. The U. S. S. *Los Angeles* took part in fleet manoeuvres during February, 1931. That vessel was in continuous operation for three weeks during which time she used the mooring mast of the oiler U. S. S. *Patoka*, as a base for refueling and servicing. A new lighter-than-air base at Sunnyvale, Calif., was acquired during the year. Plans for hangar accommodations for both the U. S. S. *Akron* and *ZRS-5* were a definite part of the programme of lighter-than-air expansion on the Pacific coast. Construction of the new aircraft carrier *Ranger* was started—the first vessel of this type for the U. S. Navy to be laid down as such from the keel up. The construction of the *ZRS-5* was started at Akron, O. The following Marine Corps aviation squadrons were assigned:

VS 14M—6 VS planes to U. S. S. *Saratoga*.  
VS 15M— " " " " *Lexington*.

**YUGOSLAVIA.** The naval budget for 1921-32 was 235,276,039 dinars (\$0.017). This was to be expended as follows: personnel 51,152,039 dinars, material 155,424,000, and special 28,700,000. The personnel is 487 officers, 5500 men. The old pre-war German cruiser *Niobe* was bought and rechristened *Dalmazia*. A flotilla leader, the *Dubronik*, being built by Yarrow was launched in October. She is 1880 tons (standard), dimensions 371 feet x 35 feet x 12 feet, designed for 37 knots, with Parsons geared turbines and 3 Yarrow boilers. Her armament is four 5.6-inch guns,



one 3.3-inch anti-aircraft gun, two small anti-aircraft guns, and six 21-inch torpedo tubes.

See AERONAUTICS; DISARMAMENT; MILITARY PROGRESS; LEAGUE OF NATIONS; ETC.

**NAVAL RESERVES.** See NAVAL PROGRESS.

**NAVIES.** See NAVAL PROGRESS.

**NAVIGATION.** See SAFETY AT SEA; SHIP-BUILDING; SHIPPING; NAVAL PROGRESS; etc.

**NAZIS, OR HITLERITES.** See GERMANY under History.

**NEANDERTHAL MAN.** See ANTHROPOLOGY.

**NEBRASKA.** POPULATION. According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 1,377,963; in 1920 it was 1,296,372. The native whites numbered 1,238,356 (1930), 1,129,567 (1920). Foreign-born whites, 115,346 (1930), 149,652 (1920). Negroes, 13,752 (1930). Mexicans numbered 6321, in 1930, and Indians 3256. Omaha, the most populous city, had 214,006 inhabitants (1930), 191,601 (1920). The capital, Lincoln, had 75,933 (1930), 54,948 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn ....	1931	10,138,000	172,346,000	\$ 65,491,000
	1930	9,564,000	239,100,000	121,941,000
Wheat ..	1931	3,465,000	58,376,000	23,359,000
	1930	3,939,000	71,557,000	37,761,000
Hay, tame	1931	1,614,000	2,032,000 *	14,630,000
	1930	1,603,000	2,867,000 *	22,936,000
Oats ....	1931	2,311,000	49,686,000	11,925,000
	1930	2,485,000	72,065,000	20,178,000
Potatoes .	1931	131,000	6,812,000	3,406,000
	1930	101,000	9,595,000	8,156,000
Barley ..	1931	854,000	14,091,000	3,945,000
	1930	726,000	18,876,000	6,607,000
Sugar beets	1931	66,000	891,000 *	7,893,000
	1930	81,000	1,136,000 *	989,000
Rye ....	1931	333,000	2,997,000	1,566,000
	1930	317,000	4,121,000	

\* Tons.

**MINERAL PRODUCTION.** Only the usual minor features appeared in the U. S. Bureau of Mines' report of the State's mineral industries for 1929. The chief of these was the extraction of sand and gravel. The total value of the State's mineral production was \$4,844,542 for 1929; for 1928 it was \$3,454,700.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering the year 1929 rendered the number of the State's manufacturing establishments as 1490 (some 16 per cent greater than their number for 1927). Wage earners there employed numbered 28,219 (being 8.1 per cent more than for 1927). Their wages totaled \$36,882,542 (exceeding those of 1927 by fully 6 per cent). The materials used in manufacture, plus the cost of fuel and purchased electricity, came to \$364,305,751 (being about 12 per cent above the corresponding figure for 1927). The value of the manufactured product was \$484,262,511 (exceeding the value for 1927 by 15.2 per cent). Much the greater part of the manufacturing centred in Omaha, where 430 manufacturing establishments employed 16,108 wage earners, in 1929, to whom were paid wages of \$21,356,630, while the manufactured product totaled \$353,158,836.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$14,947,345 (of which \$1,823,865 was for local edu-

cation); for interest on debt, \$14,177; for permanent improvements, \$7,655,545; total, \$22,617,067 (of which \$10,417,241 was for highways, \$4,169,046 being for maintenance and \$6,248,195 for construction). Revenues were \$22,858,434. Of these property and special taxes formed 33.6 per cent; departmental earnings and remuneration to the State for its officers' services, 11.1; sales of licenses, 38.7 (including taxes of \$6,467,930 on sales of gasoline). The State's funded debt outstanding on June 30, 1930, was \$237,500. There were no sinking fund assets. On property bearing an assessed valuation of \$3,486,532,466 were levied in the year State taxes of \$7,976,000.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 6173.9. In the year preceding there had been no extensive additions or abandonments of line. No building of new line or trackage in 1931 was reported.

**EDUCATION.** In spite of depressed business and financial conditions, it was reported that there had been no serious abandonment of plans for the construction of buildings in the school districts.

**CHARITIES AND CORRECTIONS.** The 17 custodial and eleemosynary institutions of the State in 1931 were operated under the direction of the State Board of Control. This board consisted of three members, each appointed by the Governor to serve six years, a member's term expiring every three years. The Board had full jurisdiction over the institutions in its charge. Its maintenance expenditures ran in 1931 at the approximate rate of \$2,500,000 a year. The number of the institutional inmates in its charge on July 1, 1931 was 7179.

**LEGISLATION.** The Legislature held a regular biennial session which concluded on May 2. It passed the act of reapportionment necessary to redistrict the State, for the election of Federal Representatives, into five districts, instead of six. A system of higher licenses for motor trucks was created, the cost of licenses running up to a maximum of \$250 a year. Governor Bryan vetoed the act, but it was repassed over his veto. By another act the irrigation districts acquired the right to build electric power plants. The law taxing sales of gasoline was amended so as to render all gasoline subject to tax, without respect to the purpose for which it was to be employed. Penalties for drunken driving were increased. The City of Omaha was authorized to issue \$2,000,000 of negotiable revenue bonds for its projected South Side Bridge. The bridge was to become free to the public on the retirement of the bonds. The regular session failed to pass a general appropriation measure carrying appropriations of some \$40,000,000 for the ensuing two years, and thus rendered it necessary to call a later special session for the purpose.

**POLITICAL AND OTHER EVENTS.** Charles W. Bryan, brother of the late William Jennings Bryan, was inaugurated Governor on January 8. In his inaugural speech he made a series of radical proposals, which included the establishment and ownership of banks by the State, the reenactment of the old State law guaranteeing bank deposits, and the creation of municipal gasoline stations. He later investigated the State banking department and allied services and dismissed certain of the officials, charging that a plot had been formed to maintain undue control of bank receiverships in the hands of a clique. A U. S.

Veterans' Hospital accommodating more than 200 patients was opened at Lincoln on April 22.

**OFFICERS.** Governor, Charles W. Bryan; Lieutenant-Governor, Theo. W. Metcalfe; Secretary of State, Frank Marsh; Treasurer, T. W. Bass; Auditor, George W. Marsh; Attorney-General, C. A. Sorensen; Superintendent of Public Instruction, C. W. Taylor.

**JUDICIARY.** Supreme Court: Chief Justice, Charles A. Goss; Associate Justices, William B. Rose, James R. Dean, W. H. Thompson, George A. Eberly, Edward E. Good, George A. Day.

**NEBRASKA, UNIVERSITY OF.** A State institution of higher education in Lincoln, Nebr., founded in 1869. The enrollment for the autumn of 1931 was 5945. There were 2713 students enrolled in the summer session of 1931, of whom 1001 were men and 1712 were women. The faculty numbered 366. The total income for the year was \$4,830,966. The library contained 258,416 volumes. Additions during 1931 included the first unit of the new dormitories for women, a heating plant and nurses' home on the medical college campus, and a new mall and swimming pool. Chancellor, Edgar A. Burnett, D.Sc.

**NEBULÆ.** See **ASTRONOMY.**

**NECROLOGY.** The following list contains the names of notable persons who died in 1931. Articles will be found in this volume, in their alphabetical order, on those whose names are given below without other text.

Abbott, Ernest Hamlin. American editor, died Aug. 8, 1931, in Cornwall-on-Hudson, N. Y., where he was born Apr. 18, 1870. He was graduated from Harvard in 1893 and from the Andover Theological Seminary in 1896. Ordained to the Congregational ministry, he served as pastor of the First Church in Fryeburg, Me., from 1896 to 1902. He then became a member of the editorial staff of the *Outlook*, of which his father, Lyman Abbott, was editor. On the death of his father in 1922 he became editor-in-chief, and was associate editor after the merger of the *Outlook* and the *Independent* in 1928. During the World War he was chairman of the executive committee of the National Service Commission of Congregational Churches. He wrote: *Religious Life in America* (1902); *On the Training of Parents* (1908); and *What They Did with Themselves* (1909).

Aceval, Emilio. Paraguayan statesman, died Apr. 15, 1931, in Asunción where he was born Oct. 16, 1853. Following his graduation from the Colegio Nacional in 1875, he was engaged in business, later serving as Inspector of Banks and as chairman of the board of directors of the National Bank. In 1894 he was made Minister of War and the Navy and during 1896-97 also acted as Minister of Finance. In 1898 he was elected President of Paraguay and completed the full term in office. He also was elected Senator in 1904 and on the expiration of his term was appointed president and manager of the Banco Agrícola. In 1908 he was chosen Ambassador to Argentina. He was a Commander of the French Legion of Honor and a recipient of the Naval Grand Cross of Merit of Spain.

Acheson, Edward Goodrich, died July 6, 1931.

Ackerson, James Lee. American naval constructor, died in Chevy Chase, Md., Sept. 13, 1931. He was born in Lowell, Mich., Aug. 8, 1881, and was graduated from the U. S. Naval Academy in 1901. He became a member of the construction corps of the U. S. Navy in 1903, being assigned to the New York Navy Yard (1906-10), the Bureau of Construction and Repair in Washington (1911-15), and the Mare Island (San Francisco) Navy Yard (1915-17). Promoted to commander in 1917, he acted during the World War as consultant to the U. S. Shipping Board and the Emergency Fleet Corporation. After being associated with the Harriman shipbuilding interests, he resumed connection with the U. S. Shipping Board in 1930 as director of its bureau of construction.

Adams, Edward Dean, died May 20, 1931.

Addicks, Walter Robarte. American public utility executive, died in Greenwich, Conn., Apr. 14, 1931. He was born in Philadelphia, Pa., Apr. 14, 1861, and was graduated from the U. S. Naval Academy in 1882. Resigning from the Navy the following year, he entered the employ of the Pennsylvania Railroad in Altoona, Pa., as draftsman. In 1887 he was appointed construction engineer of the Massachusetts Pipe Line Gas Company and the New England Gas & Coke Co., which position he held until 1908. He then became first vice

president and trustee of the Consolidated Gas Company of New York and director of its many subsidiaries. During the World War he served on technical committees of the Council of National Defense, and was in charge of the Consolidated Gas Company's operation of government plants producing toluol and other war materials.

Agnew, John Lyons. Canadian industrialist, died in Copper Cliff, Ont., July 8, 1931. He was born in Pittsburgh, Pa., July 28, 1884, but migrating to Canada became associated with the Canadian Copper Company in 1904. He was successively made smelter superintendent and general manager, and on the consolidation of various metallurgical concerns as the International Nickel Company, Ltd., in 1929 became vice president. Prior to this consolidation he directed the \$50,000,000 expansion and development programme on which the company embarked in 1924, including the opening of the Frood nickel mine, construction of a new smelter at Copper Cliff, extension of the hydro-electric development of the Spanish River, and enlargement of the refining operations at Port Colborne, Ont. He also was a director of the International Nickel Company, Inc., the operating company in the United States, deputy chairman and director of the Ontario Refining Company, Ltd., and a past president of the Ontario Mining Association.

Agnew, William Henry, died Feb. 13, 1931.

Agramonte, Aristides, died Aug. 17, 1931.

Albert Johann, Duke of Schleswig-Holstein. A German prince, died in Berlin Apr. 27, 1931. He was born at Frogmore House, Windsor, England, Feb. 26, 1869, the son of Prince Christian of Schleswig-Holstein and Princess Helena, a daughter of Queen Victoria, and was educated in England. Prior to succeeding to the title on the death of his cousin, Duke Ernest Gunther, in 1921, he held the rank of lieutenant-colonel in the Prussian Army. During the World War he was assigned, at his request, to the staff of General von Loewenfeld, Military Governor of Berlin, so as not to fight against Great Britain. With him the Schleswig-Holstein-Sonderburg-Angustenburg line, which had held the dukedom since 1863, became extinct, the succession passing to the Schleswig-Holstein-Glücksburg line.

Albright, John Joseph. American capitalist, died in Buffalo, N. Y., Aug. 20, 1931. He was born in Buchanan, Va., Jan. 18, 1848, and was graduated from the Rensselaer Polytechnic Institute in 1868. After being engaged in the wholesale coal business in Washington, D. C., until 1883, he removed to Buffalo, where he became president of the Marine National Bank, director of the Marine Trust Company and of the Lackawanna Steel Company, and a pioneer in the hydraulic development of Niagara Falls. He was donor of the Albright Art Gallery to the city of Buffalo and an incorporator of the American Academy in Rome. In 1929 the Chancellor's Medal of the University of Buffalo was conferred on him.

Alcorta, José Figueroa. Argentine statesman, died in Buenos Aires Dec. 27, 1931, aged 71. After distinguishing himself as a lawyer, he entered the Argentine Congress and in 1904 was elected vice president of the republic. He succeeded to the presidency on the death of President Quintana in March, 1906, holding this office until 1910. During his administration the bonds of friendship between the United States and Argentina were strengthened. Subsequently he was appointed to the Argentine Supreme Court, and in 1931 was designated president of the permanent council of conciliation between Belgium and the United States.

Alderman, Edwin Anderson, died Apr. 29, 1931.

Ali, Maulana Mohamed. Indian Moslem leader, died in London Jan. 4, 1931, while attending the Round-Table Conference. Born in December, 1878, he was educated at the Mohammedan Anglo-Oriental College (later the Moslem University) in Aligarh, and at Lincoln College, Oxford. In 1907 he established and edited the English weekly *Comrade* in Calcutta, and in 1913 the daily *Hamdard* in Delhi. He also took an active part in the establishment of the All-India Moslem League, and with his brother Shaukat Ali was a leader for more than 20 years of the uncompromising section of the Indian Moslems known as the Khalafists. He was prominent in the civil disobedience movement of 1920-21, but after 1923 he abandoned these boycott measures and gradually severed his connection with Mahatma Gandhi and the All-India Congress.

Allen, Francis Richmond, died Nov. 7, 1931.

Allinson, Francis Greenleaf, died June 23, 1931.

Ames, Robert. American actor, died in New York City Nov. 27, 1931. He was born in Hartford, Conn., Mar. 23, 1889, and after obtaining his early stage training in stock companies played with Henry Miller's company in *The Great Divide* and other plays. In 1916, after having appeared with the Municipal Stock Company of Northampton, Mass., he returned to the New York stage to support Ruth Chatterton in *Come Out of the Kitchen*. Subsequent productions in which he played leading roles were: *Nice People* (1921); *Lights Out* (1922); *Icebound* (1923); and *The Desert Flower* (1924). With the advent of the talking pictures he

went to Hollywood, where he was cast with Gloria Swanson in *The Trespasser*. He also appeared in *Confession*, *Behind Open Doors*, *Holiday*, *Marianne*, *Madonna of the Streets*, *Rich People*, and *Tomorrow and Tomorrow*.

Andrieux, Louis. French diplomat and politician, died in Paris Aug. 27, 1931. He was born in Trévoux July 23, 1840, and on graduation from the Sorbonne practiced law in Lyons. Elected a deputy for the Department of Basses-Alpes in 1876, he was a member of the Chamber for nearly 50 years, being at the time of his retirement dean of that body. In 1879 he was appointed Prefect of Police of Paris and in 1882 Ambassador to Spain. He was a Chevalier of the Legion of Honor and the author of *Souvenirs d'un ancien préfet de police* (2 vols., 1885) and *La Révision* (1889).

Anthony, Daniel Reed, Jr. American editor and congressman, died Aug. 4, 1931, in Leavenworth, Kans., where he was born Aug. 22, 1870. He was graduated from the Michigan Military Academy in 1887 and with the LL.B. degree from the University of Michigan in 1891. On the death of his father in 1904, he became editor of the *Leavenworth Times*. He was postmaster of Leavenworth during 1898-1902 and mayor during 1903-05. In 1907 he was elected to the 60th Congress from the 1st Kansas District, and was reelected for each succeeding term until 1929. During the World War he was a member of the House Committee on Military Affairs.

Aosta, Emanuele Filiberto, Duke of, died July 4, 1931.

Arbuckle, Maclyn. American actor, died in Waddington, N. Y., Mar. 31, 1931. He was born in San Antonio, Texas, July 9, 1866, and attended the English and Classical School in West Newton, Mass. Admitted to the Texas bar in 1887, he practiced for a year and then decided to go on the stage, making his début in *The Emigrant* at Shreveport, La. For several years he supported R. D. McLean, and in 1896 appeared as Marc Antony, with Louis James, in *Julius Caesar*. Subsequently he went to London, playing in *Why Smith Left Home*. His first appearance as a star was in *The Sprightly Romance of Marsac*, presented in New York in 1900, and he later created the rôles of the Hon. Jim Hackler in *The County Chairman* (1903-07), "Slim" Hoover, the sheriff, in *The Round Up* (1907), John Tarleton in *Shaw's Mualliances* (1917), and Old Bill in *The Better 'Ole*. In 1918 he organized and became president of the San Antonio Pictures Corporation, producing Maclyn Arbuckle Photo Plays.

Ashby, Thomas. British archaeologist, died near London, May 17, 1931. Born Oct. 14, 1874, he was educated at Christ Church, Oxford, and in 1903 was appointed assistant director of the British School of Archaeology at Rome. Three years later he became director of the school, holding this appointment until his retirement in 1925. The following year he was Norton-Loeb lecturer for the Archaeological Institute of America, and in 1930 was appointed research student at Christ Church, Oxford. He was a Fellow of the British Academy and of the Society of Antiquaries. His works include *Turner's Visions of Rome* (1925); *The Roman Campaigns in Classical Times* (1927); *Roman Architecture* (1927); *Some Italian Scenes and Festivals* (1929); *Rome, the Eternal City* (1929); and *The Aqueducts of Ancient Rome* (1931).

Ashmead-Bartlett, Ellis, died May 4, 1931.

Aswell, James Benjamin. American congressman, died in Washington, D. C., Mar. 16, 1931. He was born in Jackson Parish, La., Dec. 23, 1869, and was graduated from the University of Nashville in 1893. After serving as State institute conductor from 1897 to 1900, he was elected president of the Louisiana Polytechnic Institute, and in 1904 State superintendent of public education. He acted as chancellor of the University of Mississippi in 1907, and the following year was elected president of the Louisiana State Normal College, which office he held until 1911. He was elected to the 63d Congress from the eighth Louisiana District in 1913, and was reelected to each succeeding Congress. He was active in 1929 as a member of the House Committee on Agriculture in framing the McNary-Haugen bill by which the Federal Farm Board was created.

Austerlitz, Friedrich. Austrian editor, died in Vienna, July 6, 1931. He was born in Hochleben Bohm, Apr. 26, 1862. In 1895 he became editor-in-chief of the *Arbeiter-Zeitung*, central organ of the Social Democratic party, and in 1920 was elected a member of the Reichstag. He was the author of *Presserecht und Pressefreiheit* (1902) and *Das Neue Reichswahlrecht* (1907).

Austria, Don José de. Venezuelan diplomat, died in Panama, May 11, 1931. During his long diplomatic career he held the posts of chargé d'affaires in Brazil and Chile, resident Minister in Ecuador, and Envoy Extraordinary and Minister Plenipotentiary to Panama. Noted also as an author, he was a member of the Venezuelan Academy of Letters.

Babcock, Stephen Moulton, died July 2, 1931.

Baer, John Willis. American banker, died in Passa-

dena, Calif., Feb. 8, 1931. He was born near Rochester, Minn., Mar. 2, 1861, and attained prominence in 1890 when he was chosen secretary of the World's Young People's Society of Christian Endeavor. In 1900 he became assistant secretary of the Board of Home Missions of the Presbyterian Church in the United States of America, and in 1906 was elected president of Occidental College, Los Angeles, Calif. On his retirement from the latter office in 1916 he entered banking, acting as vice president of the Union National Bank, Pasadena, Calif., from 1917 to 1920 and of the Security-First National Bank, Pasadena, from 1920 until his death. He was moderator of the Presbyterian Church in the United States of America during 1919-20.

Baer, William S., died Apr. 7, 1931.

Baillie, James. British clergyman and historian, died in Lasswade, Midlothian, Scotland, Feb. 6, 1831. He was born in Bonnyrigg, Midlothian, Nov. 25, 1866, and was educated at the University of Edinburgh. Ordained to the ministry of the United Free Church of Scotland in 1892, he later served as minister of the Wardie Church, Edinburgh (1912-22), and of St. John's Church, Torphichen (1922-31). He was also extension lecturer on Egyptology at Oxford University. Among the popular books on ancient history which he wrote are: *The Story of the Pharaohs* (1908); *The Sea-Kings of Crete* (1910); *Peeps at Ancient Egypt* (1912); *Wonder Tales of the Ancient World* (1915); *Peeps at Ancient Assyria* (1916); *Peeps at Ancient Rome* (1917); *Peeps at Ancient Greece* (1920); *Life of the Ancient East* (1923); and *A History of Egypt* (2 vols., 1929).

Bailey, Henry Turner. American art critic, died in Chicago, Ill., Nov. 26, 1931. He was born in Scituate, Mass., Dec. 9, 1865. On graduation from the State Normal Art School, Boston, in 1887 he was until 1903 agent of the Massachusetts State Board of Education for the promotion of industrial drawing, and until 1917 editor of the *School Arts Magazine*. He also was director of the Chautauqua School of Arts and Crafts during 1908-17. He was then called to the Cleveland School of Art first as dean and then as director, holding the latter position until 1930. In 1915 he was a member of the international jury of awards at the Panama-Pacific Exposition. Among his works are: *A First Year in Drawing* (1894); *The Great Painters' Gospel* (1900); *Nature Drawing* (1910); *Twelve Great Paintings* (1913); *Art Education* (1914); *Symbolism for Artists* (with Ethel Pool, 1923); and *The Magic Realm of the Arts* (1928).

Bailey, Solon Irving, died June 5, 1931.

Baker, George Fisher, died May 2, 1931.

Balfour, Sir Andrew, died Jan. 30, 1931.

Barnard, Ernest Sargent. American baseball administrator, died in Rochester, Minn., Mar. 27, 1931. He was born in West Columbia, W. Va., July 17, 1874, and was graduated with the Ph.B. degree from Otterbein College, Westerville, Ohio, in 1895. After acting as sports editor of the Columbus *Evening Dispatch*, he became in 1903 secretary of the Cleveland Ball Club Company and in 1911 vice president. He was then business manager of the Cleveland "Indians" from 1916 to 1921 and president from 1922 to 1927, when he succeeded Byron Bancroft Johnson (q.v.) as president of the American League of Professional Baseball Clubs.

Barr, Archibald, died Aug. 6, 1931.

Barrington, E. See Beck, L(ily) Adams.

Barrus, Clara, died Apr. 5, 1931.

Barry, Joseph Gayle Hurd. American theologian, died in New Canaan, Conn., May 28, 1931. He was born in Middle Haddam, Conn., Apr. 19, 1858, and after attending Wesleyan University was graduated from the Berkeley Divinity School in 1886. Following his ordination in the Protestant Episcopal Church, he became rector of Calvary Church, Batavia, Ill. (1888-91); instructor in Western Theological Seminary, Chicago (1891-1901); canon of St. Paul's Cathedral, Fond du Lac, Wis. (1901-06); dean of Nashotah House (1906-09); and rector of the Church of St. Mary the Virgin, New York City (1909-29). A distinguished leader of the Anglo-Catholic group, he wrote *Meditations on the Office and Work of the Holy Spirit* (1908); *Holiness* (1915); *The Invitations of Our Lord* (1918); *The Religion of the Prayer Book* (with Selden P. Delany, 1919); and *Meditations on the Communion Office* (1924).

Bass, John Foster. American journalist, died in Tucson, Ariz., Apr. 16, 1931. He was born in Chicago, Ill., in 1866, and was graduated from Harvard in 1891. As war correspondent for the Chicago *Daily News* he was with the British army in Egypt during 1895, and two years later witnessed the Cretan rebellion and the Greco-Turkish War. He continued as correspondent during the Spanish-American War, the Philippine insurrection, the Boxer insurrection in China, and the Russo-Japanese War. During the World War he was with the Russian army in Poland and Galicia (1914-15), with the Allied armies in France, Italy, and the Balkans (1915-17), and with the American army in France (1918). He attended the Paris Peace Conference

and was connected with various government missions following the War. He was the author of *The Peace Tangle* (1920) and *America and the Balance Sheet of Europe* (1921).

Bates, William Horatio. American oculist, died in New York City, July 10, 1931, aged 70. A graduate of the College of Physicians and Surgeons of Columbia University, he originated a method of treating imperfect eyesight by mental relaxation and also discovered the drug suprarenal extract, used in optic surgery. He was the author of *The Prevention of Myopia in School Children* (1911) and *The Cure of Imperfect Sight by Treatment without Glasses* (1920).

Baththany, Theodore, Count. Hungarian statesman, died in Budapest, Feb. 2, 1931, aged 76. He was Minister of the Interior in the cabinet of Count Michael Károlyi, first minister-president of the National Council of the Hungarian People's Republic, which lasted from Oct. 30, 1918, to the proclamation of a Communist Government under Béla Kun on Mar. 22, 1919. For years prior to the revolution he had advocated the separation of Hungary from Austria and the dethronement of the Hapsburg dynasty.

Bayer, Josef. Austrian anthropologist, died in Vienna, July 23, 1931. He was born in Oberhollabrunn, July 10, 1862, and attended the University of Vienna. In 1907 he became a member of the staff of the Vienna Natural History Museum, being appointed director of anthropology in 1924. His most famous discovery was that of the so-called Venus of Willendorf. He was the author of *Der Mensch im Eiszeitalter* (1927).

Beals, Edward Alden. American meteorologist, died in San Francisco, Calif., Dec. 26, 1931. He was born in Troy, N. Y., Apr. 23, 1855, and attended Harvard University. In 1880 he entered the U. S. Signal Corps and was later transferred to the Weather Bureau, being in charge of the offices in New York City (1883), Atlanta, Ga. (1883), Mt. Washington, N. H. (1884-85), Chattanooga, Tenn. (1886-87), La Crosse, Wis. (1887-90), Minneapolis (1891-95), Cleveland (1896-99), Portland, Ore. (1900-17), and San Francisco (1917-24). He was then sent to Honolulu as meteorologist in charge of the Hawaiian weather service, retiring in 1926.

Beauchamp, William Benjamin, died June 28, 1931. Beck, L(ily) Adams, died Jan. 3, 1931.

Beckwith, Clarence Augustine. American theologian, died in Bangor, Me., Apr. 2, 1931. He was born in Chalemont, Mass., July 21, 1849, and was graduated from Olivet (Mich.) College in 1874 and from the Bangor (Me.) Theological Seminary in 1877. Following his ordination to the Congregational ministry, he successively served as pastor in Brewer, Me. (1877-82) and West Roxbury, Mass. (1882-92). He then became professor of Christian theology at the Bangor Theological Seminary, and from 1905 until his retirement in 1927 held the same chair at the Chicago Theological Seminary. He was the author of *Realities of Christian Theology* (1906) and *The Idea of God* (1922).

Bedford, Sir Charles Henry, died July 8, 1931. Bedford, Edward Thomas. American capitalist, died in Greens Farms, Conn., May 21, 1931. He was born in Brooklyn, N. Y., Feb. 19, 1849. Becoming associated with the Standard Oil Company in the late '70s, he was largely responsible for the development of its extensive business in foreign fields, and from 1903 to 1911 was a member of the board of directors and of the executive committee. He was also president of the Corn Products Refining Company which in 1906 had been merged with the New York Glucose Company, organized by him in 1901. Among the other corporations of which he was an officer or director were the Colonial Oil Company of New Jersey, the Thompson-Starrett Company, and the Title Guarantee & Trust Co.

Belasco, David, died May 14, 1931.

Belden, Charles Francis Dorr, died Oct. 24, 1931.

Bell, Sir Hugh. British industrialist, died in London June 28, 1931. He was born at Walker-on-Tyne Feb. 10, 1844, and attended the universities of Paris and Göttingen. On the death of his father, Sir Lothian Bell, in 1904 he succeeded to the baronetcy of Mounton Grange and to the ownership of the coal and iron works founded by his father. He was vice chairman of Dorman, Long & Co., chairman of the Horden Collieries, Ltd., and Pearson and Dorman Long, Ltd., and director of the London & North Eastern Railway Co. and the Yorkshire Insurance Company. He was an authority on all questions connected with the coal and iron industries and an ardent free trade advocate. In 1906 he was appointed Lord Lieutenant of the North Riding, Yorkshire, and in 1918 a Companion of the Bath.

Bellinger, Brig. Gen. John B., U. S. A., died Sept. 22, 1931.

Bennett, (Enoch) Arnold, died May 27, 1931.

Bentley, Wilson Alwyn. American meteorologist, died Dec. 23, 1931, in Jericho, Vt., where he was born Feb. 9, 1865. A student of snow crystals, he developed a special camera capable of high magnification with which

he made thousands of photomicrographs of snow, frost, and ice-crystal formations and also of dew and rain drops. Various monographs which he wrote relating to these studies were published by the U. S. Weather Bureau.

Bergman, Hjalmar. Swedish playwright, died in Berlin, Germany, Jan. 1, 1931. He was born in Örebro, Sweden, Sept. 19, 1883, and attended the University of Upsala. His plays were favorably received in the Scandinavian countries and Germany, his last being *Markurelle i Wadköping* (Eng. trans., *God's Orchid*), which was presented in Stockholm in November, 1930.

Berry, Joseph Flintoft. American clergyman, died in Winter Park, Fla., Feb. 11, 1931. He was born in Aylmer, Ont., Canada, May 13, 1856. Ordained to the Methodist ministry in 1874, he successively held pastorates in Memphis, Algonac, Fort Huron, Caro, and Mt. Clemens, Mich. He also was associate editor of the *Michigan Christian Advocate* from 1884 to 1890 and editor of the *Epworth Herald* from 1890 to 1904. In the latter year he was elected a bishop, being resident for a number of years in Philadelphia, Pa. At the time of his retirement in 1928 he was the active senior bishop of the Methodist Episcopal Church.

Berthelot, Henri-Mathias, died Jan. 28, 1931.

Beyer, Samuel Walker, died June 2, 1931.

Billot, Ludovico (Louis), died Dec. 18, 1931.

Bisset, Sir Murray. South African jurist, died in Salisbury, Rhodesia, Oct. 25, 1931. He was born in Kenilworth, Capetown, Apr. 14, 1876, and attended the Diocesan College, Rondebosch, being admitted as an advocate to the Supreme Court of the Cape of Good Hope in 1899. He was a member of the Legislative Assembly of the Union of South Africa during 1915-24, Acting Governor of Southern Rhodesia during 1926-28, and after 1926 Chief Justice of the High Court of Southern Rhodesia. He was also co-author of Bisset and Smith's *Digest of South African Case Laws* and was knighted in 1928.

Blockson, Maj. Gen. Augustus Perry, U. S. A., Ret. American soldier, died in Miami, Fla., July 26, 1931. He was born in Zanewille, Ohio, Nov. 7, 1854, and was graduated from the United States Military Academy in 1877. Commissioned in the cavalry, he served on the Arizona frontier against the Apache Indians, and during 1890-91 in South Dakota against the Sioux Indians. He also participated in the Spanish-American War, the Boxer rebellion in China, and the Philippine insurrection. On the entry of the United States into the World War he was appointed commander of Camp Cody at Deming, N. Mex. In April, 1918, he was transferred to Honolulu as commander of the Hawaiian Department, where he remained until his retirement in November.

Boldini, Giovanni (Jean). Italian-French painter, died in Paris, France, Jan. 11, 1931. Born in Ferrare, Italy, in 1845, he attended the Academy of Florence and also studied in London and Paris. Spoken of as the Sargent of his country, he was from the turn of the century until the outbreak of the World War one of the most distinguished of portrait painters. Outstanding among his portraits are those of Whistler and Helleu, whose inseparable companion he was, Céline Montaland, Robert de Montesquieu, the Princess von Hohenlohe, the Duchess of Marlborough, Mme. Schneider de Creusot, Mrs. George W. Vanderbilt, and Mrs. Philip Lydig.

Bonser, Frederick Gordon. American educator, died in Pompton Lakes, N. J., June 8, 1931. He was born in Tower Hill, Ill. June 14, 1875, and was graduated from the University of Illinois in 1901. After serving as director of the training school of the Cheney (Wash.) State Normal School from 1902 to 1905 and of the Macomb (Ill.) State Normal School from 1906 to 1910, he became professor of education at Teachers College, Columbia University. He was a member of the Philippine Educational Survey Commission in 1925 and of the Virginia and New Jersey State Educational Surveys in 1927 and 1929, respectively. His works include *The Reasoning Ability of Children* (1911); *Industrial Education* (1914); *Educational Use of Recreation Activities of Children* (1918); *The Elementary School Curriculum* (1920); and *Industrial Arts for Elementary Schools* (1923).

Booth, Ralph Harman, died June 20, 1931.

Bowman, John McEntee. American hotel owner and sportsman, died in New York City Oct. 28, 1931. Born in Toronto, Ont., Canada, July 20, 1875, he was at the time of his death president of the Bowman Biltmore Hotels Corporation, comprising the Hotels Biltmore, Commodore, and Murray Hill in New York City; Bellevue Biltmore, Belleair, Fla., and Sevilla Biltmore, Havana, Cuba. There also were affiliated Biltmore hotels in Atlanta, Ga.; Wilmington, Del.; Phoenix, Ariz.; Providence, R. I.; and Los Angeles, Pasadena, and Santa Barbara, Calif. He was a founder of the United Hunts Racing Association and president of the National Horse Show Association of America, Ltd.

Boyden, Roland William, died Oct. 25, 1931.

Brandes, Carl Edvard Cohen, died Dec. 20, 1931.

Breed, David Biddle, died Dec. 10, 1931.

Brentano, Lujo, died Sept. 9, 1931.

Bristol, Charles Lawrence, died Aug. 27, 1931.

Brooks, Samuel Palmer. American educator, died in Waco, Texas, May 14, 1931. He was born in Milledgeville, Ga., Dec. 4, 1863, and was graduated from Baylor University in 1898. Prior to his election as president of Baylor in 1902, he was professor of history and economics. In 1905 he became corresponding secretary of the Texas Baptist Educational Commission. He also was president of the college section of the Texas State Teachers Association (1901-19), of the Baptist General Convention of Texas (1914-17), and of the Southern Sociological Congress (1915). In 1907 he organized the Texas Peace Congress, the first State organization of its kind in the United States.

Brown, James Roger. American accountant and economist, died in New York City, Sept. 20, 1931. He was born in Mount Forest, Ont., Canada, Aug. 15, 1863. Removing to New York City in 1886, he practiced accounting there until 1910. He was active for many years in the movement for a single tax on land popularized by Henry George during the '80s, lecturing and writing on that and other economic subjects and publishing the journal *Taxation*. After 1915 he was president of the Manhattan Single Tax Club, and he also was a trustee of the Robert Schalkenbach Foundation, established in 1924 for the propagation of the theories of single tax and international free trade. His publications include *The Farmer and the Single Tax* (1915); *Plain Talk on Taxation* (1916); and *An Open Letter to Legislators* (1917).

Brown, Katharine Holland. American author, died in Orlando, Fla., June 2, 1931. Born in Alton, Ill., she attended the University of Michigan. Her first novel, *Diane, a Romance of the Icarian Community*, appeared in 1904. It was followed by *Dawn* (1907); *Philippa at Halcynon* (1910); *The Messenger* (1910); *White Roses* (1910); *Uncertain Irene* (1911); *Hallowell Partnership* (1912); *Wages of Honor* (1917); and *The Touchstone* (1919). In 1927 *The Father* won the prize of \$25,000 offered by the *Woman's Home Companion* and the John Day Company.

Brownell, George Griffin. American educator and agriculturalist, died in Neuilly, France, Aug. 28, 1931. He was born in Fairfield, N. Y., July 2, 1869, and was graduated from Syracuse University in 1893 and with the Ph.D. degree from Johns Hopkins University in 1904. From 1898 to 1925 he was professor of Romance languages at the University of Alabama. He also was an expert in the culture of hardy citrus fruits and had been connected with the U. S. Department of Agriculture in this capacity since 1911. He edited *El Capitán Veneno* (1901); *El Pájar Verde* (1901); and *La Vida de Vasco Núñez de Balboa* (1913) and was the author of *Position of the Attributive Adjective in Don Quixote* (1910).

Bruce, Maj. Gen. Sir David, died Nov. 27, 1931.

Bruce, George, died Aug. 5, 1931.

Bull, Carroll Gideon. American pathologist, died in Baltimore, Md., May 31, 1931. He was born in Knoxville, Tenn., June 22, 1884, and was graduated from Peabody College in 1907 and with the M.D. degree from the University of Nashville in 1910. He was a teacher of bacteriology and pathology at the Lincoln Memorial University during 1910-12, and from 1913 to 1917 was an assistant and associate in pathology at the Rockefeller Institute, New York City, where in collaboration with Ida W. Pritchett he discovered an effective antitoxin for war gangrene. In 1918 he became associate professor and in 1921 professor of immunology in the school of hygiene and public health at the Johns Hopkins University. He specialized in researches in agglutination of bacteria in vivo, toxin and antitoxin for *Bacillus Welchii*, and sources of the common cold.

Burgess, John William, died Jan. 13, 1931.

Butcher, William Lewis. American social worker, died in Brooklyn, N. Y., Jan. 15, 1931. He was born in Holyoke, Mass., Oct. 1, 1886, and attended Columbia University. After being engaged in advertising for several years, he became director of the West Side Boys' House in New York City (1910-13) and of the Brace Memorial Newsboys' House (1913-22). He was also a director of the New York Children's Aid Society; founder and secretary of the International Boys' Week; secretary of the International Boys' Work Council; special field commissioner of the Boy Scouts of America; and director of the Boys' Club Federation. In addition to being a member of the New York State Crime Commission, he was chairman of its Sub-Commission on Causes of Crime and vice chairman of the New York City Advisory Crime Prevention Commission.

Caine, Sir Hall, died Aug. 31, 1931.

Callela, Axel G. Finnish painter, died in Stockholm, Sweden, Mar. 7, 1931, aged 65. Regarded as one of the most original of Scandinavian artists, he was known for his interpretations of old Finnish epics in paintings, etchings, and drawings. During 1928-25 he was in the

United States, painting a number of portraits, and exhibited in San Francisco and Chicago.

Capelle, Admiral Eduard von. German naval officer, died in Wiesbaden Feb. 23, 1931. He was born in Celle, Oct. 10, 1855. Joining the German navy in 1872, he was advanced through the grades to admiral in 1913. In 1904 he was appointed director of management of the fleet, and in 1914 became Under-Secretary of State for Marine. Following the resignation of Admiral von Tirpitz in 1916, he succeeded to the office of Secretary of State for Marine, which he held until the close of the World War. He was charged by the Allies, both during and after the War, with advocating unrestricted submarine warfare.

Caraway, Thaddeus E., died Nov. 6, 1931.

Carr, Herbert Wildon, died July 8, 1931.

Carroll, Henry King, died Jan. 21, 1931.

Carson, Howard Adams, died Oct. 26, 1931.

Carter, Fernando. American painter and art director, died in Syracuse, N. Y., July 16, 1931. Born in Boston, Mass., in 1855, he studied at the Boston Museum School of Art and later achieved success as a landscape painter. Appointed director of the Syracuse Museum of Fine Arts, he built up an important permanent collection of paintings exclusively by American artists.

Carter, W. S. Canadian educator, died in Fredericton, N. B., Jan. 7, 1931. He was born in Kingston, N. B., in July, 1858, and was graduated from the University of New Brunswick in 1881. After teaching in the high schools of St. John, N. B., for several years he became in 1886 inspector of schools in that city, and in 1909 superintendent of education for the Province of New Brunswick. He was president of the Dominion Educational Association in 1918, and at the time of his death was president of the Senate of the University of New Brunswick.

Casey, The Most Rev. Timothy. Roman Catholic Archbishop of Vancouver and Metropolitan of British Columbia, died in Vancouver, B. C., Oct. 5, 1931. He was born in Charlotte Co., N. B., Feb. 20, 1862, and attended the University of St. Joseph, Memramcook, N. B., and Laval University, Quebec. On ordination in 1886 he served successively as curate and rector of St. John's Church, Fredericton, N. B. In 1899 he became Titular Bishop of Utina and in 1901 Bishop of St. John. In 1912 he was elevated to the archbishopric of Vancouver, where he distinguished himself through the extension of diocesan activities and the fostering of educational and charitable institutions.

Chacón, Lázaro. Guatemalan statesman, died in New Orleans, La., Apr. 10, 1931. He was born in Teculután June 27, 1873, and entered the Guatemalan army in 1892, being advanced through the grades to general in 1926. In 1921 he was chosen first designate to the presidency, and on the death of President José María Orellana in September, 1926, assumed the duties of that office. He was inaugurated as President on Dec. 18, 1926, following the national election, and served four years of a six-year term, resigning in December, 1930, on account of ill health.

Chadwick, George Whitefield, died Apr. 4, 1931.

Channing, Edward, died Jan. 7, 1931.

Charles, The Ven. Robert Henry, died Jan. 30, 1931.

Church, Irving Porter. American engineer, died in Ithaca, N. Y., May 8, 1931. He was born in Ansonia, Conn., July 22, 1851, and was graduated from Cornell University in 1873. From 1876 to 1892 he was assistant and associate professor of civil engineering at Cornell, and from 1892 to 1916 professor of applied mechanics and hydraulics, retiring as professor emeritus in the latter year. In 1929 the Lamme gold medal was awarded him by the Society for the Promotion of Engineering Education. He was the author of *The Mechanics of Engineering* (1890); *Notes and Examples in Mechanics* (1892); *Diagrams of Mean Velocity of Water in Open Channels* (1902); *Hydraulic Motors* (1905); and *Mechanics of Internal Work* (1910).

Clarke, Edmund Arthur Stanley. American capitalist, died in Rumson, N. J., May 15, 1931. He was born in Ottawa, Ont., Canada, Jan. 21, 1862, and was graduated from Harvard in 1884. After being associated with the Union Steel Company, the Illinois Steel Company, the Deering Harvester Company, and the International Harvester Company, he became president of the Lackawanna Steel Company in 1904 and of the Consolidated Steel Corporation in 1918. On the dissolution of the latter corporation in 1922, he was elected secretary of the American Iron and Steel Institute.

Clarke, Sir Edward George, died Apr. 26, 1931.

Clarke, Frank Wigglesworth, died May 23, 1931.

Clarke, Selah Merrill. American editor, died July 26, 1931, in Canandaigua, N. Y., where he was born in 1852. On graduation from Amherst College about 1873, he served as reporter on the *New York World*. In 1881 he became night city editor of the *New York Sun*, achieving distinction over a period of 30 years in maintaining the high standard of accuracy and finished style which had been established for that paper by Charles A. Dana. He retired in 1912.



Clayton, Herbert. British actor, playwright, and producer, died Feb. 16, 1931, in London where he was born Dec. 1, 1876. He attended St. Augustine's College, Ramsgate, where he studied to be an architect and surveyor, but abandoned that profession to go on the stage, appearing in the chorus of *The Circus Girl* in 1896. Five years later he played the title-role in *The Toreador*, and after touring the English provinces returned to London to appear in *Miss Hook of Holland* and *The Hon'ble Phil*. He subsequently played in New York in *The Rose of Persia* and toured Australia in *The King of Cadonia* and *The Dollar Princess*. He was the author or co-author of *The Hon'ble Phil*, *Susanna*, *Our Lits*, *You'd Be Surprised*, *Tilly*, *22 Carat*, and *Virginia*. From 1924 until his death he was managing director of Clayton and Waller, Ltd., London producers of musical comedy.

Clift, Albert Earl. American railway official, died in Savannah, Ga., May 30, 1931. He was born in Urbana, Ill., Oct. 15, 1896. Entering the service of the Illinois Central Railroad as a brakeman and conductor in 1888, he was promoted through the ranks to division superintendent in 1905. From 1910 to 1912 he was general superintendent of the company's southern lines, at New Orleans, and from 1912 to 1917 general superintendent of the northern and western lines, at Chicago. In 1917 he assumed the post of general manager, and in 1923 was promoted to vice president in charge of operation. In 1929 he became president of the Central of Georgia Railway, a subsidiary company of the Illinois Central. He also was president of the Ocean Steamship Company of Savannah, the Macon Terminal Company, and the Albany Passenger Terminal Company.

Clinedinst, Benjamin West. American painter, died in Pawling, N. Y., Sept. 12, 1931. He was born in Woodstock, Va., Oct. 14, 1859, and attended the Virginia Military Institute, later studying at the École des Beaux Arts and under Cabanel and Bonnat in Paris. He specialized in genre and portrait painting, his later portraits included Theodore Roosevelt, Rear Admiral Robert E. Peary, Gen. Curtis Lee, Edward Echols, and Gen. E. W. Nichols. He also was noted as an illustrator of the works of Hawthorne, Stevenson, Parkman, Bret Harte, Mark Twain, and others. Among the awards which he received were the Evans prize of the American Water Color Society (1900) and silver medals from the Pan-American Exposition at Buffalo (1901) and the Charleston Exposition (1902). He was elected an associate member of the National Academy of Design in 1894 and was chosen as a member in 1898.

Clyde, William Gray. American industrialist, died in Pittsburgh, Pa., Mar. 23, 1931. He was born in Chester, Pa., July 29, 1868, and was graduated from the Pennsylvania Military Academy in 1888. Until his affiliation with the Carnegie Steel Company in 1902, he was successively superintendent of the plate mills of the Wellman Steel & Iron Co., Thurlow, Pa.; superintendent of the Illinois Steel Company, South Chicago, Ill.; and sales manager for the American Steel Hoop Company, Philadelphia, Pa. He became vice president and general manager of sales of the Carnegie Steel Company in 1918 and president in 1925, holding the latter office until his resignation in 1930.

Cobb, Henry Ives, died Mar. 27, 1931.

Cole, Timothy, died May 17, 1931.

Comiskey, Charles A. American baseball administrator, died in Eagle River, Wis., Oct. 26, 1931. He was born in Chicago, Ill., Aug. 15, 1858, and at the age of 17 joined the Milwaukee Club as third baseman. While manager of the Cincinnati Club during 1892-95, he became associated with Byron Bancroft Johnson (q.v.) in the formation of the American League of Professional Baseball Clubs. After 1900 he was president and owner of the Chicago "White Sox" of the American League, which won the world's championship in 1906 and 1917.

Comstock, John Henry, died Mar. 20, 1931.

Condon, Randall Judson. American educator, died in Greenville, Tenn., Dec. 25, 1931. He was born in Friendship, Mo., July 10, 1862, and was graduated from Colby College in 1886. He was superintendent of schools in Everett, Mass. (1891-1902) and in Helena, Mont. (1902-10), and during the latter period was also secretary of the Montana State Text-Book Commission (1906-10). He held the same position in Providence, R. I. (1910-12) and in Cincinnati, Ohio (1913-29). In addition to serving as a member of the Ohio State Board of Education (1918-21), he was president of the American School Citizenship League (after 1913) and of the department of superintendence of the National Education Association (1926). At the time of his death he was engaged in making illiteracy surveys for the U. S. Department of the Interior. He was editor of the *Atlantic Reader*.

Consolo, Ernesto. Italian pianist, died in Florence, Mar. 21, 1931. He was born in London, England, Sept. 15, 1864, and studied at the Reale Liceo Musicale di Santa Cecilia in Rome under Sgambati and in Leipzig under Reinach. He appeared in concert in the principal cities of Europe and the United States, and for a time was a member of the faculties of the Chicago Musical College and the Institute of Musical Art in New York

City. At the time of his death he was teaching at the Cherubini Royal Institute of Music in Florence.

Cook, Arthur James. British labor leader, died in London Nov. 2, 1931. He was born in Wookey, Somerset, in 1885, and after obtaining an elementary education went to work in the coal mines of South Wales. In 1911 he won a scholarship at the Central Labor College, where he developed into an industrial agitator. He was imprisoned in 1918, and again in 1921, for taking part in strikes and lock-outs and for his sympathies with the Soviet government. In 1924 he was elected secretary of the Miners' Federation of Great Britain and also served during that year as international secretary of the coal conference at Geneva. He fomented the coal miners' strike and the general strike of 1926.

Cooke, Richard Joseph, died Dec. 25, 1931.

Cooke, Walter Platt, died Aug. 4, 1931.

Cornelis, Evert. Dutch conductor and pianist, died in Utrecht Nov. 24, 1931. Born in Amsterdam Dec. 5, 1884, he attended the Amsterdam Conservatory of Music, and in 1910 was engaged as second conductor of the Concertgebouw Orchestra in Amsterdam. He also formed in 1909 the famous Concertgebouw Sextet of wind instruments. In 1922 he became conductor of the Utrechtsch Stedelijk Orchestra. He was also a pianist of international reputation.

Corradini, Enrico. Italian journalist and senator, died en route between Venice and Rome Dec. 10, 1931. Born near Florence in 1868, he became one of Italy's leading journalists, being successively editor of *Idea Nazionale*, *La Tribuna*, and *Il Giornale d'Italia*. He was also prominent as a dramatist, his best-known play being *Carlotta Corday*. He was a leader of the Nationalists but joined the National Fascist party, and in 1923 was appointed to the Senate.

Cotton, Joseph Potter, died Mar. 10, 1931.

Cowley, Sir Arthur Ernest, died Oct. 12, 1931.

Crane, Richard Teller, Jr. American industrialist, died in New York City, Nov. 7, 1931. He was born in Chicago Nov. 7, 1873. On graduation from the Sheffield Scientific School, Yale University, in 1895 he entered the foundries of the Crane Company in Chicago, established by his father in 1855. In 1898 he became second vice president and in 1914, following the death of his father, president. At the time of his death he was reputed to be next to Julius Rosenwald the wealthiest man in Chicago.

Creel, Enrique C. Mexican capitalist and statesman, died in Mexico City Aug. 17, 1931. Born Aug. 31, 1854, he became one of the wealthiest men in Mexico, but lost a large part of his fortune in the revolution of 1913 when his properties in Chihuahua were confiscated by order of Francisco Villa. He was a founder, director, and general manager for 20 years of the *Banco Minero*, or Miners' Bank, in Chihuahua City and a promoter of the railway which was afterwards incorporated as the Kansas City-Mexico & Oriente Railway. He also served as governor of Chihuahua, as Minister of Foreign Affairs during the administration of President Diaz, and as Ambassador to the United States in 1909-12.

Crockett, Walter Hill. American journalist, died in Burlington, Vt., Dec. 8, 1931. Born in Colchester, Vt., June 26, 1870, he was a member of the editorial staff of the *Burlington Free Press* (1895-1901), news editor of the *St. Albans (Vt.) Messenger* (1901-09), managing editor of the *Montpelier Journal* (1909-13), and director of the Vermont State Publicity Bureau after 1913. He was elected a State senator in 1927 and 1929, and had served since 1929 as chairman of the State Constitutional Revision Commission. He was author of *A History of Lake Champlain* (1909) and editor of *Vermonters* (1931).

Crowell, John Franklin, died Aug. 6, 1931.

Curtis, Edward P. American labor leader, died in Kansas City, Mo., May 7, 1931, aged 64. Prior to his election as vice president of the Order of Railway Conductors in 1907, he was a fireman, brakeman, and conductor on the Missouri, Kansas & Texas Railway. In 1923 he became secretary and treasurer of the order, and in 1928 was elected its president.

Curtis, John Jay. American publisher, died July 22, 1931, in Indianapolis, Ind., where he was born Jan. 21, 1857. On graduation from the North Western Christian (later Butler) University in 1879, he became associated with Bowen, Stewart & Co., Indianapolis book publishers. He was successively manager of the retail department, secretary, vice president, and president (after 1926) of this firm which was reorganized as Bobbs-Merrill & Co. He established the New York office in 1898, remaining there until 1920 when he went to Hollywood to establish a branch in connection with the firm's motion-picture interests. He was known as the "dean of modern book advertising," one of his principal innovations being the colored pictorial book jacket.

Da Costa, John. British painter, died in London, May 27, 1931. He was born in Teignmouth, Dec. 28, 1867, and studied at Southampton and in Paris. His early work was influenced by Bastien Le Page and the "plein-air" school of France, and during this period he painted "Pastoral" (1892), "Youth and Age" (1894), "Child-



hood" (1895), and "The Promise of the Spring" (1897). His paintings were shown at almost every important exhibition in Great Britain, including the Royal Academy, Royal Institute of Oil Painters, and Pastel Society, and were found in many of the provincial galleries. He also was represented at exhibitions in Berlin, Munich, Vienna, Rome, Ghent, and in art centres of the United States, including New York, Philadelphia, Pittsburgh, Boston, Detroit, and Baltimore. In 1906 he won honorable mention at the Paris Salon and a medal the following year. During his later years he became noted for his portraits of persons prominent in society.

Dalton, John Neale, British clergyman, died at Windsor, July 28, 1931. He was born in Kent, Sept. 24, 1839, and attended Clare College, Cambridge. Ordained in the Church of England, he was curate of St. Edward's Chapel, Cambridge, during 1866-69 and of Whippingham during 1869-71. He was then appointed tutor to Queen Victoria's grandsons, Prince Albert Victor and Prince George, which post he held until 1879. He was also royal chaplain while the princes were serving as midshipmen on board the *Bacchante* during 1879-82. In 1884 he was appointed canon and steward of St. George's Chapel, Windsor, and served as chaplain-in-ordinary and deputy clerk of the closet to Queen Victoria and King Edward VII and as domestic chaplain to King George V. He was created a Companion of St. Michael and St. George in 1882, a Commander of the Royal Victorian Order in 1901, and a Knight Commander of the Royal Victorian Order in 1911. His writings include *Sermons to Naval Cadets* (1879); *The Cruise of H. M. S. Bacchante* (1886); *Ordinale Exon* (3 vols., 1908, 1926); and *The Book of Common Prayer, Proposals and Suggestions* (1920).

Dana, Richard Henry, died Dec. 16, 1931.

Davenport, Herbert Joseph, American economist, died in New York City, June 17, 1931. He was born in Wilmington, Vt., Aug. 10, 1861, and was graduated from the University of South Dakota in 1894 and with the Ph.D. degree from the University of Chicago in 1898. From 1902 to 1907 he was assistant professor of political economy at the University of Chicago, and during 1907-08, associate professor. He then went to the University of Missouri, where he was head of the department of political economy until 1914 and dean of the school of commerce until 1916. He was professor of economics at Cornell University from 1916 to 1930, and at the time of his death was a member of the Los Angeles faculty of the University of California. His works include *Outlines of Economic Theory* (1896); *Elementary Economic Theory* (1898); *Value and Distribution* (1908); and *Economics of Enterprise* (1913).

Davis, George Samler, American educator, died Jan. 7, 1931, in New York City where he was born Oct. 22, 1858. On graduation from the College of the City of New York in 1880, he became a teacher in the New York public schools, being appointed assistant superintendent of schools in 1887 and associate city superintendent in 1896. In 1908 he was elected president of Hunter College (then known as the Normal College of the City of New York). During his administration he succeeded in raising the standards of the institution and in developing it into the largest of the teacher-training colleges in the United States. He retired as president emeritus in 1928.

Davis, Harry Phillips, died Sept. 10, 1931.

Davis, Ozora Stenrus, American theologian, died Mar. 15, 1931. He was born in Wheelock, Vt., July 30, 1866, and was graduated from Dartmouth College in 1889 and from the Hartford (Conn.) Theological Seminary in 1894. Ordained to the Congregational ministry he was successively, from 1896 to 1908, pastor in Springfield, Vt., Newtonville, Mass., and New Britain, Conn. In 1909 he was elected president of the Chicago Theological Seminary. He also was moderator of the National Council of the Congregational Churches in 1927-29. Among his works are: *John Robinson—the Pilgrim Pastor* (1903); *The Pilgrim Faith* (1913); *Meeting the Master* (1917); *International Aspects of Christianity* (1919); and *Preaching the Social Gospel* (1922).

Davis, Vernon Mansfield, American jurist, died Apr. 17, 1931, in New York City where he was born Jan. 29, 1855. He was graduated from the College of the City of New York in 1876 and from the Columbia law school in 1879. Admitted to the New York bar, he was associated for many years with Davis, Cohen and McWilliam. He also acted as assistant district attorney of New York County from 1885 to 1896 and as district attorney during 1896-97. In 1902 he was elected justice of the Supreme Court of New York, and was re-elected in 1916. He also served as commissioner of education of the City of New York from 1899 to 1902 and as president of the Society for the Prevention of Cruelty to Children from 1901 to 1904.

Deaver, John Blair, died Sept. 25, 1931.

De Forest, Robert Weeks, died May 6, 1931.

De Kalb, Courtenay, died Sept. 2, 1931.

Denning, William Frederick, died June 9, 1931.

Dennis, Alfred Pearce, died Aug. 28, 1931.

Dercum, Francis Xavier, died Apr. 23, 1931.

De Villiers, Sir John Abraham Jacob, died Apr. 2, 1931.

Dewey, Melvil, died Dec. 26, 1931.

Dibelius, Wilhelm, died Jan. 28, 1931.

Dickey, Walter S. American industrialist and publisher, died in Kansas City, Mo., Jan. 22, 1931. Born in Toronto, Ont., Canada, in 1863, he came to Kansas City in 1886, becoming engaged in the manufacture of sewer pipes and later founding the W. S. Dickey Clay Manufacturing Company. He also was publisher, from 1921 to 1929, of the *Kansas City Journal-Post*. For many years he was a member of the Missouri Waterways Commission; served as vice chairman of the Inland Waterways Commission of the U. S. Railway Administration during the World War; and at the time of his death was president and treasurer of the Kansas City Missouri River Navigation Company. He also was active in politics, being chairman of the Republican State Committee of Missouri in 1908 and Republican nominee for the U. S. Senate in 1916.

Dillaye, Blanche, American painter, died in Philadelphia, Pa., Dec. 20, 1931. Born in Syracuse, N. Y., in 1851, she attended the Pennsylvania Academy of Fine Arts and studied etching under Stephan Parrish and painting under Garrido in Paris. She exhibited in the Paris Salons, in British galleries, and in the principal exhibitions of the United States, and was represented in the art collections of the Syracuse Museum of Fine Arts and Syracuse University. In addition to winning silver medals for etchings at the Atlanta Exposition (1895) and the Universal Exposition in Lorient, France (1903), she won the gold medal for water color at the National Conservation Exposition in Knoxville, Tenn. (1913). Among her works are "Still Evening and the Little Street" and "Arrangement in Green."

D'Indy, Vincent. See Indy, Paul Marie Théodore Vincent d'.

Dinkey, Alva Clymer, died Aug. 11, 1931.

Dixon, Walter Ernest, British pharmacologist, died in Cambridge, Aug. 16, 1931. Born at Fern Bank, Darlington, he attended the University of London from which he received the B.S. and M.D. degrees. For some years he was professor of materia medica and pharmacology at King's College, London, and in 1909 was called to Cambridge as university lecturer in pharmacology. In 1919 his post was made that of reader in pharmacology, and he also was appointed assessor to the Regius professor of physics at Cambridge. He was a past president of the physiology section of the British Association for the Advancement of Science. In addition to being a member of the government committees on food preservatives, drug addiction, and ethyl petrol, he served on the League of Nations expert committee on drugs of addiction.

Dodge, Philip Tell, American lawyer and inventor, died in Rye, N. Y., Aug. 9, 1931. He was born in Fond-du-Lac, Wis., July 11, 1851, and was graduated from Columbian (later George Washington) University in 1873. During his 25-year practice as a patent attorney in Washington and New York City, he became interested in many inventions, particularly those related to printing. He perfected the linotype machine through the addition of certain typewriter features, and for 37 years was president of the Mergenthaler Linotype Company, manufacturers of typesetting and composing machines used the world over in 40 languages. His other inventions pertained to firearms and photography. In 1913 he was made president of the International Paper Company and was largely responsible for the expansion of its Canadian mills. He also was a past president of the Royal Typewriter Company and the Columbia Phonograph Company and chairman of Linotype and Machinery, Ltd., London.

Dodson, John E., died Dec. 9, 1931.

Doherty, Charles Joseph, died July 28, 1931.

Dorman, Sir Arthur John, British industrialist, died in Nunthorpe, Yorkshire, Feb. 12, 1931. Born in Ashford, Kent, Aug. 8, 1848, he was apprenticed in 1866 to Richardson, Johnson & Co., ironworkers. In 1876, with Albert de Lande Long, he founded the firm of Dorman, Long & Co., which acquired the West Marsh and Britannic Ironworks. A bridge-building and constructional department were subsequently added. In 1899 this firm joined with Bell Bros., Ltd., in producing open-hearth steel from Cleveland iron, and the success of the enterprise led to the erection of a plant at Redcar and the absorption of numerous iron and steel subsidiaries. He was created a Knight Commander of the Order of the British Empire in 1918 and a baronet in 1923.

D'Orsay, Lawrence, died Sept. 13, 1931.

Dorsey, George Amos, died Mar. 29, 1931.

Douglas, Davison McDowell, American clergyman and educator, died in Columbia, S. C., Aug. 1, 1931. He was born in Blackstock, S. C., June 20, 1869, and was graduated from Davidson College in 1895 and from the Columbia (S. C.) Theological Seminary in 1899. Ordained in the Presbyterian ministry in 1900, he was

pastor in Brevard and Davidsons River, N. C., until 1904 and of the Maryland Avenue Church, Baltimore, until 1911. He was then elected president of the Presbyterian College of South Carolina, and had served since 1927 as president of the University of South Carolina. In 1925 he was moderator of the Synod of South Carolina.

Douglas, Earl. American geologist and paleontologist, died in Salt Lake City, Utah, Jan. 18, 1931. He was born in Medford, Minn., Oct. 28, 1862, and was graduated from the Iowa State College of Agriculture and Mechanic Arts in 1893. In 1902, after teaching geology, physical geography and physics at the University of Montana for several years, he joined the staff of the paleontological department of the Carnegie Museum in Pittsburgh, Pa. In 1909 he discovered an immense deposit of Comanchean dinosaur skeletons near Jensen and Vernal, Utah, a region which was later set aside as the Dinosaur National Monument and in which he continued to work until his resignation from the Carnegie Museum in 1924. He was also interested in the investigation of oil problems, including the origin of oil-shales and asphalts, and made a special study of vein hydrocarbons.

Dowman, Charles Edward. American surgeon, died in Atlanta, Ga., Nov. 14, 1931. He was born in Quincy, Fla., Apr. 1, 1882, and was graduated from Emory University in 1901 and with the M.D. degree from the Johns Hopkins University in 1905. After acting as clinical assistant in Berlin, Breslau, and London, he began practice in Birmingham, Ala., in 1908, becoming in 1911 professor of pathology at the Birmingham Medical College and in 1913 associate in surgery at the University of Alabama. Removing to Atlanta, he was from 1915 to 1924 successively instructor, associate, and assistant professor of surgery at Emory University. In the World War he served at the mobile hospitals in the St. Mihiel and Argonne offensives. As neurological surgeon, he became noted especially for his delicate brain operations.

Draper, Daniel, died Dec. 21, 1931.

Draper, John William. American surgeon, died Jan. 26, 1931, in New York City where he was born Aug. 21, 1871. He was graduated from Harvard in 1895 and with the M.D. degree from New York University in 1898. In addition to his practice in New York City, he was instructor in histology at the New York University medical school (1900-01); in operative surgery at the New York Polyclinic School and Hospital (1900-02); and in the surgical research laboratory of the College of Physicians and Surgeons, Columbia University. In 1909 he was called to the Mayo Clinic in Rochester, Minn., and on his return in 1913 became associate in surgery and director of the laboratory of surgical research at the New York University medical school. He was also attending surgeon at the New Jersey State Hospital for the Insane in Trenton, N. J. At the time of his death he was director of the Andrew Todd McClintock Foundation in New York City.

Dreyer, George Peter. American physician, died in La Grange, Ill., Feb. 27, 1931. He was born in Baltimore, Md., Sept. 22, 1866, and was graduated from Johns Hopkins University in 1887, receiving the Ph.D. degree in 1890. He also attended the College of Physicians and Surgeons, Baltimore, during 1890-91. After teaching in the medical school of Johns Hopkins University from 1893 to 1900, he became professor of physiology and head of the department of physiology and physiological chemistry in the college of medicine of the University of Illinois. During 1913-15 he was also junior dean of the college. His best-known research was the discovery of the secretory nerves of the suprarenal glands and his work on blood proteins and differential respiration.

Druce, Hubert. British actor and producer, died in New York City, Apr. 6, 1931. He was born in Twickenham, May 20, 1870, and attended the University College School, London. He made his debut in 1887 in *The Blue Belles of Scotland*, and in 1889 accompanied Richard Mansfield to the United States, appearing in *Richard III*. In 1893 he joined the first touring company of *The Sign of the Cross* and played the part of Glabrio about 1000 times in England, South Africa, and the United States. He returned to the United States in 1912 to support John Drew in *The Perplexed Husband* and later appeared in *Redemption* (1918), *Deburau* (1920), *The Pigeon* (1922), *Seventh Heaven* (1922), *The School for Scandal* (1925), *The Play's the Thing* (1926), *The Command Performance* (1928), *Topaze* (1930), and *The Admirable Critchton* (1931). He was also prominent as a London manager and producer, his productions since 1901 including *The Night of the Party*, *The Cure*, *The Duffer*, *Billy Rottensford's Descent*, and *The Darling of the Gods*.

Dunlap, Brig. Gen. Robert Henry, U.S.M.C. American marine officer, died at Cinq-Mars-la-Pile, France, May 19, 1931. He was born in Washington, D. C., Dec. 22, 1879. Entering the U. S. Marine Corps in 1898, he served in the Spanish-American War, the Philippine Insurrection, and the Boxer Campaign. He was also in

Panama (1903-04), Cuba (1906), Vera Cruz, Mexico (1914), Haiti (1915), and Santo Domingo (1916). During the latter part of the World War he commanded the 17th Regiment of Field Artillery in France, participating in the Meuse-Argonne offensive and the march to the Rhine. From 1922 to 1924 he commanded the Marine detachment at the American Legation in Peking, China, after which he was assigned to the Marine Corps school in Quantico, Va. He was in Nicaragua during 1928-29 in command of the 11th Regiment and later of the Second Brigade of Marines. In 1930 he commanded the Marine Corps base at San Diego, Calif., and at the time of his death was on detached duty in France, attending the École Supérieure de la Guerre.

Dutton, Brother Joseph, died Mar. 26, 1931.

Dyke, Sir William Hart. British statesman, died in Lullington Castle, Dartford, Kent, July 8, 1931, where he was born Aug. 7, 1837. After attending Harrow and Christ Church, Oxford, he entered Parliament as member for West Kent in 1865. He was reelected in 1868 and continued to represent West Kent until 1885, when he was returned to the House of Commons for the Dartford Division of Kent, representing the latter constituency until 1906. He was a prominent figure during Gladstone's and Disraeli's ministries, serving as Conservative Whip from 1868 to 1874 and as Patronage Secretary to the Treasury from 1874 to 1880. In 1885-86 he was Chief Secretary for Ireland, and from 1887 to 1892 vice president of the Committee of Council on Education. He succeeded to the baronetcy in 1875.

Eakle, Arthur Starr. American mineralogist, died in Honolulu, T. H., July 5, 1931. He was born in Washington, D. C., July 27, 1862, and was graduated from Cornell University in 1892 and with the Ph.D. degree from the University of Munich in 1896. After acting as assistant and instructor in mineralogy at Cornell (1892-94) and Harvard (1897-1900), he became instructor in that subject at the University of California, assistant professor in 1903, associate professor in 1912, and professor in 1919. On his retirement in 1930 he went to the University of Honolulu, where he was also engaged in making a mineral survey of the Hawaiian Islands. He was president of the Mineralogical Society of America in 1925 and was the author of several bulletins on the minerals of California published by the Department of Geology of the University of California and the California Mining Bureau.

Edeson, Robert, died Mar. 24, 1931.

Edison, Thomas A. (Iva), died Oct. 18, 1931.

Edwards, Charles Gordon. American lawyer and congressman, died in Atlanta, Ga., July 13, 1931. He was born in Tattall Co., Ga., July 2, 1878, and attended the Florida State College (later the University of Florida) and the University of Georgia, being graduated from the latter in 1898. He practiced in Savannah, Ga., where he also served for two and a half years as president of the Board of Trade and as a member of the Harbor Commission. In 1906 he was elected to the 60th Congress from the 1st Georgia District and was reelected for each succeeding Congress until the 64th, voluntarily retiring in 1917. He was returned to Congress in 1924, serving in the 69th to 71st Congresses and being reelected to the 72d. In 1927, in view of charges of favoritism in the foreign service, he introduced a resolution requesting a report from the State Department on the whole system of diplomatic appointments.

Edwards, Maj.-Gen. Clarence Ransom, died Feb. 14, 1931.

Edwards, Edward Irving, died Jan. 26, 1931.

Elhot, Sir Charles (Norton Edgecombe), died Mar. 16, 1931.

Elliott, Maj.-Gen. George Frank, U.S.M.C., Ret., died Nov. 4, 1931.

Eltinge, Brig. Gen. LeRoy, U.S.A., died May 14, 1931.

Emerson, Frank Collins. American civil engineer and Governor of Wyoming, died in Cheyenne Feb. 18, 1931. He was born in Saginaw, Mich., May 26, 1862, and was graduated from the University of Michigan in 1904. From 1907 to 1915 he was chief engineer with the Wyoming Land & Irrigation Co. and the Wyoming Irrigation Company; from 1915 to 1919, superintendent of the Big Horn Canal Association and the Lower Hanover Canal Association; and from 1919 to 1927, State Engineer of Wyoming. In addition, he served as the commissioner for Wyoming on the Colorado River Commission, which drafted the Colorado River Compact, and as Wyoming representative on the board of review upon the North Platte cooperative investigations. He was elected Governor of Wyoming in 1926 and was reelected for the term 1930-33.

Emerson, Harrington, died May 23, 1931.

Errázuriz, Orescente. Chilean historian and prelate of the Roman Catholic Church, died June 5, 1931, in Santiago where he was born Nov. 28, 1839. He attended the Seminario Conciliar, and on his ordination in 1863 became editor of the *Revista Católica*. After editing the *Estadante Católico* during 1874-84 he entered a Dominican convent under the name of Fray

Raimundo Errázuriz, where he remained until 1911, serving as librarian and also as prior on several occasions. In 1916 he was appointed by Pope Benedict XV Prothonotary in Chile, and in 1918 Archbishop of Santiago. He also held the chair of Canon Law at the University of Chile. He was elected a member of the Chilean Academy in 1879, and in 1915 was chosen director of that body. Among his works are *Los Orígenes de la Iglesia Chilena* (1873); *Seis Años de la Historia de Chile* (2 vols., 1881-82); *Compendio de Derecho Canónico* (1883); *Historia de Chile* (4 vols., 1902, 1911); and *Don García Hurtado de Mendoza* (1916).

Ewing, Robert, died Apr. 27, 1931.

Fallières, Clément Armand, died June 21, 1931.

Faulkner, John Alfred, died Sept. 6, 1931.

Fiero, J (James) Newton. American lawyer, died in Albany, N. Y., Apr. 13, 1931. He was born in Saugerties, N. Y., May 28, 1847, and was graduated from Union College in 1867. On being admitted to the New York bar in 1869 he practiced in Saugerties, Kingston, and Albany. In 1895 he became dean of the Albany Law School, in which position he continued until 1924. He was a member of the Constitutional Commission of New York State in 1890, and since 1909 had been State reporter. He was also president of the New York State Bar Association during 1892-94 and vice president of the American Bar Association during 1895-1902. He was the author of *Special Actions* (1897, 1908, and 1912); *Special Proceedings* (1899, 1911); and *Torts* (1903).

Figuerola, Emiliano. Chilean statesman and financier, died May 16, 1931, in Santiago where he was born about 1860. He attended the National Institute and the University of Chile and was admitted to the bar in 1889. In 1900 he was elected Deputy for the Department of Melipilla and during 1905-06 was first vice president of the Chamber. He was serving as Minister of Justice and Public Instruction in the cabinet of Pedro Montt in 1910 when the sudden deaths of the President and of the Vice President, Elías Fernández Albano, made him acting President. In 1911 he was appointed Chilean Minister to Argentina. He was elected President of Chile in 1925, assuming office December 23, but resigned 18 months later. During his administration there was considerable political upheaval on account of the Tacna-Arica dispute, but following its settlement in 1929 he was appointed Ambassador to Peru. At the time of his death he was president of the Bank of Chile.

Filler, Mervin Grant. American educator, died in Philadelphia, Pa., Mar. 28, 1931. He was born in Boiling Springs, Pa., Oct. 9, 1873, and was graduated from Dickinson College in 1893. After post-graduate study at the universities of Chicago and Pennsylvania he became professor of Latin at Dickinson College in 1899, dean in 1914, and president in 1928. He was also active in Chautauqua work, and from 1908 to 1912 was chancellor of the Pennsylvania Chautauqua. During the World War he was an associate secretary of the War Personnel Board of the International Y. M. C. A. in Washington.

Fish, Pierre Augustine. American veterinarian, died in Ithaca, N. Y., Feb. 19, 1931. He was born in Chatham, N. Y., Feb. 17, 1865, and was graduated from Cornell University in 1890, receiving the D.Sc. degree in 1894. In 1896 he became assistant professor, and in 1902 professor of comparative physiology and pharmacology in the bureau of animal husbandry of the college of agriculture at Cornell. He was later transferred to the veterinary college, where he was professor of veterinary physiology until his appointment as dean in 1929 on the retirement of Dr. V. A. Moore (q.v.). He was editor of the *Journal of the American Veterinary Medical Association* during 1916-18 and published *The Book of Veterinary Doses, Therapeutic Terms and Prescription Writing* (1904); *Examination of the Urine of the Horse and Man* (1906); and *Exercises in Physiology* (1906).

Fiak, Eugene Lyman, died July 5, 1931.

Fitzpatrick, Sir (James) Percy, died Jan. 25, 1931.

Fleming, David Hay. Scottish historian, died in Edinburgh Nov. 7, 1931. He was born in St. Andrews, May 9, 1849, and attended Madras College, St. Andrews. After being engaged in business for several years, he retired in 1883 to devote himself to the study of Scottish history. Among his works are *Martyrs and Confessors of St. Andrews* (1887); *Scotland after the Union of the Crowns* (1890); *Mary Queen of Scots* (1897); *Scottish History and Life* (1902); *Handbook on the Scottish Reformation* (1903); *The Story of the Scottish Covenants in Outline* (1904); and *The Reformation in Scotland: Causes, Characteristics, Consequences* (the Stone Lectures for 1907-08, 1910).

Fontaine, Victor Arthur Leon. French statesman, died Sept. 2, 1931, in Paris, where he was born Nov. 3, 1860. He attended the École Polytechnique and the École Supérieure des Mines, becoming in 1893 assistant director and in 1899 director of the Labor Office. During the World War he was president of the commission that examined, before their signature by the cabinet minis-

ters, contracts relating to manufactures of artillery, powder, and aviation supplies. As inspector general of mines, he also was president of the council of administration of the mines of the Saar. In 1919 he was French delegate to the International Labor Conference in Washington, and until shortly before his death was president of the governing group of the International Labor Office in Geneva.

Foot, John A., died Apr. 11, 1931.

Forsin, Jean Louis, died July 11, 1931.

Forgan, David Robertson. American banker, died in Evanston, Ill., Dec. 26, 1931. Born in St. Andrews, Scotland, Apr. 16, 1862, he emigrated to Canada at the age of 18, securing employment in the Bank of Nova Scotia in Halifax. He came to the United States in 1888, serving successively as cashier of the American Exchange Bank in Duluth, Minn., and of the Northwestern National Bank in Minneapolis. In 1896 he was made vice president and in 1898 president of the Union National Bank, Chicago. In 1907 he organized the National City Bank of Chicago and was its president until 1925, when it was merged with the National Bank of the Republic. He was vice chairman of that institution and also of the Central Republic Bank and Trust Company, which resulted from the merger in 1931 of the Central Trust Company and the National Bank of the Republic.

Foster, Sir George Eulas, died Dec. 30, 1931.

Foster, Sir Gregory. British educator, died in London Sept. 24, 1931, aged 65. Educated at University College, London, and the University of Strassburg, he became an assistant master at the University College School and served successively as professor of English language and literature at Bedford College, London, and secretary and assistant professor of English language and literature at University College, London. After acting as a member of the Moseley Education Commission to the United States in 1903, he was appointed provost of University College the following year, and during 1928-30 was also vice chancellor of London University. In both these positions he did constructive work at a critical period in the development of higher education in Great Britain. He was knighted in 1917 and created a baronet in 1930.

Frankel, Lee Kauer, died July 25, 1931.

Frederick Augustus, Grand Duke. Former ruler of the German grand duchy of Oldenburg, died in Berlin, Feb. 24, 1931. He was born in Oldenburg, Nov. 16, 1852, and fought in the Franco-Prussian War, being present at the proclamation of the German Empire at Versailles. He was later advanced to the rank of general in the Prussian cavalry. He also was interested in the development of the German mercantile marine, and in recognition of his invention of a steamer screw, known as the "Niki" propeller, was granted honorary degrees by the polytechnic schools of Danzig and Hanover. He succeeded his father, the Grand Duke Peter, in 1900 but abdicated on Nov. 11, 1918, during the revolution.

French, Daniel Chester, died Oct. 7, 1931.

Friedrich Leopold, Prince, of Prussia. German prince of the House of Hohenzollern, died in Flatow, Sept. 14, 1931. He was born in Berlin Nov. 14, 1865, son of Prince Friedrich Karl and grandson of Prince Friedrich Karl Alexander, a brother of Frederick William III. He held the rank of colonel-general in the Prussian Army, but on account of his alleged abuse of his wife, Princess Louise Sophie of Schleswig-Holstein, to whom he was married in 1889, he was ordered dismissed from the army and banished from the German Empire by the Kaiser. After the war he lived most of the time in Switzerland, where he continued his spendthrift career in spite of Germany's bankrupt condition.

Friedsam, Michael. American merchant, died Apr. 7, 1931, in New York City where he was born about 1860. He attended the Weston (Conn.) Military Academy, and at the age of 17 entered the employ of B. Altman & Co., dry goods merchants in New York City. In 1900 he was made a partner and in 1909, on the incorporation of the firm, vice president. He succeeded to the presidency on the death of Benjamin Altman in 1913. He was chairman of the commission appointed in 1927 to study and recommend improvements in financing New York State's public schools; president of the Fifth Avenue Association in New York City; and director of numerous banking and mercantile organizations. He was made a Commander of the French Legion of Honor in recognition of his interest in art and services to the French Government.

Fromkes, Maurice, died Sept. 17, 1931.

Fulton, John Samuel. American physician and public health administrator, died in Baltimore, Md., Aug. 12, 1931. He was born in Fremont, Ohio, Jan. 5, 1859, and was graduated from St. John's College, Annapolis, Md., in 1876 and with the M.D. degree from the University of Maryland in 1881. After being engaged in private practice from 1881 to 1888, he became professor of State medicine at the University of Maryland and lecturer at the School of Hygiene and Public Health of Johns Hopkins University. He was also secretary of the State

Board of Health of Maryland from 1896 to 1906, president of the Conference of State and Provincial Boards of Health of North America in 1905, secretary-general of the 6th International Congress on Tuberculosis in 1908 and of the 15th International Congress on Hygiene and Demography in 1912, and director of the State Board of Health of Maryland from 1923 to 1928.

Furst, Clyde (Bowman). American educator, died in New York City, Mar. 6, 1931. He was born in Williamsport, Pa., Aug. 29, 1873, and was graduated from Dickinson College in 1893. After acting as lecturer for the American Society for the Extension of University Teaching, he became in 1902 secretary of Teachers College, Columbia University. The following year he was made associate professor of English, but resigned from both these posts in 1911 to become secretary of the Carnegie Foundation for the Advancement of Teaching. He was also secretary of the Teachers Insurance and Annuity Association after 1918, and published numerous educational surveys and pension plans for teachers. He was the author of *A Group of Old Authors* (1900); *American Literature* (1911); and *The Efficient College* (1927), and contributed to the *New International Year Book* (1907-10).

Galeazzo, Prince, of Thun and Hohenstein. Grand master of the Order of St. John, commonly called the Order of Malta, died in Rome, Mar. 26, 1931. He was born in Tront, Tirol, Austria, Sept. 24, 1850, and was educated in Innsbruck and Prague. After being engaged in the Austrian civil service for many years he resigned to devote himself to the work of the Order, aiding especially in the expansion of its charitable work. In 1905 he became its 75th grand master. Under his leadership the Order was reorganized and strengthened by the founding of new associations in the Netherlands, Poland, Hungary, and the United States.

Gallipaux, Félix. French actor and dramatist, died in Paris, Dec. 7, 1931. He was born in Bordeaux, Dec. 12, 1860. Among his early works are: *Nos Acteurs dans la rue*; *Monologues et recits*; *Petites Vues sur de grands mots*; and the *Gallipettes* series, consisting of six humorous volumes. He later published *En tournée* (1913); *Un Mariage par procuration* (1922); *Aux autobus de la Trinité* (1924); and *Nous allons passer une bonne soirée* (1928).

Garland, The Rt. Rev. Thomas James Protestant Episcopal bishop of the Diocese of Pennsylvania, died in Philadelphia, Mar. 1, 1931. He was born in Belfast, Ireland, Oct. 25, 1866, and was graduated from St. Bees's College, England, in 1891 and from the Philadelphia Divinity School in 1903. Ordained a deacon in the Protestant Episcopal Church in 1891 and priest in 1892, he served successively as rector of All Saints' Church, Johnstown, Pa. (1892-94); Trinity Church, Coatesville, Pa. (1894-98); St. David's Church, Lorain, Ohio (1898-1900); and St. Paul's Church, Bristol, Pa. (1900-03). After acting as assistant editor of the *Church Standard* from 1903 to 1905, he became secretary of the Diocese of Pennsylvania and was elected bishop suffragan in 1911. He succeeded the Rt. Rev. Philip M. Rhineland as bishop in 1924.

Garretson, Austin Bruce, died Feb. 27, 1931.

Gauthier-Villars, Henry, died Jan. 12, 1931.

Gauvain, Auguste, died Apr. 18, 1931.

Genoa, Tommaso Alberto Vittorio, Duke of Italian prince of the House of Savoy, died Apr. 15, 1931, in Turin where he was born Feb. 6, 1854. His father, Prince Ferdinand, was a brother of Victor Emmanuel II, and his sister Margherita became the consort of Humbert I. He succeeded to the title on the death of his father a year after his birth. After attending Harrow and the Royal Naval Academy in Genoa, he entered the Italian Navy where he was advanced to admiral, retiring in 1904. During the World War he was appointed by King Victor Emmanuel III his lieutenant general.

Gibran, Kahlil. Syrian poet and artist, died in New York City, Apr. 10, 1931. Born in Lebanon, Syria, in 1883, he came to the United States about 1910 and for a time was editor of the Arabic newspaper *al-Mohajer*. He was considered one of the most authoritative poets and artists of modern Arabia, his work being distinctive for its mysticism and imagery. His published works in English include *The Madman* (1918); *The Fore-runner* (1920); *The Prophet* (1923); *Jesus, the Son of Man* (1928); and *The Earth Gods* (1931).

Giddings, Franklin Henry, died June 11, 1931.

Gidley, James Williams. American paleontologist, died in Washington, D. C., Sept. 26, 1931. He was born in Springwater, Iowa, Jan. 7, 1866, and was graduated from Princeton University in 1898, receiving the Ph.D. degree from George Washington University in 1922. From 1899 to 1905 he was associated with the American Museum of Natural History in New York City, and thereafter with the United States National Museum in Washington, where he was appointed assistant curator of fossil mammals in 1911. For both these museums he conducted various expeditions in the fossil localities of the United States, being an authority

on the prehistoric horse of North America and demonstrating through his investigations in Florida that man was contemporaneous with certain extinct animals of the Pleistocene period.

Gifford, Adam. American Salvation Army official, died in San Francisco, Calif., Sept. 27, 1931, aged 67. Born in Scotland, he entered the army's service in Pittsburgh in 1884, and was advanced through the ranks to provincial officer. In 1920 he was chosen territorial commander of the West, with headquarters in San Francisco, and at the time of his death was senior commissioner of the Salvation Army in the United States.

Gimbel, Isaac. American merchant, died in Greenwich, Conn., Apr. 11, 1931. He was born in Vincennes, Ind., Apr. 24, 1856, and began his career in the store which his father, Adam Gimbel, an immigrant from Bavaria, had established there in 1842. In 1887 he and his older brother, Jacob, removed to Milwaukee, Wis., where they established the first Gimbel department store. The expansion of their business began in 1894, when they purchased the Granville B. Hayes store in Philadelphia. They established their New York store, known as Gimbel Brothers, Inc., in 1910, and following the merger of the firm and Saks & Co. in 1923 organized Saks—Fifth Avenue and the Saks store in Chicago. Isaac Gimbel was elected president on the death of his brother in 1922 and became chairman of the board of directors in 1927.

Glenavy, First Baron (James Henry Mussen Campbell), died Mar. 22, 1931.

Goebel, Julius, died Mar. 27, 1931.

Goffe, James) Riddle. American surgeon, died in Bronxville, N. Y., Dec. 24, 1931. He was born in Kenosha, Wis., Aug. 10, 1851, and was graduated from the University of Michigan in 1873 and with the M.D. degree from Bellevue Hospital Medical College, New York City, in 1881. He had lectured at the New York Polyclinic Medical School and Hospital and at the Dartmouth Medical School, and was attending surgeon at the Polyclinic Hospital and the Woman's Hospital, New York City. In 1915 he was president of the International Congress of Obstetricians and Gynecologists.

Gold, Edward E. American inventor, died in New York City, Oct. 30, 1931, aged 84. Born in Waverly, Ill., he entered the employ of the Scovill Manufacturing Company in New York City about 1866, and in 1882 invented the car heating system which was adopted by many railroads in the United States, Canada, and Europe. This system utilized steam from the locomotive by means of a steam hose coupler. Later after the railroads began using electricity as motive power, especially on suburban lines, he developed an electric heater. At the time of his death he was chairman of the board of the Gold Car Heating & Lighting Co.

Goodwyn, Albert Taylor. American soldier, former commander-in-chief of the United Confederate Veterans, died in Birmingham, Ala., July 1, 1931. He was born in Elmore Co., Ala., Dec. 17, 1842, and during the Civil War participated in the bombardment of Fort Sumter and, as a captain of the 58th Alabama Regiment, was taken prisoner by the Union forces at the battle of Missionary Ridge. After the war he attended the University of Virginia. He was twice elected a member of the Alabama Legislature. In 1928 he became commander-in-chief of the United Confederate Veterans, and at the time of his death was vice president of the Robert E. Lee Memorial Foundation.

Gordon, Anna Adams. American temperance worker, died in Castle, N. Y., June 15, 1931. Born in Boston, Mass., July 21, 1853, she attended Mt. Holyoke College, and for 21 years was private secretary to Frances E. Willard during her presidency of the National Woman's Christian Temperance Union. Miss Gordon was elected president of this organization in 1914, holding the office until 1925. She also was president of the World's W. C. T. U. (1922-31), and one of four presidents of the World League against Alcoholism. She was the author of *The Life of Frances E. Willard* (1898) and *What Frances E. Willard Said* (1905).

Gordon, Armistead Churchill. American lawyer and author, died in Staunton, Va., Oct. 21, 1931. He was born in Albemarle Co., Va., Dec. 20, 1855, and attended the University of Virginia, where he served as rector during 1897-98 and 1906-18. Admitted to the Virginia bar in 1879, he practiced in Staunton and was later elected commonwealth attorney. He was noted as a biographer, his works including *William Fitzhugh Gordon, a Virginian of the Old School* (1909); *J. L. M. Curry, a Biography* (with Edwin A. Alderman, 1911); *John Tyler, Tenth President* (1915); *Jefferson Davis* (1918); *Thomas Nelson Page—An Appreciation* (1923); *Men and Events—Chapters of Virginia History* (1923); and *Virginia Portraits—Essays in Biography* (1924). He was also the author of *Bravo de War, Echoes in Negro Dialect* (with Thomas Nelson Page, 1888); *For Truth and Freedom: Poems of Commemoration* (1898); *Envision and Other Tales of Old and*



*New Virginia* (1899); *Ommirandy—Plantation Life at Kingsmill* (1917); and *Allegro—The Story of Byron and Miss Clairmont* (1926).

Gotch, Thomas Cooper. British painter, died May 1, 1931. Born in Kettering Dec. 10, 1854, he attended the Slade School and studied under Jean Paul Laurens in Paris. He was president of the Royal British Colonial Society of Artists from 1918 to 1928. Among his works are "Alleluia," purchased by the Chantry trustees for the Tate Gallery, London; "Destiny" in the National Gallery, Adelaide, South Australia; "My Crown and Sceptre" in the National Gallery, Sydney, New South Wales; "The Awakening" and "A Night in June" in the Bristol Art Gallery; "A Pageant of Childhood," purchased by the Corporation of Liverpool; and "Holy Motherhood" in the Laing Art Gallery, Newcastle-upon-Tyne.

Graca Aranha, José Pereira da, Brazilian jurist, diplomat, and author, died in Rio de Janeiro, Jan. 26, 1931. He was born in Sao Luiz do Maranhao, June 21, 1868, and studied law at Recife. After serving with distinction on the bench, he was appointed during the World War period Minister to Belgium and later served as Ambassador to France. He was also one of the outstanding Brazilian novelists, his works including *Chanaan*, *Malazarte*, *Ethetica da Vida*, *Espirito Moderno*, and *Viagem Maravilhosa*.

Graham, George Scott. American lawyer and congressman, died in Islip, Long Island, N. Y., July 4, 1931. He was born in Philadelphia, Pa., Sept. 13, 1850, and attended the law school of the University of Pennsylvania. Admitted to the Pennsylvania bar in 1870, he was elected district attorney for Philadelphia County in 1880 and was reelected for six consecutive terms, serving until 1899. On his retirement he became a member of the law firm of Graham & Gilfillan in Philadelphia and also of Graham & L'Amoreaux in New York City. He was a professor of criminal law at the University of Pennsylvania for 11 years. In 1913 he was elected to the 63d Congress, and prior to his death was dean of the House of Representatives in the 71st Congress, having been reelected each successive term from the 2d Pennsylvania District. He was chairman of the House Judiciary Committee.

Graves, Alfred Perceval, died Dec. 27, 1931. Graves, The Rt. Rev. Anson Rogers. Former bishop of the Protestant Episcopal Church, died in La Mesa, Calif., Dec. 31, 1931. He was born in Wells, Vt., Apr. 13, 1842, and was graduated from Hobart College in 1866 and from the General Theological Seminary in 1870. On ordination he was chosen assistant at Grace Church, Brooklyn, N. Y. After spending three years as a missionary in New Hampshire, he became in 1880 rector of St. Peter's Church, Bennington, Vt., and in 1883 of Gethsemane Church, Minneapolis, Minn. In 1890 he was consecrated missionary bishop of the Platte (later the district of western Nebraska), resigning in 1910.

Greble, Maj. Gen. Edwin St. John, U. S. A., Ret., died Sept. 30, 1931.

Greenlaw, Edwin, died Sept. 10, 1931.

Gregory, G. Edwin. American banker and investment broker, died in Poland Spring, Me., Aug. 29, 1931. He became associated with the National City Bank of New York in 1890, being appointed assistant cashier in 1907 and cashier in 1914. On the formation of the Federal Reserve Bank of New York in 1915 he was requested to devise a system of operation and for several years served as that bank's cashier. He then resumed his relationship with the National City Bank, becoming vice president and controller, but retired in 1928 to enter the Stock Exchange firm of Campbell, Starring & Co. Prior to his retirement he was also controller for the International Banking Corporation, a subsidiary of the National City Bank, and secretary of the New York Clearing House. At the time of his death he was a member of Baker, Weeks & Harden, investment brokers.

Greifenhagen, Maurice, died Dec. 27, 1931.

Grouard, The Most Rev. Emile Jean Baptiste Marie. Canadian archbishop of the Roman Catholic Church, died in Grouard, Alberta, Mar. 7, 1931. Born in Brulon, France, Feb. 2, 1840, he attended Seminary LeMans, and in 1860 was sent to Canada as a missionary. In 1890 he was named Titular Archbishop of Egipt by Pope Leo XIII and the following year was consecrated as Vicar Apostolic of Grouard. He resigned in 1929.

Grout, Edward Marshall. American lawyer, died in Westport, Conn., Nov. 9, 1931. He was born in New York City, Oct. 27, 1861, and was graduated from Colgate University in 1884. He was admitted to the New York bar and at one time was associated with William J. Gaynor, mayor of New York City (1909-13). He gained prominence during 1892-95 for the contests he conducted against gratuitous gifts of street railway franchises in Brooklyn. In 1898 he began to urge the consolidation of Brooklyn and New York City, and following this step in 1898 was elected first presi-

dent of the borough of Brooklyn, serving until 1901. He also was comptroller of New York City during 1901-05.

Grubb, Sir Howard, died Sept. 16, 1931.

Guist'hau, Gabriel. French lawyer and statesman, died in Paris, Nov. 27, 1931. Born at Saint Pierre, Sept. 22, 1868, he became an advocate at the Court of Appeals in Paris, and was also elected deputy for the Department of Loire-Interior. He was Minister of Public Instruction in the Poincaré cabinet of 1912, Minister of Commerce in the Briand cabinet of 1913, and Minister of Marine in the Briand cabinet of 1921.

Gundelfinger (Gundolf), Friedrich. German literary historian, died in Berlin, July 13, 1931. He was born in Darmstadt, June 26, 1880. In 1920 he became professor of German literary history at the University of Heidelberg. His works, the majority of which were written under the pseudonym Friedrich Gundolf, include *Shakespeare und der deutsche Geist* (1911); *Holderlins Archipelagus* (1911); *Goethe* (1916); *Dichter und Helden* (1921); *Heinrich von Kleist* (1922); and *Caesar, Geschichte seines Ruhms* (1924). He also translated Shakespeare's plays into German under the title *Shakespeare in deutscher Sprache* (10 vols., 1908-18).

Gundolf, Friedrich. See Gundelfinger, Friedrich.

Gunn, Hugh, died Feb. 23, 1931.

Guthrie, Clyde Graeme. American physician, died in Cincinnati, Ohio, Dec. 14, 1931, aged 51. On graduation from the Johns Hopkins Medical School in 1907, he taught there, becoming an associate professor of medicine. During the World War he served for two years in France with the Johns Hopkins hospital unit. The research work on which he was engaged until 1922 dealt principally with chemical infections of the blood and body secretions and parasites in the liver and intestines. He also devoted much study to the matching of blood for transfusion. At the time of his death he was practicing in Cincinnati.

Gwinner, Arthur von. German financier, died in Berlin, Dec. 29, 1931. He was born in Frankfurt-on-Main, Apr. 6, 1856. From 1894 to 1919 he was director of the Deutsche Bank, and thereafter chairman of the board of directors. In 1909 he was appointed a member of the Herrenhaus, the Prussian upper chamber, resigning in 1918. He also was active in international electrical and railroad development, including the Anatolian and Bagdad railroads.

Hadžić, had'jitch, Stevan. Yugoslav soldier and statesman, died in Belgrade, Apr. 23, 1931. Born in 1868, he attended the Military Academy in Belgrade and the General Staff Academy in St. Petersburg. During the World War he commanded the Serbian division which fought against Austria in the Russian offensive, and prior to his death was Minister of War and Marine in the cabinet of Gen. Petar Zivkovich, appointed Jan. 7, 1929. He also held that portfolio on several other occasions.

Halle, Columbus. American railway official, died in St. Louis, Mo., Nov. 14, 1931. He was born in Dallas County, Ala., Sept. 8, 1860, and attended Hampden-Sidney College and the University of Virginia. He began his railroad service as a clerk with the Houston & Texas Central Railroad in 1880. In 1889 he was appointed assistant general freight agent of the Missouri, Kansas & Texas Railway, in 1891 general freight agent, in 1896 freight traffic manager, in 1898 traffic manager, in 1907 vice president in charge of traffic, and in 1926 president. During Federal operation of the railways in the World War he was traffic manager of both the Missouri, Kansas & Texas and the St. Louis-San Francisco Railways. He retired in 1930.

Hale, Frederick Marten. British engineer and inventor, died in London, Feb. 2, 1931. He was born in Bristol, Mar. 22, 1864, and was educated in Brussels. From 1880 to 1894 he specialized in fire and hydraulic engineering, and after 1895 in the manufacture and use of high explosives and in torpedo and artillery development. He developed types of rifle grenades, aircraft bombs, and depth charges for use against submarines, which found extensive application in the British Army and Navy. He also wrote extensively on fire engineering, explosives, and instruments of warfare.

Hale, Philip Leslie. American painter, died Feb. 2, 1931, in Boston, Mass., where he was born May 21, 1865. He studied at the Art Students' League in New York City and the Academy Julian and École des Beaux Arts in Paris. For many years he was an instructor at the Boston Museum of Fine Arts School, and had also taught at the Pennsylvania Academy of Fine Arts in Philadelphia. He was a member of the International Art Jury at the Panama-Pacific Exposition in San Francisco in 1915. Among his works are: "The Crimson Rambler" in the Pennsylvania Academy, Philadelphia; "Spirit of Antique Art," in the Museum of Montevideo, Uruguay; "Girl with

Muff," in the Corcoran Gallery, Washington; and "Girl with Pearls," in the Philadelphia Art Club.

Hamaaguchi, Yuko, died Aug. 25, 1931.

Hamilton, R. G. Count. Swedish politician, died in Stockholm, Jan. 11, 1931, aged 76. He was elected to Parliament in 1892, and served during 1918-23, and again in 1925, as Deputy Speaker of the First Chamber. At the time of his death he was a leader of the People's party, which was formed in 1923 when the United Liberals split on the question of prohibition, the anti-prohibition minority calling themselves the Liberal party.

Hare, Hobart Amory, died June 15, 1931.

Harlan, Richard Davenport. American clergyman and educator, died in Washington, D. C., Jan. 24, 1931. He was born in Evansville, Ind., Nov. 14, 1859, and was graduated from the Princeton Theological Seminary in 1885. On ordination to the Presbyterian ministry, he served as pastor of the First Church, New York City (1886-90) and of the Third Church, Rochester, N. Y. (1894-1901). He then became president of the Lake Forest (Ill.) College where he remained until 1906. He was also in charge of the George Washington University Movement from 1907 to 1910.

Harper, Ida Husted. American feminist and writer, died in Washington, D. C., Mar. 14, 1931. She was born near Brookville, Ind., in 1851, and attended Indiana University. Following her marriage, she resided in Terre Haute, Ind., where for 12 years she conducted "A Woman's Opinions" in the *Terre Haute Saturday Evening Mail*. She also was editorial writer for the *Indianapolis News* and department editor for the *New York Sunday Sun* for several years. From 1899 to 1914 she had been speaker and delegate to various meetings of the International Woman Suffrage Alliance, and was publicity director during the suffrage campaign in the United States. She was the author of *Life and Work of Susan B. Anthony* (3 vols., 1908) and in 1921 brought down to date Miss Anthony's *History of Woman Suffrage to the Close of the Nineteenth Century*.

Harris, Albert Hall. American railway official, died in New York City Nov. 21, 1931. He was born in Rochester, N. Y., July 4, 1861, and was graduated from the University of Rochester in 1881. Later he attended the Columbia University Law School, and on being admitted to the bar practiced in Rochester. In 1905 he entered the service of the New York Central & Hudson River Railroad as general attorney, and the following year was promoted to general counsel, holding this position until 1920. In 1914 he became vice president, in charge of finance and corporate relations, and at the time of his death was also chairman of the finance and executive committees of companies included in the New York Central system.

Harris, Frank, died Aug. 26, 1931.

Harris, Robert E. Canadian jurist, died May 30, 1931, in Annapolis Royal, N. S., where he was born Aug. 18, 1860. After being admitted to the Nova Scotia bar in 1882, he practiced in Yarmouth until 1892 and in Halifax thereafter. He became King's Counsel in 1899, and was appointed a justice of the Supreme Court of Nova Scotia in 1915 and Chief Justice three years later. He was also prominently identified with the financial and industrial development of the Maritime Provinces, serving as president or director of numerous corporations, and was governor of King's College, Windsor, N. S.

Harrison, Mary St. Leger, died Oct. 28, 1931.

Hart, Edward, died June 6, 1931.

Hart, Sir Reginald (Clare). British soldier, died in Bournemouth Oct. 19, 1931. He was born in Scarriff, County Clare, Ireland, June 11, 1848, and attended Marlborough and Cheltenham Colleges and the Royal Military Academy, Woolwich. Commissioned a lieutenant in the Royal Engineers in 1869, he was promoted through the grades to general in 1914. He served in the Afghan War (1879), the Ashantee Expedition (1881), and the Egyptian War (1882). During 1888-96 he was director of military education in India, during 1896-99 commander of the Belgaum District of Madras, taking part in the Tirah campaign, and during 1899-1902 commander of the Quetta District in India. He then returned to England as grand commanding officer of the Thames district, and commandant of the School of Military Engineering. In 1907 he was sent to South Africa as commander of the Cape Colony District, and in 1912 was appointed commander-in-chief of South Africa. Two years later he became Lieutenant-Governor of Guernsey, holding that office until 1918. He received the Victoria Cross in 1879 and was created a Knight Commander of the Bath in 1898 and a Knight Commander of the Royal Victorian Order in 1904.

Hartshorn, Vernon. British labor leader, died in Maesteg, South Wales, Mar. 18, 1931. Born in 1872 in Pontywaan, Monmouthshire, he worked as a boy in the coal mines of that region. He first attained

prominence as leader of the South Wales Miners' Federation, and during the World War served on the Coal Trade Organization Committee and on the Coal Controllers' Advisory Committee. In 1918 he was elected Labor member of Parliament for the Ogmore division of Glamorganshire, and in the first Labor government of 1924 held the position of Postmaster General. He became a member of the Indian Reforms Commission in 1927 and succeeded to the post of Lord Privy Seal in 1930.

Haskin, Brig.-Gen. William Lawrence, U. S. A., Ret. American soldier, died in New London, Conn., Sept. 24, 1931. He was born in Houlton, Me., May 31, 1841, and was graduated from the Rensselaer Polytechnic Institute in 1861. He served during the Civil War with the 1st U. S. Artillery, being brevetted captain in 1863 and major in 1865. After the war he served with the U. S. Army in New York, South Carolina, Maine, California, Oregon, and Connecticut, and was promoted through the grades to brigadier-general in 1903. During the Spanish-American War he commanded a regiment in Cuba, and in 1902 was designated to command the United States troops still remaining there. He retired in 1903. He was the author of *History of the First Regiment of U. S. Artillery*.

Hassler, William C. American physician, died in San Francisco, Calif., Aug. 2, 1931. He had served for more than 30 years as Public Health Officer of San Francisco, leading the campaign for the extermination of waterfront rats, during the rebuilding of the city after the fire of 1906, so as to obviate the menace of bubonic plague. In 1931 he was elected president of the American Public Health Association.

Hatch, Brig.-Gen. Henry James, U. S. A. American soldier, died in New York City Dec. 31, 1931. He was born in Charlotte, Mich., Apr. 28, 1869, and was graduated from the University of Michigan in 1891, later attending the Artillery School and the Army War College. He entered the U. S. Army during the Spanish-American War, and was promoted through the grades to colonel in 1918 and brigadier-general in 1927. During the World War he also was a brigadier-general with the National Army, being in command of the railway artillery of the Second Army. He later became commander of the coast defenses of Los Angeles, Calif., of the harbor defenses of Manila, P. I., and of the 2d Coast Artillery District of New York.

Hatfield, Joshua Alexander. American industrialist, died in New York City July 4, 1931. Born in Philadelphia, Pa., June 11, 1863, he entered the employ of the Pottstown Iron Company as an office boy in 1880, later serving as general sales agent. In 1901 he was chosen president of the American Bridge Company of New York, a subsidiary of the U. S. Steel Corporation. He also was a director of the American Bridge Company of New Jersey, another subsidiary, and when the two companies were consolidated in 1914 he was made vice president. He became president of the American Bridge Company in 1927.

Hattstaedt, John James. American educator, died in Chicago, Ill., Nov. 30, 1931. He was born in Monroe, Mich., Dec. 29, 1851, and attended Concordia College in Fort Wayne, Ind., studying music privately in Boston and in Germany. After teaching piano at the Chicago Musical College, he founded the American Conservatory of Music in 1886, and was its president and director.

Healy, Timothy Michael, died Mar. 26, 1931.

Heger, Franz. Austrian ethnologist, died July 23, 1931. He was born in Brandeis Oct. 4, 1853, and from 1904 to 1919 was director of the natural history division of the State Museum in Vienna. The principal expeditions in which he participated were to southeastern Asia (1902-04), South America and Mexico (1907-10), and Albania (1917). He was the author of *Alle Metallvölkern aus Südostasien* (1902).

Heimke, William. American diplomat, died in Kansas City, Mo., July 14, 1931. Born in France, he was educated in that country and in Germany, and was graduated from the U. S. Military Academy in 1875. After acting as purchasing agent for the Mexican Central Railway during 1881-82 and as general manager of the Chihuahua and Durango (Mexico) telephone companies during 1883-87, he was appointed vice consul at Chihuahua and consul in 1892. He served as second secretary at the American Legation in Mexico City during 1897-1906 and as secretary at the American Legation in Bogotá, Colombia, during 1906-07. In 1908 he was appointed Minister to Guatemala and in 1909 Minister to Salvador, holding the latter post until 1915. He was also chief of the division of Latin-American affairs of the U. S. Department of State in 1914. During the World War he was attorney for various foreign import houses before the governmental bureaus in Washington, and in 1921 represented the United States Government at the centennial celebration of Peruvian independence.

Hemmeter, John Conrad, died Feb. 25, 1931.



Hemphill, Joseph Newton, died July 8, 1931.

Henry, Alfred Judson, died Oct. 6, 1931.

Henry, Sir Edward Richard, died Feb. 20, 1931.

Herrford, Charles Harold, died Apr. 27, 1931.

Herrman, August ("Garry"). American baseball administrator, died Apr. 25, 1931, in Cincinnati, Ohio, where he was born May 3, 1859. He was owner and president of the Cincinnati Club of the National League (the Cincinnati "Reds") from 1903 to 1927, effecting, on assuming the ownership, settlement of a long-standing quarrel between the National and American Leagues of professional baseball clubs. He also was the originator of the world's series, and chairman for 16 years of the National Baseball Commission, resigning in 1920.

Hervey, Alpheus Baker. American clergyman and educator, died in Baldwin, Long Island, N. Y., Mar. 9, 1931. He was born in Triangle, Broome Co., N. Y., Mar. 31, 1839, and was graduated from the theological department of St. Lawrence University in 1861. Entering the Universalist ministry, he served as pastor of churches at several places in New York, Massachusetts, and Maine until his election as president of St. Lawrence University in 1888. During his six-year administration he succeeded in doubling the university's endowment so that it might continue. He was also a specialist in marine algae, publishing *Sea Mosses* (1881) and *The Algae of Bermuda* (1917).

Hewins, William Albert Samuel, died Nov. 16, 1931.

Higginson, Rear Admiral Francis John, U. S. N., Ret., died Sept. 12, 1931.

Hill, Judson Sudborough. American educator, died in Battle Creek, Mich., Sept. 14, 1931. He was born in Trenton, N. J., June 3, 1854, and was graduated from Madison (later Colgate) University in 1874, receiving the B. D. degree from Central Tennessee College in 1893 and the D. D. degree from Walden University in 1897. Ordained to the Methodist Episcopal ministry in 1879, he was pastor in Chattanooga, Tenn., until 1881. He was then elected president of the Morristown (Tenn.) Normal and Industrial College, which office he held at the time of his death. He also served as a supervisor of the United States Census in 1900.

Hill, Samuel, died Feb. 26, 1931.

Hillyer, Virgil Mores. American educator, died in Baltimore, Md., Dec. 20, 1931. He was born in Weymouth, Mass., Sept. 2, 1875, and was graduated from Harvard in 1897. From 1899 until his death he was head master of the Calvert School in Baltimore. He was the author of *Kindergarten at Home* (1911); *Child Training* (1915); *Royal Road to Writing* (1916); *Royal Road to Reading* (1917); *First Writer* (1919); *The Calvert Speller* (1921); *A Child's History of the World* (1924); and *A Child's Geography of the World* (1929).

Hinkson, Katharine Tynan See Tynan, Katharine Hoebiger, Hans. Austrian mechanical engineer and amateur astronomer, died in Vienna Oct. 11, 1931, aged 71. Interested since boyhood in astrophysics, he propounded at the close of the nineteenth century his glacial cosmogony theory.

Hoffding, Harold, died July 2, 1931.

Holt, George Chandler. American jurist, died in Nice, France, Jan. 26, 1931. He was born in Mexico, N. Y., Dec. 31, 1843, and was graduated from Yale in 1866 and from the Columbia law school in 1869. On being admitted to the bar, he practiced in New York City from 1869 to 1898. He then became referee in bankruptcy, and in 1903 was appointed U. S. district judge for the Southern District of New York, serving until 1914. He was a lecturer on Federal jurisprudence at Columbia in 1890, on admiralty law at Cornell in 1906, and on patents at Columbia in 1912.

Hopkins, James Frederick. American art educator, died near Monterey, Calif., Nov. 11, 1931. He was born in Newton, Mass., Feb. 26, 1868, and was graduated from the Massachusetts Normal Art School in 1889. He was successively instructor at Pratt Institute, Brooklyn, N. Y. (1889-96); director of drawing in the Boston public schools (1896-1906); director of the school of art and design, Maryland Institute, Baltimore (1906-12); director of art education for Massachusetts (1912-20); and director of art efficiency surveys after 1920. He was a delegate to several International Congresses for the Promotion of Art Education, a member of the jury of art education at the Louisiana Purchase Exposition held in St. Louis in 1904, and author of *Outlines of Lessons in Drawing* (1897) and *Outlines of Art History* (1900).

Horn, Alfred Aloysius See Smith, Alfred Aloysius.

Howard, John Galen, died July 13, 1931.

Hueffer, Oliver Madox. British author, died in Hammersmith June 21, 1931. A brother of Ford Madox Ford, the critic and poet, he was born in 1877 and attended the University College School and also universities on the continent. During the World War he was a war correspondent. Under the pseudonym of

Jane Wardle he published such novels as *The Artistic Temperament*; *The Lord of Latimer Street*; *Margery Pigeon*; *The Pasque Flower*; *Where Truth Lies*; *Hunt the Skipper*; *Little Petchers*; and *Needles and Pins*. He also published *Love's Disguises* (five one-act plays, 1900); *The Book of Witches* (1908); *A Vagabond in New York* (1913); *French France* (1929); and *Some of the English* (1930).

Hunt, Richard Howland. American architect, died in New York City, July 12, 1931. He was born in Paris, France, Mar. 14, 1862, and attended the Massachusetts Institute of Technology and the École des Beaux Arts in Paris. On the death of his father, Richard Morris Hunt, in 1895, he completed one of the new wings of the Metropolitan Museum of Art in New York City. He also designed Quintard and Hoffman Halls at the University of the South, Kissam Hall at Vanderbilt University, and private residences for William K. and George W. Vanderbilt, Howard Gould, and Mrs. O. H. P. Belmont. He was past president of the Municipal Art Society, the Architectural League of New York, and the New York chapter of the American Institute of Architects.

Hussein Ibn Ali, died June 4, 1931.

Indy, Paul Marie Théodore Vincent d', died Dec. 2, 1931.

Ingalls, George Hoadly. American railway official, died in New York City, June 14, 1931. He was born in Boston, Mass., July 28, 1872, and was graduated from Harvard in 1893. After serving as a clerk in the general superintendent's office of the Chesapeake & Ohio Railway, he was appointed in 1896 assistant to the president of that road. In 1901 he became assistant general freight agent for the Cleveland, Cincinnati, Chicago & St. Louis Railway at Cincinnati, and the following year was advanced to general freight agent for that road and also for the Cincinnati Northern, and Dayton & Union Railroads. He was freight traffic manager (1906-17) and traffic manager (1917-18) for the New York Central lines west of Buffalo, and during the World War was traffic assistant to the regional director of the U. S. Railroad Administration. From 1919 until his death he was vice president in charge of traffic for the New York Central lines.

Ingersoll, Rear Admiral Royal Rodney, died Apr. 21, 1931.

Irvine, Frank. American lawyer, died in Ithaca, N. Y., June 23, 1931. He was born in Sharon, Pa., Sept. 15, 1858, and was graduated from Cornell University in 1880 and from the National University, Washington, D. C., in 1883. On being admitted to the bar, he served for a year as assistant U. S. attorney in the District of Columbia. In 1884 he removed to Omaha, Neb., becoming judge of the 4th Nebraska district in 1891 and supreme court commissioner in 1893, which position he held for six years. He was called to the law college of Cornell University in 1901 as professor of pleading and practice and also acted as dean of the faculty of law from 1907 to 1914. He then became public service commissioner for the 2d New York District, and on the expiration of his term in 1921 was Democratic candidate for Congress from the 37th New York district. At the time of his death he was engaged in private practice in Ithaca.

Irwin, Maj-Gen. George LeRoy, U. S. A. American soldier, died at sea Feb. 19, 1931. He was born at Fort Wayne, Mich., Aug. 26, 1868, and was graduated from the U. S. Military Academy in 1889, the Coast Artillery School in 1894, and the Army War College in 1910. Promoted through the grades, he was made major-general in 1928. During the World War he successively commanded the 66th, 2d, and 57th Field Artillery brigades in France, serving on the Verdun and Alsace fronts and in the Marne-Aisne, Oisne-Aisne, and Meuse-Argonne offensives. After 1923 he was commander of the Field Artillery School at Fort Sill, Okla.

Jadwin, Lt.-Gen. Edgar, U. S. A., Ret., died Mar. 2, 1931.

Jeffer, Meyer Edward. American chemist, died in Berkeley, Calif., June 28, 1931. He was born in Sidney, Australia, Oct. 6, 1857, and was graduated from the University of California in 1877. After serving as assistant chemist for the 10th United States Census in 1879-80 and for the Northern Transcontinental Survey in 1881-83, he was appointed assistant and chemist in the department of viticulture of the University of California. In 1889 he was transferred to the agricultural department of that institution, serving successively as instructor and assistant professor. He became assistant professor of nutrition in 1906 and head of that department in 1908, retiring as professor emeritus in 1925. He was director of the California State Food and Drug Laboratory during 1908-15, and after 1915 was consulting nutrition expert for the California State Board of Health and after 1925 director of the bureau of food and drugs of that board. His contributions in the field of

nutrition include dietary studies with the Chinese and other groups and extensive work on the digestibility of fruit and nuts.

Jaime, Prince of Bourbon, Duke of Madrid, died Oct. 2, 1931.

James, Herbert Armitage, British clergyman and educator, died in London Nov. 15, 1931. He was born in Kirkdale, Liverpool, Aug. 8, 1844, and attended Jesus and Lincoln Colleges, Oxford. With the exception of the deanship of St. Asaph in North Wales, which he held during 1886-89, he was head master or principal of Rossall School (1875-86), Cheltenham College (1889-95), and Rugby School (1895-1909). At the time of his death he was president of St. John's College, Oxford.

Jelks, William Dorsey, American insurance official and politician, died in Eufaula, Ala., Dec. 13, 1931. He was born in Russell County, Ala., Nov. 7, 1855, and was graduated from Mercer University in 1876. After acting for 20 years as editor of the *Eufaula Times*, he entered politics, being elected to the Alabama Senate. In 1901, while president of that body, he became governor of Alabama on the death of Governor W. J. Sanford. He also was elected governor for the ensuing term 1903-07. In 1907 he organized the Protective Life Insurance Company in Birmingham, acting first as president and then as chairman of the board.

Jenkins, Edward Hopkins, died Nov. 7, 1931.

Jibrân, Khalil Jibrân. See Gibran, Kahlil.

Joel, Solomon Barnato, British industrialist, died in Moulton Paddocks, Newmarket, May 22, 1931, aged 65. As a member of the firm of Barnato Bros., he had been a prominent figure since the early '90s in the diamond and gold mining industries of South Africa. He was also chairman of the Johannesburg Consolidated Investment Company and director of the Premier Diamond Mining Company and the Angola Diamond Mining Company which held a virtual monopoly of the European market.

Joffre, Joseph Jacques Césaire, died Jan. 3, 1931.

Johnson, Allen, died Jan. 18, 1931.

Johnson, Byron Bancroft, American baseball promoter, died in St. Louis, Mo., Mar. 28, 1931. He was born in Cincinnati, Ohio, Jan. 6, 1865, and was graduated from Marietta College in 1897. After a brief career as a newspaper sports writer he helped organize the American League of Professional Baseball Clubs, of which he was president from 1900 to 1927.

Johnson, George Ellsworth, American educator, died in Boston, Mass., Aug. 26, 1931. He was born in Springfield, Vt., June 21, 1862, and was graduated from Dartmouth College in 1887, later attending the Hartford Theological Seminary and Clark University. After serving as principal or superintendent of schools in Colebrook, N. H., Springfield, Vt., Andover, Mass., Tewksbury, Mass., and Hyde Park, Mass., he became, in 1907, superintendent of the Pittsburgh Playground Association and professor of play in the school of education at the University of Pittsburgh. He was head of the department of play and recreation at the New York School of Philanthropy during 1913-15, and also lecturer at Teachers College, Columbia University. He then went to Harvard as assistant professor in the division of education, and in 1920 was appointed associate professor in the graduate school of education. His works include *Elementary Rational Speller* (1903); *Contagious Diseases of Children* (1906); *Education by Plays and Games* (1907); *What to Do at Recess* (1910), and *Education through Recreation* (1916).

Johnson, Rossiter, died Oct. 3, 1931.

Johnson, Willis Fletcher, died Mar. 28, 1931.

Johnston, Annie Fellows, died Oct. 5, 1931.

Johnston, Charles, died Oct. 16, 1931.

Jordan, David Starr, died Sept. 19, 1931.

Karlfield, Erik Axel, died Apr. 8, 1931.

Kassiotis, Damianos, died Aug. 14, 1931.

Kauffman, Calvin Henry, American botanist, died in Ann Arbor, Mich., June 14, 1931. He was born in Lebanon, Pa., Mar. 10, 1869, and was graduated from Harvard in 1896 and with the Ph.D. degree from the University of Michigan in 1906. After serving as instructor in botany at the University of Michigan from 1904 to 1908, he became assistant professor in 1908, associate professor and director of the university herbarium in 1920, and professor and director in 1923. During the World War period he was a member of the Federal horticultural board of the U. S. Department of Agriculture. He published *Agaricaceae of Michigan* (2 vols., 1918).

Kay, Edgar Boyd, American civil engineer, died in Washington, D. C., Apr. 21, 1931. He was born in Warriors Mark, Pa., Jan. 15, 1860, and was graduated from the Rensselaer Polytechnic Institute in 1883. After serving as an instructor at Rensselaer, Union College, and Cornell University, he became in 1903 professor of civil engineering at the University of Alabama and in 1907 dean of the college of en-

gineering. He designed the U. S. standard incinerator and several municipal incinerator plants, and in addition to designing and building many water works, sewer, and lighting systems and steam and electric railways was consulting engineer for the water works department of the city of Mobile in 1912 and for the Alabama Railway Commission from 1903 to 1915. During the World War he was chief of the hydraulic and sanitary division in the office of the quartermaster general, War Department, Washington.

Keith, John Alexander Hull, American educator, died in Harrisburg, Pa., Feb. 22, 1931. He was born in Homer, Ill., Nov. 28, 1869, and was graduated from the Illinois State Normal University in 1894 and from Harvard in 1899. After acting as professor of pedagogy and assistant in psychology at the Northern Illinois State Normal School in De Kalb (1899-1906) and head of the training department of the Illinois State Normal University in Normal (1906-07), he became president of the Oakkosh (Wis.) State Normal School in 1907, principal of the Indiana (Pa.) Normal School in 1917, and superintendent of public instruction in Pennsylvania in 1927. In 1931 he was named educational consultant to the Commonwealth of Pennsylvania's department of public instruction. He wrote *Elementary Education, Its Processes and Problems* (1905); *The Nation and the Schools* (with William C. Bagley, 1919); and *An Introduction to Teaching* (1923).

Kelley, Francis Alphonsus, American clergyman, died in Catskill, N. Y., Oct. 15, 1931. He was born in Cohoes, N. Y., Apr. 19, 1888, and attended St. Michael's College, Toronto, Toronto University, and St. Bernard's Seminary, Rochester, N. Y. On taking orders in 1912 he became assistant pastor of St. Joseph's Roman Catholic Church, Albany, N. Y., and served in the same capacity at St. Vincent de Paul's Church, Albany, and St. Mary's Church, Troy. At the time of his death he was pastor of the Church of the Sacred Heart, Cairo, N. Y. During the World War he served in France as chaplain of the 27th Division, where he won the praise of both British and American generals for "gallantry on the field of battle." He was decorated with the Distinguished Service Cross and the British Military Cross. On the formation of the American Legion in 1919 he was chosen the first national chaplain.

King, Edward S(kinner), died Sept. 10, 1931.

Kipp, Theodor, German jurist, died in Italy, Apr. 2, 1931. He was born in Hanover Apr. 10, 1862, and attended the universities of Leipzig and Göttingen. After teaching at universities in Halle, Kiel, and Erlangen, he became professor of jurisprudence at the University of Berlin in 1901. He was an authority on Roman law, publishing *Geschichte und Quellen des römischen Rechts* (8 vols., 1896-1909) and elaborating on the *Pandekten*, or excerpts from the writings of Roman jurists compiled by direction of the emperor Justinian in 529 (3 vols., 1900-06). He also wrote *Die Litudenunziation* (1887) and *Die Beurteilung zur Abgabe von Willenserklärungen und zu Rechtshandlungen* (1892) and collaborated with Ludwig Enneccerus on *Lehrbuch des bürgerlichen Rechts* (1924).

Kitazato, Shibusaburo, died June 13, 1931.

Knutsford, Sydney Holland, Second Viscount, British barrister, died in London July 27, 1931. Born Mar. 19, 1855, he attended Wellington College and Cambridge, and was called to the bar in 1879. He was director of the English, Scottish, and Australian Bank, Underground Electric Railways Company, City and South London Railway, and London and Scottish Life Assurance Company, and was formerly director of the East and West India Dock Company and other companies which were sold to the Port of London Authority. As chairman of the London Hospital, he collected about £6,000,000 for that institution over a period of 35 years. He published *In Black and White* (1926).

Kobbé, Maj.-Gen. William August, U. S. A., Ret. American soldier, died in Pasadena, Calif., Nov. 18, 1931. He was born in New York City May 10, 1840. After serving in the Civil War he remained in the Army and was graduated from the Artillery School in 1873, being promoted through the grades to major-general in 1904 when he was retired. He was an instructor at the Artillery School during 1885-96 and served in the Philippines during the Spanish-American War as a major in command of the Third Artillery, being appointed in 1899 military governor and department commander of Mindanao and Jolo. From 1902 to 1904 he was commander of the Department of Dakota.

Kober, George Martin, died Apr. 24, 1931.

Kunsts, Luigi von, Austrian violinist, composer, and conductor, died in Toronto, Canada, Oct. 8, 1931. He was born in Vienna, July 30, 1870, and attended the University of Vienna and the Vienna Conservatory of Music, studying violin under Krkl and Sevcik

and composition under Bruckner. He came to the United States in 1893 as assistant conductor and concert-master of the Austrian Orchestra at the Columbian Exposition. After teaching in Chicago for three years he went to Pittsburgh as leading violinist of the Pittsburgh Symphony Orchestra and teacher at the Pittsburgh Conservatory. In 1910 he returned to Europe for a two-year concert tour and then was appointed head of the violin department of the Canadian Academy of Music in Toronto, where he also organized the Academy String Quartet. In 1923 he became conductor of the Toronto Symphony Orchestra. His compositions include two violin concertos, string quartet in D minor, violin études, songs and choruses. He was the author of *The Hero as Musician—Beethoven* (1913) and editor of the *Canadian Journal of Music*, which he founded in 1915.

Lacey, Thomas Alexander, died Dec. 7, 1931.

La Follette, Belle Case. The widow of Robert M. La Follette, U. S. Senator from Wisconsin, died in Washington, D. C., Aug. 18, 1931. She was born in Summit, Wis., Apr. 21, 1859, and was graduated from the University of Wisconsin in 1879. Two years later she was married. She studied law in order to enter into her husband's work, and on his election to Congress in 1887 served as his secretary and clerk. She was also active as a speaker and writer, especially in behalf of woman suffrage. After Senator La Follette's death in 1925 she devoted herself to writing his biography. She was also the mother of Robert M. La Follette, Jr., who was appointed to fill his father's unexpired term in the Senate, and of Philip La Follette, Governor of Wisconsin.

Lahn, Frank S. American aviation pioneer, died in Paris, France, Dec. 29, 1931. He was born in Canton, Ohio, Apr. 25, 1846. In 1883 he took up his residence in Paris, and from the early days of the Wright Brothers' experiments was interested in aviation. He persuaded James Gordon Bennett, publisher of the New York *Herald*, to donate the trophy which bears Bennett's name and which was won by his son, then Col. Frank P. Lahn, U. S. A., at the international balloon race in Paris in 1906. He was a director of the Aéro Club of France for 25 years and vice president of the International Aeronautic Federation.

Lane-Poole, Stanley, died Dec. 29, 1931.

Lathrop, Charles Newton. American clergyman, died Jan. 30, 1931, in San Francisco, Calif., where he was born Nov. 16, 1871. Following his graduation from Harvard in 1896 and the Western Theological Seminary in 1899, he was ordained in the Protestant Episcopal Church, being curate of the Church of the Advent, San Francisco, from 1901 to 1904 and rector of the same from 1904 to 1916. During the World War he was a member of the Commission for Relief in Belgium, being assigned to the province of Liège. He became dean of All Saints' Cathedral, Milwaukee, Wis., in 1917 and executive secretary of the department of Christian social service of the National Council of the Protestant Episcopal Church in 1920.

Lauderdale, Frederick Colin Maitland, Fourteenth Earl of, Scottish soldier, died in London, Sept. 14, 1931. Born Apr. 12, 1868, he entered the Royal Scots Fusiliers at the age of 18 and became a lieutenant in the 2d Dragoons the following year. In 1894 he was transferred to the Scots Guards and was later commissioned an ensign in the Royal Company of Archers, the King's body-guard for Scotland. He served in the Boer War with the Imperial Yeomanry, and from 1904 to 1908 was assistant director of auxiliary forces at Headquarters Staff. During the World War he commanded the 3d garrison battalion of the Northumberland Fusiliers. He succeeded to the title on the death of his father in 1924, and in 1929 was elected Scotland's representative peer. He also was made an Officer of the Order of the British Empire in 1919.

Lawrence, Dorset William. See D'Orsay, Lawrence

Learned, Henry Barrett. American historian, died in Palo Alto, Calif., Oct. 13, 1931. He was born in Exeter, N. H., Mar. 21, 1868, and was graduated from Harvard in 1890 and with the Ph.D. degree from Yale in 1909. After teaching in private schools in Plymouth, Mass., and Chicago he was appointed head of the department of history at the Armour Institute of Technology in Chicago in 1894, and in 1897 was called to Harvard as an assistant in history. In 1900 he went to Yale as instructor in history at the Sheffield Scientific School and in 1909 to Wesleyan University as lecturer on history. During the World War he served in the Bureau of Investigation of the Department of Justice, and from 1917 to 1921 was a member of the District of Columbia Board of Education. He then became lecturer and associate professor of European history at Stanford University, with the title of acting professor after 1927. He wrote: *The President's Cabinet* (1912); *Some Aspects of the Cabinet Meeting*

(1915); and "W. L. Marcy" in *American Secretaries of State and Their Diplomacy* (1928).

Leblang, Joseph. American theatrical broker, died in New York City, Apr. 17, 1931. Born in Hungary in 1874, he was brought to the United States in childhood. About 1895 he conceived the idea of a cut-rate theatre ticket system, which was later developed into the Leblang Central Public Service Ticket Agency. This system proved a boon, not only in stabilizing the prices of tickets to theatre-goers, but in enabling producers to keep a new play going during its first critical weeks or to continue the production of a successful play after the first popular interest in it had waned. He was also a backer for many New York plays, including the *Greenwich Village Follies*, and was owner of several theatres in the Broadway district.

Le Bon, Gustave, died Dec. 13, 1931.

Lebrich, Joseph. French aviator, died near Ufa, Soviet Union, Sept. 12, 1931. Born in Brittany in 1900, he entered the French Navy and was decorated for services in air fighting over Morocco. In 1927, with Dieudonné Costes, he established an air route to South America and also made an extended tour of the Latin American countries from October, 1927, to February, 1928. Arriving at New Orleans on February 4, he and his co-pilot proceeded to Washington and from there made a memorable flight across the continent that contributed to the development of good-will between France and the United States. For this exploit Lebrich was made a lieutenant commander in the French Navy. He met his death in an attempted non-stop flight, with Marcel Doret, from Paris to Tokyo. See AERONAUTICS.

Lehmann, Frederick William, died Sept. 12, 1931.

Leitch, Archibald. British physician, died in London Jan. 27, 1931. He was born in Rothesay, June 3, 1878, and was graduated from the medical department of Glasgow University in 1902. He acted successively as assistant to the director of the Middlesex Cancer Research Laboratories, director of the Caird Research Laboratory in Dundee, and pathologist to the Cancer Hospital, London in 1910, having become recognized as an authority in his field, he was made research fellow of St. Andrews University. At the time of his death he was director of the Research Institute of the Cancer Hospital, London, and professor of experimental pathology in the University of London. He was a member of many British and foreign societies engaged in the study of cancer, and in addition to numerous papers on cancer and other pathological subjects edited the report of the International Cancer Conference held in London in 1928.

Leopold Salvator, Archduke. Member of the Toscani line of the Austrian royal house of Hapsburg, died in Vienna Sept. 4, 1931. He was born in Alt-Bunzlau Oct. 15, 1863, son of Archduke Charles Salvator. Entering the Austrian Army, he was advanced to colonel-general and served as inspector general of artillery during the World War. After the war he made his home in Barcelona, Spain, the former residence of his wife, Blanche of Castile, Princess of Bourbon, to whom he was married in 1889. He was patron of the Academy of Science, Literature, and Fine Arts of Prague, and a Knight of the Golden Fleece, St. Hubert, and the Black Eagle.

Le Senne, Camille (pseudonyms, Marcello and Charley). French novelist, poet, dramatist, and critic, died July 7, 1931, in Paris where he was born Dec. 12, 1851. During his journalistic career he was editor of *Ménestrel*, *Le Petit Méridional*, and *La Presse*, and dramatic and music critic for *La Petite République*, literary and art critic for *La France*, and honorary president of the Association of Dramatic and Music Critics. He had also been an instructor at the School of Higher Social Studies, a member of the Commission of Theatres and of the jury on admission to the Conservatoire, an officer of the Legion of Honor, and laureate of the French Academy. Among his novels are *Louise Mengal* (1884), *En Commandite* (1886), *Le Vertige* (1887), *Vera Nicole* (1889), *Chaine mystique* (1896), and *Ober Maître* (1896). He also collaborated with Edmond Texier between 1878 and 1886 in writing 15 other novels, among which are *La Dame du lac*, *L'inconnue*, *Le Mariage de Rosette*, and *Les Mémoires de Cendrillon*. His plays include *L'Étoile de Séville* (1911); *L'Illustre Gaudissart* (1918); and *Le réveil de Corneille* (1916). He also published *Le Théâtre à Paris* (5 vols., 1888-90), and *Rimes tragiques* (1915) and *Poèmes de la grande guerre* (1919).

Lethaby, William Richard. British architect, died in London July 17, 1931, aged 74. He was a former professor of design at the Royal College of Art and former principal of the London County Council Central School of Arts and Crafts. In 1906 he was appointed surveyor of the fabric of Westminster Abbey, in which post he did valuable restoration work for more than 20 years. His works include: *Early Christian Art* (1911); *Architecture* (1912); *Medieval Art* (1912); *Home and Country Arts* (1923); *Londonium Architecto-*

*ture and the Crafts* (1928); and *Westminster Abbey Re-examined* (1925).

Leutze, Rear Admiral Eugene Henry Cozzens, died Sept. 15, 1931.

Lewis, Col. Isaac Newton, U. S. A. Ret., died Nov. 9, 1931.

Lindsay, (Nicholas) Vachel, died Dec. 5, 1931.

Lipton, Sir Thomas Johnstone, died Oct. 2, 1931.

Littmann, Max, died Sept. 21, 1931.

Loebell, Friedrich Wilhelm G. von. German statesman, died in Brandenburg-on-Havel Nov. 21, 1931. Born Sept. 17, 1855, he attended the Universities of Strassburg and Leipzig, and was elected to the Reichstag in 1888. In 1904 he was appointed to the Chancellery, serving as under-secretary during 1907-09. He became Prussian Minister of the Interior in 1914 and held this portfolio throughout the War. In 1925 he organized a bloc which proposed General von Hindenburg as President of the German Republic.

Longueuil, Reginald Grant d'Iverville de Ste. Helene, Eighth Baron of French seignior, died in Pau, Aug. 30, 1931, aged 73. He was holder of the only ancient hereditary Canadian title, which was conferred by Louis XIV in 1700 and recognized by Queen Victoria in 1880.

Longworth, Nicholas, died Apr. 9, 1931.

Loomis, Elmer Howard. American physicist, died in Princeton, N. J., Jan. 22, 1931. He was born in Vermillion, Oswego Co., N. Y., May 24, 1861, and was graduated from Madison (later Colgate) University in 1883, receiving the Ph.D. degree from the University of Strassburg in 1893. After 1894 he served successively as instructor, assistant professor, and professor of physics at Princeton University. He devised important improvements in methods of determining the freezing points of dilute solutions.

Loucheur, Louis, died Nov. 22, 1931.

Louise, Princess, of England, died Jan. 4, 1931.

Lucas, Sir Charles Prestwood. British colonial historian, died in London, May 7, 1931. He was born in Crickhowell Aug. 7, 1853, and attended Balliol College, Oxford. Called to the bar of Lincoln's Inn in 1885, he later abandoned the law in favor of a Colonial Office post. He was made Assistant Under-Secretary of State in 1897, and from 1907 until his retirement in 1911 was head of the Dominions Department. He was created a Knight Commander of St. Michael and St. George in 1907 and Knight Commander of the Bath in 1912. Among his works are *An Historical Geography of the British Colonies* (12 vols. 1887-1920); *A History of Canada, 1763-1812* (1909); *The British Empire* (1915); *The Beginnings of English Overseas Enterprise* (1917); *The Empire at War* (1921-26); *The Partition and Colonization of Africa* (1922); *The Story of the Empire* (1924); and *Religion, Colonizing, and Trade* (1930).

Luigi, Luigi, died Feb. 1, 1931.

Lundborg, Einar-Paál. Swedish aviator, died in Stockholm, Jan. 27, 1931, aged 35. He joined the Swedish Army at the age of 19, but resigned a year later to serve with the German forces in the World War, winning the Iron Cross. He also participated in the Finnish and Latvian wars of independence of 1918 and 1919 against the Soviets. He then rejoined the Swedish Army, becoming a captain in the air corps. On June 23, 1928, he rescued Gen. Umberto Nobile, commander of the dirigible *Italia* which was wrecked, after returning from its flight to the North Pole, on May 25 near Foyen Island.

Lundie, John, died Feb. 9, 1931.

Lutkin, Peter Christian. American pianist and organist, died in Evanston, Ill., Dec. 27, 1931. He was born in Thompsonville, Wis., Mar. 27, 1858, and after studying privately in Chicago attended the Hochschule für Musik in Berlin and the Leschetizky Piano School in Vienna. In 1888 he became director of the theoretical department of the American Conservatory of Music in Chicago, and three years later professor of music at Northwestern University. He also was dean of the school of music at Northwestern from 1897 to 1928, and had been conductor of the Chicago North Shore Festival since 1909. A composer of church music, he lectured on that subject at the Western Theological Seminary. He was a founder of the American Guild of Organists.

Lyttelton, Gen. Sir Neville (Gerald), died July 6, 1931.

McCann, Alfred W. (Atterson). American food expert and author, died in New York City, Jan. 19, 1931. He was born in Pittsburgh, Pa., Jan. 9, 1879, and attended Duquesne University and the University of Chicago. He was director of the Alfred W. McCann Laboratories in New York City and was associated for many years with Dr. Harvey Wiley in his crusade for pure food. He became popular as a writer on this subject in 1912, when he began publishing in the *New York Globe* his findings concerning adulteration. He wrote *Starving America* (1918); *Vital Questions and*

*Answers* (1918); *Thirty-Cent Bread* (1917); *This Famishing World* (later issued under the title, *Science of Eating*, 1919); *God or Gorilla* (1922); *The Science of Keeping Young* (1925); and *The Greatest of Men—Washington* (1927).

MacColl, James Robertson. American industrialist, died in Providence, R. I., Nov. 23, 1931. He was born in Glasgow, Scotland, Apr. 2, 1856, and before coming to the United States was a partner during 1878-82 of Thomson and MacColl, manufacturers of dress goods in Glasgow. He became agent of the Lorraine Company, manufacturers of cotton and worsted goods in Pawtucket, R. I., in 1882, treasurer in 1896, and president in 1920. In 1905 he was elected president of the New England Cotton Manufacturers' Association, which during his administration became the National Association of Cotton Manufacturers. He also presided at the International Conferences of Cotton Growers and Manufacturers in Washington (1906) and Atlanta, Ga. (1907).

McOullough, Ernest, died Oct. 1, 1931.

McCurdy, Stewart LeRoy. American surgeon, died in Pittsburgh, Pa., Sept. 8, 1931. He was born in Bowerton, Ohio, July 15, 1859, and was graduated with the M.D. degree from the Ohio State University in 1881 and from the New York Post Graduate Medical School and Hospital in 1885. Since 1896 he had been professor of anatomy and oral surgery in the dental department of the University of Pittsburgh. He was also assistant professor of surgery in the medical department of that institution, surgeon for the Pennsylvania Railroad, and orthopedic surgeon at the Columbia Hospital, Pittsburgh. In addition to articles on orthopedic surgery in numerous medical journals, he wrote *Manual of Orthopedic Surgery* (1898); *Oral Surgery* (1901); *Arthroscopic Surgery* (1909); and *Oral Surgery* (1912).

McElroy, Rear Admiral George Wightman, U. S. N., Ret. American naval officer, died in Orlando, Fla., Jan. 6, 1931. He was born in Henry, Ill., Mar. 19, 1858, and was graduated from the U. S. Naval Academy in 1878. Appointed an assistant engineer in the Navy in 1880, he was promoted through the grades to rear admiral in 1916. During the Spanish-American War he served on the gunboat *Gloucester*, which played an important part in the destruction of Cervera's squadron in Santiago harbor July 3, 1898. For more than 20 years he was connected with the Navy's engineering department as inspector of machinery or engineering material. During the World War he was inspector of machinery and ordnance for the Fore River Shipbuilding Company, Quincy, Mass., and prior to his retirement in 1922 was inspector of engineering material for the Brooklyn district.

MacGeorge, William Stewart. British painter, died in Edinburgh, Nov. 9, 1931. Born at Castle Douglas, he attended the Royal Institution, Art School in Edinburgh and also studied at the Antwerp Academy under Verlat. He was elected an Associate of the Royal Scottish Academy in 1899 and an Academician in 1910. Among his works are "Hallowe'en" which was exhibited at the Paris Salon, "Border Ballads," at the Paris International Exhibition, and "Kirkcudbright," at the Scottish Modern Arts Association.

McGill, David Frazier. American clergyman, died in Avalon, Pa., Apr. 26, 1931. He was born in West Alexander, Pa., Mar. 22, 1857, and was graduated from Washington and Jefferson College in 1881 and from the Allegheny Theological Seminary in 1884. Ordained to the United Presbyterian ministry, he held pastorates in Allegheny, Pa., from 1885 to 1911 and in Ben Avon, Pa., from 1911 to 1915. At the time of his death he was professor of ecclesiastical history and church government at the Pittsburgh Theological Seminary. He was also associate editor of the *United Presbyterian* from 1891 to 1914, general secretary of the Young People's Christian Union from 1897 to 1900, principal clerk of the General Assembly of the United Presbyterian Church of North America after 1903, and treasurer of the Council of Reformed Churches in America Holding the Presbyterian System.

McGlennon, Cornelius A. American jurist, died in Newark, N. J., June 13, 1931. He was born in East Newark, N. J., Dec. 10, 1878, and was graduated from Seton Hall College, South Orange, N. J., in 1899. After acting as a public-school and high-school principal for 15 years, he was admitted to the New Jersey bar in 1916, and three years later was elected to the 66th Congress (1919-21) from the 8th New Jersey District. He also served as mayor of Newark and as a member of the New Jersey Senate. At the time of his death he was judge of the New Jersey Court of Errors and Appeals, to which he had been appointed in 1924 and reappointed in 1930.

McHenry, Edwin Harrison. American civil engineer, died in Ardmore, Pa., Aug. 21, 1931. He was born in Cincinnati, Ohio, Jan. 25, 1859, and attended the Pennsylvania Military Academy. Entering the employ

of the Northern Pacific Railway as a rodman in 1888, he was advanced to chief engineer in 1893, and was also chief engineer for the Canadian Pacific Railway from 1902 to 1904. He was then elected engineering vice president of the New York, New Haven & Hartford Railroad, and during his term from 1904 to 1911 supervised the electrification of the lines of this railroad from Stamford, Conn., to New York City and through the Hoosac Tunnel. He also assumed the vice presidency of the Boston & Maine Railroad in 1911, being in charge of construction, operation, and maintenance. On his resignation in 1913 he established the consulting engineering firm of McHenry & Murray in New Haven, Conn., but retired from active practice two years later.

McIntosh, William Carmichael, died Apr. 1, 1931. McKechnie, Sir James, British naval architect, died in London, Oct. 14, 1931. He was managing director of Vickers, Ltd., the naval ship and munitions works, which at Barrow-in-Furness produced, under his direction, during the World War every kind of armament for the British Navy. In addition to being a member of the council of the Institution of Naval Architects and a livyerman of the Worshipful Company of Shipwrights, he was a member of the consultative committee of the Marine Department of the Board of Trade and vice president of the Navy League. He was created a Knight Commander of the Order of the British Empire in 1918, and had previously received the Grand Cross of the Royal Order of Isabel the Catholic, of Spain, and the Order of the Rising Sun, of Japan, for services rendered to those countries.

MacKenna, Sir Bertram, died Oct. 10, 1931. MacKenty, John Edmund, died Dec. 11, 1931. MacKenzie, Frederick A. British journalist, died in Zeist, Holland, Apr. 31, 1931. He was born in Quebec, Canada, Sept. 17, 1869. Engaging in journalism in London, he became in 1900 war correspondent of the *Daily Mail*. Ten years later he was appointed editor of the London *Times* weekly edition, and after 1914 served as editor of special numbers of that newspaper. After the Russian Revolution he decided to make a study of the methods of the Soviet Government, and in 1921 was appointed correspondent of the Chicago *Daily News* in Russia and northern Europe. He was president of the Association of Foreign Journalists in Russia in 1923. On his return to England in 1926 he was engaged in an extensive lecture tour, and prior to his death was London correspondent for the *Japan Advertiser* and *Jiji Shimpu* of Tokyo. Among his works are *From Tokyo to Tiflis* (1905); *The Unveiled East* (1907); *The Tragedy of Korea* (1908); *Through the Hindenburg Line* (1919); *Korea's Fight for Freedom* (1920); *Russia before Dawn* (1923); *King George V—In His Own Words* (1929); *The Clash of the Cymbals*; *The Secret History of the Revolt in the Salvation Army* (1929); *Booth-Tucker, Sadhu and Saint* (1930); *The Russian Crucifixion* (1930); and *Beaverbrook* (1931).

MacKenzie, James Cameron, died May 10, 1931. McKibbin, William, American theologian, died in Cincinnati, Ohio, Dec. 20, 1931. He was born in Pittsburgh, Pa., May 24, 1850, and was graduated from Princeton in 1869 and from the Western Theological Seminary in 1873. Ordained to the Presbyterian ministry, he was successively pastor until 1904 of the Seventh Church, Pittsburgh; Central Church, St. Paul, Minn.; Second Church, Pittsburgh; and First Church, Walnut Hills, Cincinnati, Ohio. He then became president, and professor of systematic theology, at the Lane Theological Seminary in Cincinnati, where he remained until 1925.

McLean, William L. American newspaper publisher, died in Germantown, Pa., July 30, 1931. He was born in Mt. Pleasant, Pa., May 4, 1852. After being connected with the business departments of the Pittsburgh *Leader* (1872-78) and the Philadelphia *Press* (1878-95), he purchased the Philadelphia *Bulletin*, of which he was publisher until his death. He was also a director of the Associated Press from 1896 to 1924 and of the American Newspaper Publishers Association from 1899 to 1905.

McMillan, Margaret, died Mar. 29, 1931. McMillan, Sir Robert Furse, British jurist, died in Perth, Australia, Apr. 23, 1931. He was born in London, Jan. 24, 1858, and was educated at Trinity Hall, Cambridge. Called to the bar of the Inner Temple in 1881, he joined the Western Circuit, becoming a judge in 1902. In 1906, having migrated to Australia, he was appointed a puisne judge of the Supreme Court of Western Australia and was advanced to be Chief Justice in 1913. He was elected Lieutenant-Governor of Western Australia in 1921. He also was knighted in 1916, and in 1925 was created a Knight Commander of St. Michael and St. George.

Macnamara, Thomas James, died Dec. 4, 1931. MacVeagh, Charles, died Dec. 4, 1931. Maffi, Pietro, Cardinal, Italian prelate of the Roman Catholic Church, died in Pisa Mar. 17, 1931, aged 73.

Elevated to the archbishopric of Pisa, he was created cardinal priest by Pope Pius X in 1907.

Main, John Hanson Thomas, American educator, died in Grinnell, Iowa, Apr. 1, 1931. He was born in Toledo, Ohio, Apr. 2, 1859, and was graduated from Moores Hill (Ind.) College in 1881 and with the Ph.D. degree from Johns Hopkins University in 1892. After acting as professor of ancient languages at Moores Hill College from 1880 to 1889, he became assistant professor of Greek and Latin at the Woman's College of Baltimore in 1890 and senior fellow in Greek at Johns Hopkins University the following year. He then went to Iowa (later Grinnell) College, where he was Carter professor of Greek language and literature (1892-1900), acting president (1900-02), dean of the faculty (1902-08), and president (after 1906). He was a member of the American Relief Commission to the Near East in 1919 and a trustee of the Carnegie Foundation for the Advancement of Teaching after 1924.

Malet, Lucas. See Harrison, Mary St. Leger. Mann, Louis, died Feb. 15, 1931. Manning, Richard Irvine, died Sept. 11, 1931. Marquis, John Abner, died July 5, 1931. Martinez y Ortiz, Rafael, Cuban diplomat, died in Paris, France, July 9, 1931. He had been Minister to France since 1913, with the exception of 1926-28 when he exchanged his post with Carlos Manuel de Céspedes to become Secretary of State.

Martini, Fausto Maria, Italian novelist, playwright, and critic, died in Rome, Apr. 12, 1931, aged 45. Outstanding among his dramas are *L'Altra Navella*, which was written in the Prandello tradition, *Il Fiore Sotto Gli Occhi*, and *La Sira del Trenta*. His temperament, however, which preferred simplicity in plot and treatment, found a more congenial outlet in such novels as *Virginia* and *Il Cuore che m'ha dato*. His works were translated into several foreign languages.

Matheson, Kenneth Gordon, died Nov. 29, 1931. Matthews, (Joseph) Merritt, American chemist, died in San Diego, Calif., Oct. 12, 1931. He was born in Philadelphia, Pa., June 9, 1874, and was graduated from the University of Pennsylvania in 1895, receiving the Ph.D. degree in 1898. After acting as head of the department of chemistry and dyeing at the Philadelphia Textile School, he became manager of the dyeing department of the New England Cotton Yarn Company in 1907 and in 1910 entered on his own practice as consulting chemist and expert in textile chemistry and dyes. He also was editor of *Color Trade Journal* after 1917, and a member of the National Research Council and a fellow of the American Association for the Advancement of Science. He was the author of "Dye-stuffs" in Allen's *Commercial Organic Analysis* (1900), *Laboratory Manual of Dyeing and Textile Chemistry* (1909); *Application of Dyestuffs* (1920); *Bleaching Technology* (1921); and *Textile Fibres* (1924).

Maudslay, Alfred Percival, British archaeologist, died near Hereford, England, Jan. 23, 1931. Born in 1850, he attended Harrow and Trinity Hall, Cambridge. After acting as private secretary to the governors of Trinidad, Queensland, and Fiji from 1873 to 1880, he became acting colonial secretary of Fiji and in 1881 was promoted to deputy commissioner for Tonga and Samoa and acting consul-general for the Western Pacific. About this time, as the result of a journey through Central America, he became interested in Mayan and Aztec civilization and for more than a quarter of a century devoted himself chiefly to the investigation of sites and the study of sources, reviving through his enthusiasm an interest in Central American archaeology. He was president of the Royal Anthropological Institute during 1911-12. His publications include *Biologia Centrali Americana* (4 vols., 1889-1902); *A Glimpse of Guatemala* (1899); and *Life in the Pacific Fifty Years Ago* (1890).

May, Thomas, British archaeologist, died in Stratford-on-Avon Oct. 28, 1931, aged 90. He was engaged for six years in the excavation of the Roman industrial site at Wilderspool, near Warrington, and another six were spent investigating the site of the Roman fortifications at Templeborough. At the time of his death he was examining the Roman remains at Tiddington, on the outskirts of Stratford-on-Avon. He also was the author and illustrator of two works describing the Roman pottery found at Silchester and Colchester.

Mayer, Emil, American laryngologist, died Oct. 20, 1931 in New York City where he was born May 23, 1854. He attended the College of the City of New York and was graduated from the College of Pharmacy in 1873 and from the University Medical College (New York University) in 1877. During 1893-1904 he was surgeon and chief of clinic in the throat department of the New York Eye and Ear Infirmary, and during 1904-19 attending laryngologist at Mt. Sinai Hospital and chief of clinic in the throat and ear department of the Mt. Sinai Dispensary. He then became consulting laryngologist at that hospital, retiring in 1926. In 1920 he was president of the American Academy of Ophthal-



mology and Oto-Laryngology, and in 1922 of the American Laryngological Association.

Mead, George Herbert, died Apr. 25, 1931.

Meigs, Montgomery. American civil engineer, died in Keokuk, Iowa, Dec. 9, 1931. He was born in Detroit, Mich., Feb. 27, 1847, and attended the Lawrence Scientific School, Harvard, and the Royal Polytechnic School, Stuttgart, Germany. From 1874 until his retirement in 1926 he was engaged, as U. S. engineer, on improvements of the Mississippi River from St. Paul to the mouth of the Missouri River. He was in charge of the Des Moines Rapids canal and during 1910-13 constructed the lock, dry dock, and power developments in the Mississippi River at Keokuk, Iowa. He invented a "canvas cofferdam" for foundation work and like constructions.

Melba, Dame Nellie, died Feb. 23, 1931.

Merriam, William Rush. American banker and former Governor of Minnesota, died in Port Sewall, Fla., Feb. 18, 1931. He was born at Wadham's Mills, Essex Co., N. Y., July 26, 1849, and was graduated from Racine (Wis.) College in 1871. Becoming associated with the Merchants National Bank of St. Paul, he was appointed cashier in 1878, vice president in 1880, and president in 1882. He also was elected a member of the Minnesota Legislature in 1882 and was appointed speaker of the House in 1886. In 1889 he became Governor of Minnesota, serving for two terms until 1893. During 1898-1903 he was director of the United States Census.

Mozes, Sidney Edward, died Sept. 10, 1931.

Michelson, Albert Abraham, died May 9, 1931.

Miller, Leverett Saltonstall. American railroad executive, died Mar. 21, 1931, in New York City where he was born May 23, 1865. On graduation from the Rensselaer Polytechnic Institute in 1885, he was appointed maintenance engineer for the Denver, Utah & Pacific Railroad. Later he was engineer for the Colorado Railroad, chief engineer for the Alabama Eastern Railroad, assistant superintendent of the New York, Providence & Boston Railroad, and chief engineer and later assistant general manager of the St. Paul & Duluth Railroad. He had also served as general manager of the Seattle & International Railroad, of the Tennessee Central Railway, and of the Central New England Railway. In 1909 he became president of the New York, Westchester & Boston Railway, whose construction he had supervised, and was also president of the affiliated companies, the New York & Stamford Railway and the County Transportation Company. He retired in 1930.

Mills, Charles Karsner, died May 28, 1931.

Monash, Gen. Sir John, died Oct. 8, 1931.

Montgomery, J(ohn) Knox. American clergyman and educator, died in Shanesville, Ohio, Dec. 30, 1931. He was born in Belfast, Tenn., Aug. 4, 1861, and attended the Indiana State University and Xenia (Ohio) Theological Seminary. Ordained to the United Presbyterian ministry in 1887, he was pastor in Harshaville, Ohio; Sparta, Ill.; Cincinnati, Ohio; Chicago, Ill.; and Charlotte, N. C., acting also as editor of *The Evangel* during 1894-1902 and as general secretary of young people's work in the South during 1903-04. In 1904 he was elected president of Muskingum College, New Concord, Ohio, and in 1931 moderator of the United Presbyterian Church of North America.

Mooney, Charles A. American congressman, died in Cleveland, Ohio, May 29, 1931. He was born in St. Marys, Ohio, Jan. 5, 1879. He became associated with the Michigan Mutual Life Insurance Company in 1903, acting as district agent at Cleveland from 1909 to 1913, and thereafter as State agent for the National Life Insurance Company. In 1915 he was elected to the Ohio State Senate, and in 1919 became a member of the 66th Congress. He also served in the 68th to 71st Congresses as representative from the 20th Ohio District. He was a member of the Rivers and Harbors Committee, favoring the development of the St. Lawrence waterway project, and was a staunch opponent of child labor and prohibition.

Moór, Emanuel. British composer and inventor, died at Mt. Pélerin, Switzerland, Oct. 21, 1931. Born in Hungary in 1862, he studied music in Budapest and Vienna and toured the United States in 1885 as director of the Concerts Artistiques. He was the inventor of the Duplex-Coupler piano on which recital-demonstrations had been given in New York, London, and other cities by Winifred Christie and Max Pirani since 1921. Its feature was a second keyboard with a duplex-coupler, sounding an octave higher and thereby providing a greater range of sonority. There also was a contrivance which, by pressing a button, converted the instrument into a harpsichord with a fuller tone than its prototype. Moór was the composer of the operas *Die Pompadour* and *Andrea Hofer* produced in Cologne in 1902 and *Hochzeitstücken* produced in Cassel in 1908, seven symphonies, rhapsody for violin and orchestra, piano concerto and piano pieces, and songs.

Moore, Clarence Lemuel Elisha, died Dec. 5, 1931.

Moore, Clifford Herschel, died Aug. 31, 1931.

Moore, Rear Admiral Edwin King, U.S.N., Ret. American naval officer, died in Atlantic City, N. J., Sept. 2, 1931. He was born in Georgetown, Ohio, July 24, 1847, and was graduated from the U. S. Naval Academy in 1868. Promoted through the grades, he became commander in 1899, captain in 1903, and rear admiral in 1908. During 1899-1901 he commanded the *Helena* stationed in the Philippines, and on his return to the United States was appointed commander of the Boston Navy Yard. He was a member of the Naval Examining and Retiring Boards during 1906-07, and prior to his own retirement in 1909 served as commander of the Navy Yard at Portsmouth, N. H.

Moore, Frank Frankfort, died May 11, 1931.

Moore, George Foot, died May 16, 1931.

Moore, Mary (Lady Wyndham), died Apr. 6, 1931.

Moore, Richard Bishop, died Jan. 20, 1931.

Moore, Veranus Alva, died Feb. 11, 1931.

Morrow, Dwight Whitney, died Oct. 5, 1931.

Morrow, William. American publisher, died in New York City Nov. 11, 1931. He was born in Dublin, Ireland, June 15, 1873, and was brought to the United States in childhood. On graduation from Harvard in 1900, he joined the staff of *McClure's Magazine* and later that of *Leslie's Monthly*. From 1906 to 1925 he was associated with Frederick A. Stokes Company, publishers, part of which time he was secretary. In 1926 he organized his own publishing firm.

Morton, Michael, died Jan. 11, 1931.

Müller, Hermann, died Mar. 20, 1931.

Mulliken, Alfred Henry. American industrialist, died in New Canaan, Conn., Sept. 2, 1931. He was born in Augusta, Me., in 1854 and began his business career in 1868 as office boy for Orer, Adams & Co., dealers in railroad equipment, in Chicago. In 1880, with Asa G. Pettibone, he organized the firm of Pettibone and Mulliken, which was incorporated five years later for the manufacture of railway supplies, including the Jenne track-hack and the roller railbender. He acted as secretary and treasurer after 1885, and as president from 1912 until his retirement in 1928. During the World War he was representative at Washington for 14 similar manufacturing companies in their relationship with the Federal Government in its operation of the principal railroads of the United States. He also was chairman of the board and president of Mulliken & Roberts, Inc., investment bankers in New York City.

Munn, John Pixley. American life insurance official, died in New York City, Aug. 15, 1931. He was born at Gates, near Rochester, N. Y., Dec. 11, 1847, and was graduated from the University of Rochester in 1870 and with the M.D. degree from Bellevue Hospital Medical College, New York City, in 1876. After acting as assistant medical director for the United States Life Insurance Company, he became medical director in 1883 and president in 1902. At the time of his death he was chairman of the board of directors. He also was president of the Arlington Refrigerator Company, director of numerous banks and manufacturing concerns, and a member of the Council of New York University.

Munro, John. American publisher, died in New York City, Aug. 2, 1931, aged 64. On graduation from Cornell University in 1888, he became associated with the publishing house of his father, George Munro & Co. He helped promote the paper-back series of classics and standard works, and later of "dime novels," for which this firm became noted. On his retirement in 1906 he became a director in the National Nassau Bank of New York City.

Murdock, Rear Admiral Joseph Ballard, died Mar. 20, 1931.

Mussolini, Arnaldo. Italian editor, died in Milan Dec. 21, 1931, aged 46. A younger brother of Benito Mussolini, he became associated with him in 1915 as business manager of *Il Popolo d'Italia*, assuming the editorship in 1922 when his brother became Premier. He also was president of the National Press Commission. *Il Popolo d'Italia*, with a circulation of about 80,000, was the chief Fascist journal, its editorials being accepted as expressions of the Premier's own opinions.

Myers, George William. American mathematician, died in Chicago, Ill., Nov. 23, 1931. He was born in Champaign Co., Ill., Apr. 30, 1884, and was graduated from the University of Illinois in 1888, receiving the Ph.D. degree from the University of Munich in 1896. After acting as professor of astronomy and applied mathematics at the University of Illinois, he became in 1901 professor of teaching of mathematics and astronomy in the School of Education at the University of Chicago, holding this chair until 1929. He was author and co-author of many books on this subject, among which are *First-Year Mathematics for Secondary Schools* (1907); *Geometric Exercises for Algebraic Solution* (1907); *Second-Year Mathematics for Secondary Schools* (1909); *Teachers' Manual for First-*



*Year Mathematics* (1911); and *Myers' Elementary Algebraic Geometry* (1921).

Nehru, Pandit Motilal, died Feb. 6, 1931.

Neill, Charles Ernest. Canadian banker, died in Montreal, Quebec, Dec. 16, 1931. He was born in Fredericton, N. B., May 27, 1873. Entering the service of the Royal Bank of Canada in 1889, he was promoted to chief inspector in 1903, assistant general manager in 1907, general manager in 1916, vice president in 1927, and managing director in 1929. He was president of the Canadian Bankers' Association in 1926-27. He also was a governor of McGill University.

Nelson, The Rt. Rev. Richard Henry. American clergyman, died in Albany, N. Y., Apr. 25, 1931. He was born in New York City, Nov. 10, 1859, and attended Trinity College, the University of Leipzig, and the Berkeley Divinity School. On ordination to the ministry of the Protestant Episcopal Church, he served as assistant rector of St. John's Church, Stamford, Conn. (1883-84) and as rector of Grace Church, Waterville, N. Y. (1884-87), Christ Church, Norwich, Conn. (1887-97), and St. Peter's Church, Philadelphia, Pa. (1897-1904). He was consecrated bishop coadjutor of Albany May 19, 1904, and succeeded to the bishopric on the death of the Rt. Rev. William Croswell Doane in 1913. He retired in 1929.

Nevin, James Banks. American journalist, died in Atlanta, Ga., Nov. 18, 1931. Born in Rome, Ga., Sept. 9, 1873, he was graduated from the University of Georgia in 1892, and was successively city editor and managing editor of the *Rome Tribune* (1900-06) and associate editor of the *Washington* (D. C.) *Herald* (1906-10). When William Randolph Hearst acquired the *Atlanta Georgian* in 1910, he was engaged as managing editor of that paper and of the *Sunday American*. Two years later he became editor-in-chief of the *Georgian*, in which capacity he was serving at the time of his death.

Newcombe, Edmund Leslie, died Dec. 9, 1931.

Nibley, Charles Wilson. American Mormon leader, died in Salt Lake City, Utah, Dec. 11, 1931. Born in Huntersfield, Midlothian Co., Scotland, Feb. 5, 1849, he was brought to the United States in childhood. From 1907 to 1925 he was presiding bishop of the Church of Jesus Christ of Latter-Day Saints, and from 1925 until his death second counselor in the first presidency. He also was vice president of Brigham Young College.

Nicholson, Brig. Gen. William Jones, U.S.A. Ret. American soldier, died Dec. 20, 1931, in Washington, D. C., where he was born Jan. 16, 1856. Commissioned a 2d lieutenant of cavalry in the U. S. Army in 1876, he was advanced through the grades to colonel in 1912, having served in the Spanish-American War and the Mexican Punitive Expedition. During the World War he was commander of Camp Meade and Camp Upton, and overseas participated in the Meuse-Argonne offensive as commander of the brigade of the 79th division that included the 313th and 314th Infantry. He received the Distinguished Service Cross and the Distinguished Service Medal, and following his retirement in 1920 was promoted to the rank of brigadier general by special act of Congress in 1927.

Nielsen, Carl August. Danish composer, died in Copenhagen, Oct. 8, 1931. He was born near Odense, June 9, 1865, and attended the Royal Conservatory in Copenhagen. During 1889-1905 he was violinist of the Royal Chapel. He also was conductor of the Royal Opera for two years and later became a member of the board of governors of the Royal Conservatory. In 1915 he became director of the *Musikforening* (Music Society). He was one of the foremost of modern Scandinavian composers, but did not ally himself with any special coterie or trend of his five symphonies, No. 3, *Espansiva*, and No. 4, *L'Inestinguibile*, were a sensational success. He also composed the concert overture, *Helios*; the operas, *Saul and David* and *Macarade*, both of which were produced at the Royal Opera; the music to Oehlenschläger's drama, *Aladdin*; four string quartets; two violin sonatas; and many songs and ballads.

Nolens, Mgr. Willem Hubert. Dutch statesman, died at The Hague Aug. 27, 1931. He was born in Benlo Sept. 7, 1860, and took orders in the Roman Catholic Church. In 1896 he was elected to the Second Chamber, where he became parliamentary leader of the Catholic party and its most influential director. After 1909 he was professor of labor legislation at the Municipal University, Amsterdam. He also was president of the High Labor Council and collaborated in international labor legislation at Geneva. In 1923 he was Minister of State.

Normand, Jacques Clary Jean. French dramatist, poet, and novelist, died May 28, 1931, in Paris where he was born Nov. 25, 1848. In 1898 he collaborated with Guy de Maupassant in writing *Musotte*. His other plays include *Le troisième Larron* (1875); *L'Aurélios* (1882); *L'Amiral* (1880); *La Douceur de croire* (1899); *Monieur et Madame Dugazon* (1902); and *On n'oublie pas* (1904), the majority of which were

produced at either the Odéon or the Comédie-Française. Among his poems are *La Muse qui trotte* (1894); *Théâtre de poche* (1907); *Paravents et tréteaux* (1908); *Les moineaux francs* (1909); *La maison d'éclair* (1914); *La loutrie sauplant* (1916); *Les drapeaux déployés* (1919); and *Le caprice des heures* (1927). His fiction includes *Le Monde où nous sommes* (1884); *Contes à Madame* (1890); and *Du triest au gai* (1900). His work was crowned once by the Académie des Inscriptions et Belles-lettres and twice by the Académie française.

Nugent, John F. American lawyer and ex-Senator, died in Silver Spring, Md., Sept. 18, 1931. He was born in La Grande, Ore., June 28, 1868, and was admitted to the Idaho bar in 1898, practicing in Silver City. He served for four terms as prosecuting attorney for Owyhee County, Idaho, and was also chairman of the Democratic Central Committee of that county and of the State Democratic Central Committee for two terms. In 1918 he was appointed by Governor Moses Alexander to fill the vacancy in the United States Senate caused by the death of James H. Brady, and was elected in November of that year for the ensuing term. He resigned in 1921, however, to accept an appointment by President Wilson to the Federal Trade Commission on which he served until 1927. At the time of his death he was senior member of the law firm of Nugent and O'Hara in Washington, D. C. He had also organized in February, 1931, the National Chamber of Associated Merchants to oppose the development of chain stores.

Nyrop, Kristoffer, died Apr. 18, 1931.

Oakes, George Washington Ochs, died Oct. 26, 1931. Oakley, Russell A. American agronomist, died in Monrovia, Calif., Aug. 6, 1931. He was born near Marysville, Kans., Sept. 7, 1880, and was graduated from the Kansas State Agricultural College in 1903. Appointed a scientific aid in the Office of Agrostology of the U. S. Department of Agriculture in 1903, he served continuously in that department until his death. From 1913 to 1926 he was in charge of the Office of Seed Distribution of the Bureau of Plant Industry, and after 1926 was senior agronomist in charge of the Division of Forage Crops and Diseases. He was also for several years assistant chairman of the Federal Horticultural Board and a member of the Advisory Federal Plant Quarantine Board. His researches were confined mostly to investigations of alfalfa and turf grasses.

O'Callaghan, Sir Desmond, Dykes Tynte. British army officer, died in London Mar. 16, 1931. Born Jan. 25, 1843, he attended the Ordnance School at Carshalton and the Royal Military Academy at Woolwich. After serving with the field and garrison artilleries in Canada, Bermuda, and South Africa, he was made major general and commanded the Royal Artillery in Malta during 1900-05. He also served for many years on the staff of the Director of Artillery at the War Office, and was successively secretary and president of the Ordnance Committee and Ordnance Board. In 1905 he received the Distinguished Service Reward, and in 1908 was created Knight Commander of the Royal Victorian Order. He was the author of *Guns, Gunners, and Others* (1925).

O'Connor, Sir James. Irish jurist, died in Dulwich, near London, Dec. 29, 1931. Born in Wexford, Ireland, Apr. 1, 1872, he attended Blackrock College, Dublin, and was admitted to the Irish bar in 1900. In 1908 he was called to the Inner Bar. He was solicitor-general for Ireland during 1914-16, attorney-general during 1916-18, and Lord Justice of Appeal during 1918-25. In 1925 he was made a King's Counsel and was called to the bar of the Middle Temple; on his retirement four years later he was re-admitted to the Irish bar as a solicitor. He was knighted in 1925 and was the author of *History of Ireland* (1925).

Oldenburg, Frederick Augustus, Grand Duke of See Frederick Augustus, Grand Duke.

Olds, George Daniel, died May 11, 1931.

Orpen, Sir William, died Sept. 29, 1931.

Oulahan, Richard Victor, died Dec. 30, 1931.

Page, Alfred Rider. American jurist, died in Southampton, Long Island, N. Y., Feb. 8, 1931. He was born in Carlinville, Ill., Oct. 7, 1859, and was graduated from New York University in 1880. In addition to his private practice in New York City, he was attorney for the board of excise in 1895 and for the State department of excise from 1896 to 1900. In 1905 he was elected to the New York State Senate, where he introduced the public service commission, mortgage tax, eighty-cent gas, and eight-hour child labor laws. In 1910 he was elected to the New York Supreme Court for the term ending Dec. 31, 1923, and in 1916 was assigned to the Appellate Division of the 1st Department.

Pammel, Louis Hermann. American botanist, died Mar. 23, 1931, en route to Ames, Iowa, from California. He was born in La Crosse, Wis., Apr. 19,

1862, and was graduated from the University of Wisconsin in 1885, receiving the Ph.D. degree from Washington University in 1898. In 1889 he became professor of botany, and botanist of the experimental station, at the Iowa State College of Agriculture and Mechanic Arts. He was a pioneer in the study of the flora of the plains and Rocky Mountains, and was also active in the field of conservation, writing the Iowa Conservation Bill and serving during 1918-27 as first president of the Iowa State Board of Conservation. He was an authority on morphology, ecology, and plant pathology and was the author of *Weeds of the Farm and Garden* (1910) and *A Manual of Poisonous Plants* (2 vols., 1910).

Panaretoff, Stephen. Bulgarian diplomat, died in Washington, D. C., Oct. 19, 1931, aged 78. Born in Sliven, Bulgaria, he attended Robert College in Constantinople. After acting as instructor for six years he was made in 1877 professor of Bulgarian and Slavic Languages and Literature at that institution. In 1914 he became the first Bulgarian Minister to the United States, serving until 1925. After his retirement he remained in Washington, lecturing at Georgetown and George Washington Universities.

Parr, Sir Robert (John). British welfare worker, died in London Apr. 11, 1931. He was born in Torquay Apr. 12, 1862. In 1899 he joined the staff of the National Society for the Prevention of Cruelty to Children, serving successively as assistant secretary and assistant director. In 1905 he was made director, which position he retained until his appointment in 1924 as a member of the Home Office committee on assaults on young persons. After 1927 he was consulting director of the society. The Order of the British Empire was conferred on him in 1917, and he was knighted in 1926. He was also editor, from 1905 to 1927, of the *Child's Guardian*.

Parr, Samuel Wilson, died May 16, 1931.

Parsons, Sir Charles Algernon, died Feb. 12, 1931.

Parsons, Payn Bigelow. American bacteriologist, died in New York City, Sept. 19, 1931. He was born in Baldwinville, N. Y., Feb. 12, 1872, and was graduated from Williams College in 1892 and from the Albany Medical College in 1897, later studying at the Cornell Medical College during 1904-06. In 1905 he was appointed bacteriologist in the conduct of the New York subway air investigation, and in 1907 was a member of the Pollution Commission and the Metropolitan Sewerage Commission, directing the laboratories of the latter from 1909 to 1913. He was then appointed chief bacteriologist for the New York laboratory of the U. S. Bureau of Chemistry, and after 1925 was bacteriologist for the New York State Conservation Commission.

Paul, Capt. Henry Martyn, U.S.N., Ret. American astronomer, died in Washington, D. C., Mar. 15, 1931. He was born in Dedham, Mass., June 25, 1851, and was graduated from Dartmouth College in 1873, receiving the C.E. degree in 1875 and A.M. degree in 1876 from that institution. Until 1880 he was assistant astronomer with the United States Naval Observatory, and then went to Japan as professor of astronomy at the Imperial University in Tokyo. He returned to the Naval Observatory in 1893, where he served as astronomer during 1897-99. In 1897 he also was appointed professor of mathematics with the U. S. Navy, being assigned as engineer to the bureau of yards and docks from 1899 to 1905 and as instructor in mathematics at the U. S. Naval Academy from 1905 to 1912. He retired in 1913.

Pawlowna, Anna, died Jan. 23, 1931.

Pensfield, Walter Scott, died Apr. 11, 1931.

Penniman, James Hosmer. American historian, died in Philadelphia, Pa., Apr. 6, 1931. He was born in Alexandria, Va., Nov. 8, 1860, and was graduated from Yale in 1884, after which he taught in Philadelphia. He founded three libraries of education—the Penniman Memorial Library at Brown University; the Maria Hosmer Penniman Memorial Library at the University of Pennsylvania; and the Penniman Memorial Library at Yale. He was also noted as a biographer of George Washington and was the author of the plan to honor the 200th anniversary of Washington's birth in 1932 by the construction and dedication of "The Highway of the Thirteen Original States," 13 miles in length from Washington to Mt. Vernon, each of the original States building one mile. His works include *Books and How to Make the Most of Them* (1910); *George Washington as Commander-in-Chief* (1917); *George Washington as Man of Letters* (1918); *George Washington at Mt. Vernon* (1921); *Our Debt to France* (1921); *What Lafayette Did for America* (1921); and *Philadelphia in the Early Eighteen Hundreds* (1923).

Penrose, Richard Alexander Fullerton, Jr., died July 31, 1931.

Perrin, John. American banker, died in Washington, D. C., Dec. 27, 1931. He was born in Rossville, Ind., Jan. 17, 1857, and was graduated from Yale Uni-

versity in 1879. In 1890 he entered the Perrin National Bank in Lafayette, Ind., which had been founded by his father, and ten years later organized the American National Bank in Indianapolis, of which he was president until its consolidation with the Fletcher National Bank in 1910. He was chairman of the board of the Fletcher-American National Bank during the next two years, and then removing to San Francisco, Calif., served as chairman of the Federal Reserve Bank of the Twelfth District from 1914 to 1926.

Peyton, General Sir William Elliot, died Nov. 14, 1931.

Pieper, Franz August Otto. American theologian, died in St. Louis, Mo., June 8, 1931. He was born in Orwitz, Pomerania, Germany, June 27, 1852, and on coming to the United States in 1870 completed his education at Northwestern University. He was graduated from the Concordia Lutheran Theological Seminary in 1875 and was ordained to the Lutheran ministry in the same year. After serving as pastor in Manitowoc, Wis., he became in 1878 professor of theology and in 1887 president of the Concordia Seminary. He was also president-general of the Evangelical Lutheran Synod of Missouri, Ohio, and Other States from 1899 to 1911, and had acted as editor of *Lehre und Wehre* since 1878. Outstanding among his works are: *Distinctive Doctrines of the Lutheran Church* (1892); *Das Wesen des Christentums* (1908); *Christliche Dogmatik* (1917); *Das Fundament des Christlichen Glaubens* (1925); and *Die Kraft des Evangeliums* (1927).

Plunkett, Rear Admiral Charles Feshall, died Mar. 25, 1931.

Polak, John Osborne. American gynecologist, died June 29, 1931, in Brooklyn, N. Y., where he was born Mar. 12, 1870. He was graduated from the University of Vermont in 1889 and in 1891 secured his medical degree at the Long Island College Hospital. He practiced for several years and then became professor of obstetrics in the medical school at Dartmouth College in 1901. In 1910 he assumed the chair of obstetrics and gynecology at the Long Island College Hospital, and in 1931 was elected president of the board of regents of that institution. He was also consulting gynecologist at the Deaconess, Bushwick, Coney Island, and Williamsburg Hospitals in Brooklyn and the People's Hospital in Manhattan. His works include *Students' Manual of Obstetrics* (1914) and *Students' Manual of Gynecology* (1915).

Pomph, Basilio, Cardinal, died May 5, 1931.

Porter, Charles Allen. American surgeon, died in Boston, Mass., July 3, 1931. He was born in Cambridge, Mass., Sept. 9, 1866, and was graduated from Harvard in 1888, receiving the M.D. degree from that institution in 1892. He practiced in Boston until his retirement in 1927, acting also as surgeon-in-chief at the Massachusetts General Hospital, and was associated with the Harvard Medical School as instructor in surgery (1899-1909), assistant professor (1909-12), associate professor (1912-15), professor of clinical surgery (1918-22), and John Homans professor of surgery (1922-27). He was a past president of the New England Surgical Society.

Porter, James Temple. American physicist and educator, died in Knoxville, Tenn., Aug. 27, 1931. He was born in Bath Co., Va., Sept. 29, 1873, and was graduated from Randolph-Macon College in 1895 and with the Ph.D. degree from Johns Hopkins University in 1905. After acting as instructor at Martha Washington College, Abingdon, Va. (1895-96), Randolph-Macon Academy, Front Royal, Va. (1898-1901), and Williams College (1905-06), he became adjunct professor of physics at Randolph-Macon Woman's College in 1906 and associate professor of physics at the University of Tennessee in 1908. He was appointed professor at the latter institution in 1910, assistant dean of the college of liberal arts in 1919, and dean in 1925. He wrote *Selective Reflection in the Infra-Red Spectrum* (1905).

Potjes, Edouard. Belgian pianist and composer, died in Seattle, Wash., Jan. 4, 1931. He was born in Nimwegen, the Netherlands, in 1862. At one time he was head of the advanced piano department of the Belgium Royal Conservatory of Music in Ghent. His best known works were the operas *Ariane* produced in Ghent in 1903 and *Lorenzo Murano* produced in Antwerp in 1912.

Power, Tyrone, died Dec. 30, 1931.

Prentiss, Robert Riddick. American jurist, died in Richmond, Va., Nov. 25, 1931. He was born in Charlottesville, Va., May 24, 1855, and was graduated from the University of Virginia in 1876. Admitted to the bar, he practiced successively until 1895 in Charlottesville, Norfolk, and Suffolk, Va. He then became a judge of the Virginia Circuit Court (Norfolk Circuit), and on his resignation in 1907 became chairman of the State Corporation Commission. In 1916 he was appointed justice of the Supreme Court of Appeals of Virginia, and in 1925 chief justice. He also was chairman of the Commission on Revision and Amendment

of the Virginia Constitution (1927) and of the Virginia Judicial Council (1929).

Presbrey, Eugene W., died Sept. 9, 1931.

Pretyman, Ernest George, British politician, died in London, Nov. 26, 1931. He was born in Lincoln Nov. 13, 1860. After attending the Royal Military Academy, Woolwich, he entered the Royal Artillery in 1880 but retired nine years later. In 1895 he was elected to the House of Commons as Conservative representative for Suffolk, Woodbridge, holding this seat until 1906. He was returned as Conservative representative of Essex, Chelmsford, in 1908 and served until 1923. He was Civil Lord of the Admiralty (1900-03), secretary to the Admiralty (1903-06), Parliamentary secretary of the Board of Trade (1915-16), and again Civil Lord of the Admiralty (1916-19).

Pritche-Pattison, Andrew Seth, died Sept. 1, 1931.

Pritchard, Frederick J., American agricultural expert, died in Washington, D. C., Jan. 13, 1931. He was born in Camanche, Iowa, Dec. 24, 1874. On graduation from the University of Nebraska in 1904 he served as instructor in botany and bacteriology at the North Dakota Agricultural College, being appointed later assistant professor of botany and pathologist at the North Dakota Agricultural Experiment Station. In 1907 he was made assistant in plant breeding at the New York State Agricultural College at Cornell University, where he also served until 1909 as special agent of the U. S. Department of Agriculture. In 1910 he was transferred to Washington where he was engaged by the Bureau of Plant Industry as plant physiologist in the breeding of sugar beets and disease-resistant tomatoes. At the time of his death he was senior physiologist in the Office of Horticultural Crops and Diseases.

Procter, Joan Beauchamp, British zoologist, died Sept. 20, 1931, in London where she was born Aug. 5, 1897. On being graduated from St. Paul's Girls' School in 1917, she worked with Dr. G. A. Boulenger in the London Natural History Museum on reptilia and batrachia and for a time was temporary assistant there in charge of these collections. In 1923 she was appointed curator of reptiles for the Zoological Society of London, and during the next five years designed and had charge of such installations as the rock-work for the aquarium at the zoological gardens, the monkey hills, and the reptile house. She had also been since 1923 secretary of the World List of Scientific Periodicals Company, and from 1920 to 1924 was recorder for reptilia and batrachia for the annual *Zoological Record*.

Putnam, Ruth, American author, died in Geneva, Switzerland, Feb. 12, 1931. She was born in Yonkers, N. Y., in 1857 and was graduated from Cornell University in 1878. Her works include *William the Silent* (2 vols., 1894); *Annetje Jan's Farm* (1897); *A Medieval Princess* (1904); *Charles the Bold* (1908); *Alace and Lorraine* (1915); *The Name of California* (1916); and *Lucemburg and Her Neighbors* (1918). She also edited the *Life and Letters of Mary Putnam Jacobi* (1925).

Putti, Lya de, Hungarian actress, died in New York City Nov. 27, 1931, aged 32. After being featured in German films, she came to the United States in 1926, appearing in *The Sorrows of Satan*, *God Gave Me Twenty Cents*, *The Prince of Tempters*, *The Heart Thief*, and *The Scarlet Lady*. In 1929 she went to England under contract with the British International Pictures, but returned to the United States the following year to appear on the legitimate stage.

Ragonese, Francesco, Cardinal. Prelate of the Roman Catholic Church, died in Poggia Acaiano, Italy, Sept. 14, 1931. Born in Bagnola in 1850, he had served as Apostolic Delegate to Colombia (1904-12) and as Papal Nuncio to Spain (1912-21). In 1921 Pope Benedict XV created him a Cardinal Priest. He also was Prefect of the Supreme Tribunal of the Apostolic Segnatura.

Rand, William, American lawyer, died in New York City, Feb. 10, 1931. He was born in Chicago, Ill., Jan. 8, 1866, and was graduated from Harvard College in 1888 and from the Harvard Law School in 1891. Engaging in practice in New York City, he was associated with William Travers Jerome both as assistant district attorney (1902-06) and as law partner (1910-29). During the World War he was judge advocate on General Pershing's staff at Chaumont, France.

Rasco, Richmond Austin, American lawyer and educator, died in Coral Gables, Fla., Nov. 15, 1931. He was born in Newton, Miss., July 5, 1871, and was graduated from Dickson (Tenn.) Normal College in 1895 and with the LL.B. degree from the Southern Normal University, Huntington, Tenn., in 1898. After acting as principal or superintendent of schools in Thoraby and Jemison, Ala., he became in 1909 professor of law at Stetson University and dean of the law college in 1913. In 1921 he went to the University of Florida as professor of law, in 1923 to the University of Arizona, and in 1926 to the University of

Miami. After 1927 he was dean of the law school at the latter institution.

Raymond, Walter, British novelist, died in Southampton Apr. 2, 1931. He was born in Yeovil Mar. 13, 1852. His early novels, which were written under the pseudonym Tom Cobbleigh and in which he became noted for his tales of Somersetshire, include *Misterton's Mistake* (1890); *Taken at His Word* (1892); *Gentleman Upcott's Daughter* (1893); and *Young Sam and Sabina* (1894). He later wrote *Tryphena in Love* (1895); *In the Smoke of War* (1895); *Charity's Chance* (1897); *Two Men of Mendip* (1898); *Fortune's Darling* (1901); *School History of Somerset* (1906); *Tales from Gossip-Corner* (1907); *English Country Life* (1910); *The Revenues of the Wicked* (1911); *A Wayfaring Soul* (1913); *Verily Thurston* (1926); and *Under the Spreading Chestnut Tree* (1928).

Read, Carveth, died Dec. 8, 1931.

Reese, The Rt. Rev. Theodore Irving, Protestant Episcopal Bishop of the Diocese of Southern Ohio, died in Cincinnati, Ohio, Oct. 13, 1931. He was born in New York City, Mar. 10, 1873, and was graduated from Columbia University in 1894 and from the Episcopal Theological School in 1897. After ordination he founded St. Michael's Parish, Milton, Mass., where he served as rector until 1907. He was then called to Trinity Church, Columbus, Ohio, and in 1912 was elected bishop coadjutor of the Diocese of Southern Ohio. He succeeded to the bishopric on the retirement of the Rt. Rev. Boyd Vincent in 1929. He was a member of the National Council of the Protestant Episcopal Church from 1919 to 1925, and was also a member of the executive committee of the Church Pension Fund. For some time he served by appointment of Governor Harmon in 1909 as chairman of the Ohio State Board of Arbitration.

Reichert, Edward Tyson, died Dec. 25, 1931.

Reid, Elisabeth Mills (Mrs. Whitelaw Reid), died Apr. 29, 1931.

Reimer, Frederic Adams, American consulting engineer, died May 18, 1931, in East Orange, N. J., where he was born Feb. 1, 1874. Beginning as a surveyor, he was appointed assistant city engineer of East Orange in 1895 and city engineer in 1909. He next became county engineer of Essex County, serving from 1913 to 1922. He had been prominent in the Light Field Artillery of the New Jersey National Guard since 1895, and in 1915 organized a battalion of engineers which on the entrance of the United States into the World War was federalized as the first battalion of the 104th Engineers. He had also been prominent in the good roads movement, being a past president of the American Road Builders' Association, a member of the International Highway Commission, and a delegate to the Second Pan American Congress of Highways held in Rio de Janeiro in 1929.

Revell, Fleming Hewitt, died Oct. 11, 1931.

Richardson, Anna Furetta, American home economics expert, died in Washington, D. C., Feb. 3, 1931. She was born in Charleston, S. C., Sept. 5, 1883, and was graduated from the Peabody College for Teachers in 1903. After teaching in private and public schools, she became in 1911 professor of home economics at the Agnes Scott College for Women, and in 1913 adjunct professor at the University of Texas. From 1917 to 1922 she was chief of the home economics educational service of the Federal Board for Vocational Education in Washington. She then went to Iowa State College as dean of the home economics division, and in 1926 became a field worker for the American Home Economics Association.

Ricketts, Charles, died Oct. 7, 1931.

Riker, Carroll Livingston, American mechanical engineer and inventor, died in Washington, D. C., May 7, 1931. He was born in Staten Island, N. Y., July 31, 1854. In 1874 he designed and built what was alleged to be the first refrigerating warehouse ever built in New York City, and thirteen years later designed and built the most powerful pumping dredge constructed to that time. During the Spanish-American War he designed and presented to the United States Government a new type of torpedo that would float at any desired depth. He also originated a project to control the Gulf Stream by inducing compulsory deposits of sand on the Grand Banks of Newfoundland by the Labrador current, and a plan for the control of the Mississippi River so as to yield a net annual income of \$100,000,000. In 1914 he was a founder of the Volunteers for Peace, an organization which advocated a preliminary continuous conference looking towards the establishment of peace among the belligerent nations of Europe.

Robbins, Sir Alfred (Farthing), died Mar. 10, 1931.

Robertson, Alice Mary, A former American Congresswoman, died in Muskogee, Okla., July 1, 1931. She was born in Tullahassee, Indian Territory (later Oklahoma), Jan. 2, 1854, and attended Elmira College. On graduation she was appointed a clerk in the Indian

Office in Washington, and then returned to Indian Territory as an assistant in mission work there. She established the Nuyaka Mission and had charge of the boarding school for Indian girls at Muskogee, which grew into the Henry Kendall College, a Presbyterian institution, at Tulsa, Okla., in 1894 and was later converted into the University of Tulsa. She was government supervisor of the Creek Indian schools from 1900 to 1905 and postmistress of Muskogee, by personal appointment of President Roosevelt, from 1905 to 1913. In 1920 she was elected to the 67th Congress from the Second Oklahoma District, being the second woman in the United States to serve in the House of Representatives.

Robinson, Edward, died Apr. 18, 1931.

Robinson, Lewis Taylor, American electrical engineer, died in Schenectady, N. Y., Nov. 3, 1931. Born in Springfield, Mass., Oct. 20, 1868, he became associated at the age of 17 with the Thomson-Houston Electric Company in Lynn, Mass. In 1896 he went to Schenectady to take charge of the standardizing laboratory of the General Electric Company, and in 1919, on the consolidation with the consulting engineering laboratory founded by Charles P. Steinmetz, was made engineer in charge of the general engineering laboratory of this company. Under his direction many electrical devices were developed, including the oscillograph, electro-cardiograph, mercury arc rectifier, and photophone for producing sound pictures.

Rockne, Knute Kenneth, American football coach, died in an airplane accident near Bazaar, Kans., Mar. 31, 1931. He was born in Voss, Norway, Mar. 4, 1888, and was brought to the United States in early childhood. On graduation from Notre Dame University in 1914, he became assistant football coach at that institution and in 1917 head coach. He was also engaged as coach at various summer schools, including the Springfield Y. M. C. A. College, Oregon Agricultural College, Utah Agricultural College, University of Southern California, Southern Methodist University, and William and Mary College. He first gained recognition in the football world during the seasons of 1919 and 1920 when the Notre Dame teams won every game. This record was repeated in 1924, 1929, and 1930 by which time he had established what was regarded as the greatest football organization in the history of American colleges.

Rodgers, Rear Admiral Thomas Slidell, U. S. N., Ret. American naval officer, died in New York City, Feb. 28, 1931. He was born in Morristown, N. J., Aug. 18, 1858, and was graduated from the U. S. Naval Academy in 1878. Appointed an ensign in 1881, he was promoted through the grades to rear admiral in 1916. During the Spanish-American War he served on the *Benington* and *Monterey*, and was executive officer of the *Maine* from 1902 to 1905. After acting as commander of the *Dubuque* (1906-08) and of the *New Hampshire* (1909-11), he served successively as supervisor of the New York harbor and as director of Naval Intelligence. He then commanded the *New York* during 1913-15, after which he was called to the Naval War College. In 1916 he was appointed commander of division 7 of the battleship force of the Atlantic Fleet. He retired in 1919.

Rodriguez, José Antonio Salvadorean statesman, died in San Salvador Feb. 16, 1931. He had held the positions of President of the National Assembly, Secretary of State, minister to many Central American republics and Mexico, judge of the Courts of Second and Third Instance, and justice of the Supreme Court.

Rogers, William Allen, American cartoonist, died in Washington, D. C., Oct. 20, 1931. He was born in Springfield, Ohio, May 23, 1854, and attended the Worcester Polytechnic Institute. From 1873 to 1877 he was an illustrator and cartoonist for the *New York Daily Graphic* and later contributed to *Harper's Weekly*, *Harper's Magazine*, *Life*, *St. Nicholas*, *the Century*, and other magazines. For 19 years he was cartoonist for the *New York Herald*, being made a Chevalier of the French Legion of Honor for his drawings which appeared in that paper, and its Paris edition, during the World War. He was a member of the Society of Illustrators and during 1921-22 was a member of the board of directors and an instructor at the School for Disabled Soldiers conducted by that society and the Federal Board for Vocational Education. Published collections of his cartoons include *Hits at Politics* (1899) and *America's Black and White Book* (1917). He also wrote *A World Worth While* (1922); *Danny's Partner* (1923); and *A Miracle Mine* (1925).

Rolvaa, Ole Edvard, died Nov. 5, 1931.

Rondthaler, Edward, American clergyman, died in Winston-Salem, N. C., Jan. 31, 1931. He was born in Northampton Co., Pa., July 24, 1842, and attended the Moravian College and Theological Seminary in Bethlehem, Pa., and the University of Erlangen. Ordained to the Moravian ministry in 1865, he served successively as pastor in Brooklyn, N. Y. (1865-73), Philadelphia, Pa. (1874-77), and Winston-Salem, N. C.

(1877-1908). He was also president of the Moravian Women's College in the South (later the Salem Academy and College for Women) during 1884-87. In 1891 he was elected bishop of the southern province of the Unitas Fratrum branch of the Moravian Church, presiding as president of the Board of Provincial Elders and various other boards. He was the author of *Fifty Years of Annual Papers on World Events* (1928).

Rose, Wickliffe, died Sept. 5, 1931.

Rosenfeld, Sydney, American dramatist, died in New York City, June 18, 1931. He was born in Richmond, Va., Oct. 26, 1855. After acting as reporter on the *New York Sun* and the *New York World* he became the first editor of *Puck*. Among his plays are *A Possible Case* (1888); *Prince Methusalem* (1888); *The Club Friend* (1891); *Imagination* (1892); *The Politician* (1896); *A House of Cards* (1896); *The King's Carnival* (1900); *The Hall of Fame* (1902); *The Aero Club* (1907); *Mrs. Mischief* (1908); *Children of Destiny* (1910); *The Love Drive* (1917); and *Forbidden* (1923). He also adapted from the German *The Black Hussar* (1885), *The Two Escutcheons* (1896), and *At the White Horse Tavern* (1899) and from the French *Nanon* (1885).

Ross, Sir John British solicitor and Carnegie Trust administrator, died Nov. 2, 1931, in Dunfermline, Scotland, where he was born July 28, 1838. A boyhood friend of Andrew Carnegie, he became in 1901 treasurer of the Carnegie Trust for the Universities of Scotland. He also was chairman of the Carnegie Dunfermline Trust after 1903, of the Carnegie Hero Fund Trust after 1908, and of the Carnegie United Kingdom Trust after 1913. He was knighted previous to his retirement from these posts in 1922.

Rouleau, Raymond-Marie, Cardinal, Canadian prelate of the Roman Catholic Church, died in Quebec, May 31, 1931. He was born in Isle-Verte, Quebec, Apr. 6, 1866, and attended the Seminary of Rimouski and the Dominican College of Corbara, Corsica, having entered the Order of the Dominican Fathers in 1886. Ordained a priest in 1892, he was appointed Master of the Novitiate at St. Hyacinthe, Quebec, in 1894 and First Prior of the House of the Dominican Fathers in Ottawa in 1900. In 1919 he became Provincial of the Dominican Province of Canada. He was consecrated Bishop of the Diocese of Valleyfield in May, 1923, was enthroned as Archbishop of Quebec in July, 1926, and was elevated to the Cardinalate in December, 1927.

Royds, Sir Charles William Rawson, Retired British naval officer and Antarctic explorer, died in London, Jan. 5, 1931. He was born in Rochdale, Lancashire, Feb. 1, 1876. Entering the British Navy, he served on the *Discovery* during 1901-04 as first lieutenant under Capt. Robert F. Scott, commander of the Royal Geographical Antarctic expedition. In recognition of his contribution to the success of this expedition Cape Royds, where Sir Ernest Shackleton established his base on a later expedition, was named for him. He was promoted to commander in 1909 (being in command of the battleship *Hercules*), captain in 1914, and rear admiral in 1926. On his retirement from the Navy in 1926 he was appointed deputy commissioner of the metropolitan police of London, and in 1930 received the title of vice admiral, retired. He was created a Companion of St. Michael and St. George in 1919 and a Knight of the British Empire in 1929.

Rubens, Alma, American motion picture actress, died in Los Angeles, Calif., Jan. 21, 1931. She was born in San Francisco, Calif., in 1897 and attended a convent there. After appearing in musical comedy she began her screen career in *The Half Breed* with Douglas Fairbanks. Her greatest rôle was in *Humoresque*. Among the other films in which she had appeared since 1919 were *The Heart of Salome*, *The World and His Wife*, *The Ghost Flower*, *Madame Sphinx*, *The Answer*, *The Guided Butterfly*, *Siberia*, *The Pelican*, *The Marriage of Lucerne*, *The Valley of Silent Men*, *Enemies of Women*, and *Under the Red Robe*. Her third husband was Ricardo Cortez, the actor, to whom she was married in 1926.

Rudge, William Edwin, American printer, died in Mount Vernon, N. Y., June 12, 1931. He was born in Brooklyn, N. Y., Nov. 23, 1876. He had been engaged in the printing business in New York City since 1888, later becoming president of William Edwin Rudge, Inc., a firm which gained prestige through the highly artistic quality of its work. In 1918, and for several years thereafter, he was awarded two gold, two silver, and two bronze medals in annual printing exhibitions in New York City. In 1925 he was appointed by Herbert Hoover, then Secretary of Commerce, to represent the American printing industry at the International Exposition of Modern Decorative and Industrial Art in Paris. He was a member of the advisory board for the course sponsored by the American Institute of Graphic Arts at New York University.

Rudkin, Frank H., American jurist, died in San Francisco, Calif., May 3, 1931. He was born in Vernon,



Ohio, Apr. 23, 1864, and attended Washington and Lee University. Admitted to the bar in 1887, he began his practice in North Yakima, Wash. In 1901 he was elected to the Superior Court of Washington and in 1905 to the Supreme Court, becoming chief justice in 1909. He was made Federal district judge for the Eastern District of Washington in 1911, and in 1928 was elevated to the circuit bench as judge for the ninth circuit.

Rue, Levi Lingo. American banker, died in Chestnut Hill, Philadelphia, Pa., June 7, 1931. He was born in Philadelphia, July 14, 1860, and began his banking career in 1878 with the Philadelphia National Bank, being successively advanced to teller, cashier, vice president, and president in 1907. In 1914 he was elected a member of the Federal Advisory Council for the newly-created Federal Reserve Board, serving in this capacity for several years. Prior to his retirement in 1930 he was chairman of the board of the Philadelphia National Bank, which had been merged in 1926 with the Girard National Bank and in 1928 with the Franklin Fourth Street National Bank. He was also president of the Philadelphia Clearing House Association, and was a director of several banking and industrial institutions and railroads.

Rusiof y Prats, Santiago, died June 13, 1931.

Russell, Isaac Franklin. American lawyer, died in Brooklyn, N. Y., Nov. 20, 1931. He was born in Hamden, Conn., Aug. 25, 1857, and was graduated from New York University in 1875, receiving the LL.B. degree from that institution two years later and the D.O.L. degree from Yale in 1880. He was professor of law at New York University from 1881 until his death, and also taught political science during 1881-95. In 1910 he was appointed for a six-year term chief justice of the Court of Special Sessions of New York City. He retired from practice in 1931. He was the author of *Outline Study of Law* (1894) and *Cases on Measures of Damages* (1909) and contributed to numerous law journals.

Russell, John Francis Stanley Russell, Second Earl. British statesman, died in Marseilles, France, Mar. 3, 1931. Born Aug. 12, 1865, he succeeded to the title on the death of his grandfather, Lord John Russell, in 1878. He was educated at Balliol College, Oxford, and practiced both electrical engineering and law. As a member of the Fabian Society, he early associated himself with the Labor party, and on the advent to power of the second Labor Government in 1929 was made Parliamentary Secretary to the Ministry of Transport. Later in the same year he was transferred to the India Office as Parliamentary Under-Secretary of State. He was a brother of Bertrand Russell, the mathematician and philosopher, while his wife, the former Countess Arnum, was the author of *Elizabeth and Her German Garden* and other novels. He published *My Life and Adventures* (1923).

Rydberg, Per Axel, died July 25, 1931.

Ste. Helene, Reginald Grant d'Iverville de. See Longueuil, Reginald Grant d'Iverville de Ste. Helene, Baron of.

Salandra, Antonio, died Dec. 9, 1931.

Salter, William Mackintire. American Ethical Culture leader and author, died in Silver Lake, N. H., July 13, 1931. He was born in Burlington, Iowa, Jan. 30, 1853, and was graduated with the A.B. degree from Knox College in 1871 and with the B.D. degree from Harvard in 1876. He became associated with Felix Adler, following the organization of the first Society for Ethical Culture in New York City in 1876. He also assisted in the organization of the Chicago Society in 1882 and was its lecturer from 1883 to 1892. He then became lecturer for the Philadelphia Society, returning to Chicago in 1897 where he remained until 1907. He was a special lecturer in the philosophy department at the University of Chicago from 1909 to 1913. His works include *On a Foundation for Religion* (1879); *Ethical Religion* (1889); *First Steps in Philosophy* (1892); *Anarchy or Government? An Inquiry in Fundamental Politics* (1895); *Nietzsche, the Thinker* (1917); and *What Is Americanism?* (1925).

Samson, Charles Rumney, died Feb. 5, 1931.

Saunders, William Lawrence, died June 25, 1931.

Schalk, Franz. Austrian orchestra conductor and former director of the Vienna Opera House, died in Reichenau, Sept. 3, 1931. He was born in Vienna, May 27, 1863, and studied violin under Hellmesberger and composition under Anton Bruckner. After serving as an orchestra leader in Reichenberg (1888), Graz (1889-95), and Prague (1895-98), he was invited to London as guest-conductor at Covent Garden. From there he went to New York City where during the season 1898-99 he conducted Wagnerian and other German operas at the Metropolitan Opera House. In 1900 he was called to the Vienna Opera House as chief conductor, and in 1918 became co-director with Richard Strauss, holding the sole control from 1924 to 1928. He also was director of the *Gesellschaftskonzerte* from

1904 to 1921, and in 1907 and 1911 was again guest-conductor at Covent Garden.

Schiff, Mortimer L. American banker, died at Oyster Bay, Long Island, N. Y., June 4, 1931. He was born in New York City, June 5, 1877, and attended Amherst College. After spending two years in Hamburg and London studying European banking methods, he became a partner in the banking firm of Kuhn, Loeb & Co. in 1900, and at the time of his death was senior member of the firm. He was also a director of numerous banking and industrial enterprises and was prominent in the Boy Scout movement, having been elected to the presidency of the Boy Scouts of America in May, 1931.

Schilling, Hugo Karl. American philologist, died in Berkeley, Calif., July 25, 1931. He was born in Saalfeld, Germany, Mar. 28, 1861. On receiving the Ph.D. degree from the University of Leipzig in 1885, he came to the United States and was professor of modern languages at Wittenberg College, Springfield, Ohio, until 1891, assistant professor of German at Harvard University until 1904, and professor of Germanic languages and literature at the University of California until 1929. In 1907-08 he was president of the Pacific Coast division of the American Philological Association and in 1928 of the Modern Language Association of America. He was also editor of *Modern Language Notes* during 1899-1901 and of the University of California's publications in modern philology after 1909. He wrote *König Alfreds angelsächsische Bearbeitung der Weltgeschichte des Orosius* (1886).

Schleswig-Holstein, Duke of. See Albert Johann, Duke of Schleswig-Holstein.

Schnitzler, Arthur, died Oct. 21, 1931.

Schweinfurth, Julius Adolph. American architect, died in Wellesley Farms, Mass., Sept. 29, 1931. He was born in Auburn, N. Y., Sept. 20, 1858, and studied in Boston under Peabody & Stearns, architects, with whom he was associated for 13 years, and in London, Paris, Rome, and Florence. He had been engaged in private practice in Boston since 1895. Among the buildings which he designed were Pomeroy, Cazenove, Shafer, and Wilder Halls and the Hemenway Gymnasium at Wellesley College; the Tod Memorial at Youngstown, Ohio; Public Library at Champaign, Ill.; Baptist Church, Pierce Grammar School, and Municipal Court House in Brookline, Mass.; and Garden Office Building, High School of Practical Arts, Archbishop Williams Municipal Building, and Lincoln House in Boston, Mass. He was a Fellow of the American Institute of Architects, and published *Sketches Abroad* (1887).

Scott, Fred Newton, died May 29, 1931.

Scudder, Wallace McIlvaine. American publisher, died in Newark, N. J., Feb. 24, 1931. He was born in Trenton, N. J., Dec. 26, 1853, and was graduated from Lehigh University in 1873. He then attended the Harvard law school and was admitted to the New Jersey bar in 1876. In 1883 he founded the *Newark News*, an evening paper of which he was editor for many years and publisher until his death. Although independent, this paper was noted for the fearless stand which it occasionally took to cure political evils.

Seidler, Ernst. Austrian statesman, died in Vienna, Jan. 23, 1931. He was born at Schwechat, near Vienna, June 5, 1862. Appointed Minister of Agriculture in the cabinet of Count Clam-Martinitz June 1, 1917, he became Premier on the fall of that ministry a few weeks later. His government lasted from June 24, 1917, to July 25, 1918, but its tenure was insecure from the beginning on account of the opposition of such nationalist groups as the Czechs, Jugoslavs, and Poles. At the time of his death he was president of the Italo-Wiener Creditbank. He was created Knight of Feuchtenegg in 1916.

Sengoku, Mitsugu. Japanese statesman and railway executive, died in Tokyo, Oct. 30, 1931. Born in Kochi in 1857, he was graduated from the engineering college of Tokyo Imperial University in 1879. He was president of the Kyushu Railway Company until the nationalization of that road in 1911. During 1914-15 he was president of the Imperial Government Railways and during 1924-26 Minister of Railways. At the time of his death he was governor of the South Manchuria Railway Company.

Seth, Andrew. See Pringle-Patterson, Andrew Seth. Severance, Frank Hayward. American journalist and historian, died in Buffalo, N. Y., Jan. 26, 1931. He was born in Manchester, Mass., Nov. 28, 1856, and was graduated from Cornell University in 1879. After acting as reporter and city editor for the *Erie Gazette* (1879-80) and the *Buffalo Express* (1881-86), he became managing editor for the *Illustrated Buffalo Express*, retiring in 1902 to devote himself to writing and lecturing. He was president of the New York State Historical Association during 1923-25, and in 1929 was decorated by the French Academy. He also had served as secretary and treasurer of the Buffalo Historical Society for 28 years. His works include *Old Trails on the Niagara Frontier* (1899); *The Story of Joncaire* (1906); *Studies of the Niagara Frontier*

(1911); *The Picture-Book of Bartter Buffalo* (1912); *Peace Episodes on the Niagara* (1915); and *An Old Frontier of France* (2 vols., 1917).

Sharp, Robert. American educator, died in New Orleans, La., Jan. 28, 1931. He was born in Lawrenceville, Va., Oct. 24, 1851, and was graduated from Randolph-Macon College in 1876 and with the Ph.D. degree from the University of Leipzig in 1879. He was appointed professor of English at the University of Louisiana in 1880 and continued to hold this chair after the institution was renamed the Tulane University of Louisiana in 1884. In 1918 he was elected president of the institution, holding that office five years. He was an authority on Anglo-Saxon literature and edited *Beowulf* (1885).

Shepard, William Orville. American clergyman, died in Neully, France, Nov. 30, 1931. He was born in Sterling, Ill., Apr. 11, 1862, and was graduated from DePaul University in 1885 and from the DePaul School of Theology the following year. Ordained to the ministry of the Methodist Episcopal Church, he held pastorates in Chicago and vicinity until 1909, when he became superintendent of the Chicago northern district. In May, 1912, he was elected bishop and assigned to residence in Kansas City. From 1920 to 1928 he was resident bishop of Portland, Ore. At the time of his death he was bishop of the Mediterranean area, being in charge of the mission work in southern Europe, northern Africa, and Liberia.

Sheppard, John Calhoun. American lawyer and ex-Governor of South Carolina, died in Edgefield, S. C., Oct. 17, 1931. He was born in Edgefield Co., S. C., July 5, 1850, and attended Furman University, Greenville, S. C. Admitted to the bar in 1871, he practiced in Edgefield as a member of the firm of Youmans & Sheppard until 1875 and then for almost 50 years with his brother. During the '70s he also played an important part in the overthrow of "carpet-bag government," and in 1876 was elected to the South Carolina House of Representatives where he was speaker during 1877-82. He was twice elected lieutenant governor, in 1882 and 1884, and in 1886 completed the term of Gen. H. S. Thompson who had resigned. He was a member of the South Carolina Constitutional Convention in 1895 and of the State Senate during 1898-1902, being elected again to that body in 1919 for an unexpired term.

Shibusawa, Ei-ichi, Viscount, died Nov. 10, 1931.

Shortt, Adam, died Jan. 14, 1931.

Siddons, Frederick Lincoln. American jurist, died in Washington, D. C., June 19, 1931. He was born in London, England, Nov. 21, 1864, and was brought to the United States in childhood. On graduation from Columbian (later George Washington) University in 1887 he was admitted to the bar. In 1898 he was appointed professor of law at the National University, and in 1915 was elected associate justice of the Supreme Court of the District of Columbia, attaining national prominence during the trials of Albert B. Fall, Harry Sinclair, and others in the Teapot Dome naval oil reserves litigation. He was also for several years a commissioner on uniform State laws for the District of Columbia and was chairman of the commission on public welfare legislation of the District of Columbia.

Simmons, Edward Alfred. American publisher and transportation expert, died Sept. 30, 1931, in Brooklyn, N. Y., where he was born Mar. 20, 1875. Entering the employ of the Simmons-Boardman Publishing Company in 1889, he became secretary in 1898, director, treasurer, and vice president in 1903, and president after 1911. The trade journals published by this company at the time of his death included *Railway Age* (with which had been previously merged the *Railway Gazette* and *Railway Review*), *Railway Mechanical Engineer*, *Railway Engineering and Maintenance*, *Railway Electrical Engineer*, *Railway Signaling*, *Marine Engineering*, the *Boiler Maker*, *Arway Age*, the *American Builder*, and *House Furnishing Review*. He was also chairman of the board of the American Saw Mill Machinery Company and the American Machine Tool Company and was president of the American Saw Works. During the World War he served with the Construction Division, being commissioned a major in 1918 and later a colonel in the Quartermaster Reserve Corps. In 1930 he was chairman of the United States delegation to the International Railway Congress in Madrid.

Simmons, Edward (Emerson), died Nov. 17, 1931.

Simpson, Sir William John Ritchie, died Sept. 20, 1931.

Skrzynski, Alexander, Count. Polish statesman, died in Ostrow, Sept. 25, 1931. Born in 1882, he entered the diplomatic service in 1906, and in 1910 became secretary to the Ambassador of the Holy See. After acting as Minister to Rumania during 1922-23, he became in March, 1925, Minister of Foreign Affairs in the cabinet of Wladyslaw Grabski. In November, 1925, he was requested to form a government, based on the Christian Democrat, Socialist, and National Democrat parties, but his cabinet was compelled to resign in

April of the following year because of financial difficulties which caused a split in the coalition party in parliament. He was a permanent delegate to the League of Nations. In 1928 he was appointed member of the standing committee on arbitration between the United States and Peru.

Slater, Willis Appleford. American civil engineer, died in Bethlehem, Pa., Oct. 6, 1931. Born in Polo, Ill., Oct. 14, 1878, he was graduated from the University of Illinois in 1906, and until 1917 was engaged in research on structural engineering at that institution. He then became connected with the U. S. Bureau of Standards, being in charge during the World War of the structural laboratory investigations in reinforced concrete for the Emergency Fleet Corporation and receiving in recognition the Wason Medal of the American Concrete Institute (1919). In 1928 he was appointed research professor of engineering material and director of the Fritz Engineering Laboratory at Lehigh University.

Small, Sam (uel) (White). American journalist, died in Atlanta, Ga., Nov. 21, 1931. He was born in Knoxville, Tenn., July 8, 1851, and was graduated from Emory and Henry College, Emory, Va., in 1871. He had been a member of the editorial staff of the *Atlanta Constitution* since 1875, and also helped to found in 1889 the *Oklahoman* in Oklahoma City, Okla. He entered evangelistic work in 1885, being associated for many years with Sam Jones, principally as a prohibition advocate. He was a chaplain in the Spanish-American War, and at the time of his death was national chaplain for the Spanish-American War Veterans.

Smalley, Frank. American classical scholar, died in Syracuse, N. Y., Apr. 8, 1931. He was born in Towanda, Pa., Dec. 10, 1846, and was graduated from Syracuse University in 1874. After acting for several years as instructor in geology, zoology, and botany at Syracuse, he became adjunct professor of Latin in 1877, professor of Latin language and literature in 1881, and Gardner Baker professor of the same in 1893. He was also lecturer on Roman law at the college of law from 1895 to 1902, dean of the college of liberal arts from 1900 to 1917, and acting chancellor in the summer of 1903 and again during 1908-09. On his retirement in 1924 he became historian of the university. His works include *Analysis and Formation of Latin Words* (1879); *Latin Verse* (1884); *Introduction and Notes to the Fifth Book of Cicero's Tusculan Disputations* (1892); *Brief Selections to Illustrate Roman Literature* (1894); and *Syllabus of Lectures in Roman History* (1895).

Smiley, William Brownlee. American clergyman, died in Rochester, Pa., Dec. 9, 1931. He was born in Washington Co., Pa., Dec. 7, 1856, and was graduated from Westminster College, New Wilmington, Pa., in 1879 and from the Pittsburgh Theological Seminary in 1882. Ordained to the United Presbyterian ministry, he was pastor of the Charities Church in Canonsburg, Pa., until 1909. He then served for four years as secretary of the Sunday school work of his denomination, resuming pastoral charges in Oneonta, N. Y., in 1913 and in Rochester, Pa., in 1918. In 1916 he was moderator of the general assembly of the United Presbyterian Church of North America, and represented that body at the World Conference on Faith and Order in Lausanne, Switzerland, in 1927.

Smith, (Horn), Alfred Aloysius. British author and pioneer African trader, died in Tankerton, Kent, England, June 26, 1931. He was born near Glasgow about 1853 and attended St. Edward's College, Liverpool. Sailing for the West Coast of Africa in 1871, he became a trader in ivory and rubber, and his adventures there ranged from perilous feats in big-game hunting to being received as a "blood brother" by the cannibals of the Ogowe River region. After leaving the West Coast he was a prospector for minerals from Abyssinia to South Africa, storekeeper in Rhodesia, tax-collector to the Sultan of Zanzibar, and participant in the Matabele and Boer Wars and the Madagascar Rebellion against the French in 1896. From time to time he lived in the United States, being engaged in sundry occupations, and during the World War served on a mine-sweeper in England. In 1925, while peddling kitchen utensils in Johannesburg, South Africa, he was "discovered" by Mrs. Ethelreda Lewis, the novelist, who encouraged him to write his experiences. The combined result of their efforts was published in England two years later as *The Ivory Coast in the Earliest and in the United States as Trader Horn. Harold the Webbed, or the Young Vikings and The Waters of Africa*, which continued the account of "Trader Horn's" adventures, appeared in 1928 and 1929.

Smith, Frances Stanton. American writer and Civil Service official, died June 30, 1931, in Buffalo, N. Y., where she was born June 21, 1871. From 1895 until her marriage to Charles Bennett Smith in 1902 she was successively music editor for the *Buffalo Express* and *Buffalo Courier* and editor of the woman's page of the *Buffalo Enquirer*. In 1901 she was a member of the



Women's Board of Managers of the Pan-American Exposition and secretary of the committee on publicity and promotion of the same. She was also a pioneer worker for woman suffrage. In 1919 she was appointed the first woman member of the New York State Civil Service Commission and became president of that body in 1923.

Smith, Francis Marion, American capitalist, died in Oakland, Calif., Aug. 27, 1931. He was born in Richmond, Wis., Feb. 2, 1846, and was graduated from Milton (Wis.) College in 1863. In 1872 he discovered Teck's Marsh borax mines in Nevada, which gave him within a few years control of the borax market of the United States. He later became president of the Realty Syndicate in Oakland, Calif.

Smith, Herbert Knox, American lawyer, died in Farmington, Conn., Dec. 17, 1931. He was born in Chester, Mass., Nov. 17, 1869, and was graduated from Yale in 1891, receiving the LL.B. degree in 1895. Admitted to the bar, he practiced in Hartford. He was a member of the Connecticut House of Representatives (1903-05), deputy commissioner of corporations of the U. S. Department of Commerce and Labor (1905-07), and Federal commissioner of corporations (1907-12). In 1912 he ran for governor of Connecticut on the Progressive ticket.

Smith, Hoke, died Nov. 27, 1931.

Smith, James Lorrain, British physician and educator, died in Edinburgh, Apr. 20, 1931. Educated at the University of Edinburgh, he was successively professor of pathology at Queen's College, Belfast, the University of Manchester, and the University of Edinburgh, and at the time of his death was also dean of the faculty of medicine at the University of Edinburgh. During the World War he gained fame for the discovery of a highly effective antiseptic solution known as Eusol, used especially in the treatment of septic gunshot wounds.

Söderblom, Lars Olof Jonathan, died July 12, 1931.

Soto Alfaro, Bernardo, Costa Rican statesman, died in San José, Jan. 28, 1931. He was born in Alajuela, Feb. 12, 1854. His first public office was that of Governor of Alajuela in 1881. The following year he became Secretary of State in the cabinet of President Fernandez, and on the latter's death in 1885 completed his unexpired term. He was elected President of Costa Rica in 1886 for the ensuing four-year term. During his administration a new Civil Code was put into effect, public instruction was reorganized, and many financial and other national reforms were undertaken.

Spencer, Anna Garlin, died Feb. 12, 1931.

Spencer, Robert, died July 11, 1931.

Spillman, William Jasper, died July 11, 1931.

Stamfordham, Arthur John Bigge, First Baron British statesman and private secretary to King George V, died in London, Mar. 31, 1931. He was born in Stamfordham, June 18, 1849. Entering the Royal Artillery in 1869, he served as a lieutenant during the Zulu War of 1878-79. In 1880 he was appointed groom-in-waiting to Queen Victoria and some months later became assistant private secretary, to which post was added that of equerry-in-ordinary in 1881. In 1895 he was made private secretary to the Queen, and on her death in 1901 was retained in the same capacity by the Prince of Wales, later George V. On the latter's ascension to the throne in 1910 he was created Lord Stamfordham, and for more than 20 years was one of the King's most trusted political advisers.

Stanley of Alderley, Arthur Lyolph Stanley, Fifth Baron, British barrister and colonial administrator, died in London, Aug. 22, 1931. Born Sept. 14, 1875, he attended Oxford University and was admitted to the bar of the Inner Temple in 1902. In 1906 he was elected Member of Parliament for the Eddisbury Division of Cheshire, and from 1914 to 1920 was Governor of Victoria, Australia. He succeeded to the title on the death of his father, who was also fourth Baron Sheffield of Roscommon, in 1925. Prior to his death he was chairman of the East Africa Joint Committee, created to study the question of the administrative union of Kenya, Tanganyika, and Uganda.

Stanton, Sir Thomas, British consulting engineer, died near Eastbourne, East Sussex, Aug. 30, 1931. Born Dec. 12, 1865, he attended Owens College, Manchester, where he was demonstrator in the Whitworth laboratory during 1891-96. He then became senior lecturer in engineering at University College, Liverpool, and in 1899 professor of civil and mechanical engineering at University College, Bristol. From 1901 until his retirement in 1931 he was superintendent of the engineering department of the National Physical Laboratory, his last important commission being the restoration of St. Paul's Cathedral, London. He was created a Commander of the Order of the British Empire in 1920 and was knighted in 1928.

Starr, John Edwin, American mechanical engineer, died in Mattatuck, Long Island, N. Y., June 27, 1931. He was born in Litchfield, N. Y., in 1860. Since 1900 he had been constructing and designing engineer ex-

clusively in refrigeration and allied branches, and at the time of his death was president of the Starr Engineering Company in New York City. His inventions included several absorption refrigerating devices, a machine that produced temperatures ranging from 30 to 75 degrees below zero, and an ice coffer dam that was used for the cooling system in the Brooklyn Bridge station of the Interborough Rapid Transit Company. He was a past president of the American Society of Refrigerating Engineers, and a contributor to *Ice and Refrigeration*, *Refrigerating World*, and *Power and Ice*.

Starr, Merritt, American lawyer, died in Chicago, Ill., Aug. 2, 1931. He was born in Ellington, N. Y., in 1856, and was graduated from Oberlin College in 1875 and with the LL.B. degree from Harvard in 1881. Engaging in the practice of law in Chicago in 1882, he was a member of the firm of Hopkins, Starr & Hopkins at the time of his death. He was also active in organizing the Civil Service League and in drafting and promoting the passage of city, county, and State civil service laws. His works include *Starr's Reference Digest of Wisconsin Reports* (1882); *Annotated Statutes of Illinois* (8 vols., 1883-96); *Northeastern Reporter* (Illinois portion, vols. 1-17, 1885-88); *Competition: Legislative and Judicial Treatment of* (1907); *Theodore Roosevelt* (1919); *Lincoln's Linage* (1920); *Dante 600 Years After* (1921); and *Economic Equality and Some New Uses of National Power* (1922).

Steele, Daniel Atkinson King, American surgeon, died in Sarasota, Fla., July 19, 1931. He was born in Eden, Ohio, Mar. 29, 1852, and was graduated from the Chicago Medical College in 1873, engaging in private practice in Chicago two years later. In 1882 he was one of the founders of the College of Physicians and Surgeons of Chicago, at which he was appointed professor of the principles and practice of surgery. He also acted as president from 1894 to 1913, when the college was presented to the University of Illinois as its permanent medical department. Until his retirement in 1917 he was senior dean and professor of surgery. He had also been attending surgeon at the Michael Reese and University Hospitals, acting as president of the latter after 1907. During the World War he was chief surgeon at the U. S. Army General Hospital No. 9, Lakewood, N. J.

Stem, Allen H., American architect, died in St. Paul, Minn., May 19, 1931. He was born in Van Wert, Ohio, Jan. 28, 1856, and attended the Indianapolis Art School. He practiced in Indianapolis from 1878 to 1884 and then removed to St. Paul, where he was a member of the firm of Reed & Stem from 1889 to 1911. He was an associate architect for the New York Central Railroad, collaborating in the designing of the Grand Central Terminal and Palace and the Biltmore Hotel in New York City. He also designed stations for the Michigan Central, Norfolk & Western, Great Northern, and Northern Pacific Railroads, including those at Detroit, Mich., Norfolk, Va., Seattle, Wash., and Tacoma, Wash.; the medical buildings of the University of Minnesota; the Denver (Colo.) Auditorium; and the Auditorium, Athletic Club, and St. Paul Hotel in St. Paul, Minn.

Stephens, Charles Asbury, American writer, died in Norway, Me., Sept. 22, 1931. He was born at Norway Lake, Me., Oct. 21, 1847, and was graduated from Bowdoin College in 1869 and with the M.D. degree from Boston University in 1887. He was on the staff of the *Youth's Companion* from 1870 to 1930, publishing during that period more than 3000 sports stories and 100 eight-chapter serials. Among his juvenile publications are *Camping Out* (1872); *Left on Labrador* (1872); *Off to the Geyers* (1872); *Lunx Hunting* (1873); *On the Amazon* (1874); *The Young Moose Hunters* (1874); *The Knockabout Club* (3 vols., 1883-85); *The Ark of 1803* (1904); *Pioneer Boys Afloat on the Mississippi* (1907); *When Life Was Young on the Old Farm in Maine* (1912); *A Great Year of Our Lives at the Old Squire's* (1912); *Stories of My Home Folks* (1926); and *Katahdin Camps* (1928). He was also noted as a biologist, his works including *Living Matter* (1888); *Pluricellular Man* (1892); *Natural Salvation* (1903); *Salvation by Science* (7th ed., 1913); and *Immortal Life, How It Will Be Achieved* (1920).

Sthamer, Friedrich, German diplomat, died in Hamburg, June 30, 1931. He was born in Gross-Weerden, Nov. 24, 1856, and attended the universities of Kiel, Heidelberg, Göttingen, and Leipzig. Admitted to the bar in 1879, he practiced in Hamburg, where he served on the Council after 1900 and in the Senate after 1904. Following the World War he was Mayor of Hamburg, but in 1920 was appointed chargé d'affaires in London and a few months later German ambassador to the Court of St. James's. On his resignation in 1930 he had won recognition for his services in helping to restore friendly relations between Germany and Great Britain.

Stimming, Carl, German shipping director, died in Hamburg, Nov. 7, 1931. Born in Fürstenwalde, May 15, 1876, he studied law at the Universities of Erlangen

and Berlin, and practiced for a short time in Seelow and Berlin. In 1901 he became associated with the North German Lloyd steamship line, of which he was appointed general director in 1921. The revival of the fortunes of this company, and of the port of Hamburg, after the World War was considered one of the most remarkable features of commercial history and was largely the result of his initiative. Under his direction three fast liners, the *Columbus*, the *Bremen*, and the *Europa*, were constructed.

Stoddard, John Lawson, died June 5, 1931.

Stokes, Rear Admiral Charles Francis, U. S. N., Ret., died Oct. 29, 1931.

Stratton, Samuel Wesley, died Oct. 18, 1931.

Straus, Nathan, died Jan. 11, 1931.

Strong, Walter Ansel, American publisher, died in Winnetka, Ill., May 10, 1931. He was born in Chicago, Ill., Aug. 13, 1883, and was graduated in engineering from the Lewis Institute in Chicago in 1901 and from Beloit College in 1905. He had been associated with the *Chicago Daily News* since 1905 successively as audit clerk, auditor, business manager, and on the death of his uncle, Victor F. Lawson, in 1925, as publisher. In 1929, after the *News* had established itself in its new building, erected at a cost of \$13,000,000, the *Chicago Journal* was merged with it.

Stuart, James Edwards, American soldier and postal authority, died in Chicago, Ill., Mar. 8, 1931. He was born in Forfar, Scotland, July 8, 1842, and was brought to the United States in 1851, his family settling in Oshkosh, Wis. During the Civil War he served with the 21st Wisconsin Volunteers, and after the muster-out acted first as a postal clerk and then as chief clerk for the railway mail service of Iowa. In 1873 he was appointed post office inspector at Chicago for the division comprising Illinois, Michigan, and Wisconsin, holding this position until his retirement in 1920. He served in the Spanish-American War, being placed on detached service after the war as chairman of the military postal committee and establishing the postal service in Porto Rico. On the entry of the United States into the World War he organized the 11th Illinois Infantry at the request of Governor Lowden and commanded it in the United States until the signing of the Armistice. He had also been active for 22 years in the Illinois National Guard, retiring as brigadier general in 1906.

Sullivan, James, died Oct. 8, 1931.

Swain, George Willmore, died July 1, 1931.

Turner, Joseph Robson, died Jan. 15, 1931.

Taylor, Alfred Alexander, American lawyer and former Governor of Tennessee, died in Johnson City, Tenn., Nov. 23, 1931. Born in Happy Valley, Tenn., Aug. 6, 1848, he studied law and was admitted to the bar in 1870. He was a member of the Tennessee House of Representatives during 1875-76 and was also elected to the 51st, 52d, and 53d Congresses (1889-95). In 1880 he was defeated in the Tennessee gubernatorial election by his brother, Robert L. Taylor, the Democratic candidate. He was successful, however, in the 1920 campaign, receiving the largest vote a Republican nominee ever received in the State.

Taylor, J(ohn) Madison, American physician, died in Philadelphia, Pa., Oct. 3, 1931. He was born in Lancaster Co., Pa., July 4, 1855, and was graduated from Princeton University in 1876, receiving the M.D. degree from the University of Pennsylvania in 1878. For 16 years he was assistant to Dr. S. Weir Mitchell, Philadelphia neurologist, and served as chief of clinic at the Infirmary for Nervous Diseases. After 1910 he was professor of physical therapeutics at Temple University. He was co-author of *Diseases of Children* (1898), and contributor of more than 1000 papers in medical and scientific journals.

Temple, John Edgar, American chemist, died in New York City, Mar. 23, 1931. He was born in Kempton, Ill., Jan. 4, 1874, and was graduated from Valparaiso University in 1893 and from Cornell University with the Ph.D. degree in 1903. After acting as instructor in chemistry and physics at Fremont College from 1894 to 1898 and as instructor in organic and physiological chemistry at Cornell University from 1899 to 1904, he became director of the Industrial Laboratories in New York City. In 1908 he established himself as a consulting chemist and chemical engineer, his clientele including the American Potash & Chemical Corp. and the Darco Corporation. He received the Perkin Medal in 1927 in recognition of his contributions to applied chemistry and especially for the development of the American potash industry by reclaiming Searles Lake, Calif. He was the author of *The Industrial Development of Searles Lake Brines* (1929).

Temple, Sir Richard Carnac, died Mar. 5, 1931.

Terry, Benjamin Stites, died Oct. 30, 1931.

Thompson, Robert John, American diplomat, inventor, and author, died in Montreux, Switzerland, Aug. 24, 1931. He was born in La Porte City, Iowa, Oct. 15, 1865. On completing high school he was with the U. S. railway postal service from 1885 to 1891 and subsequently was on the editorial staff of the *Chicago*

*Times*. He then became president of the Automatic Recording Safe Company in Chicago, following his invention of this device. He was also the originator and director of the Lafayette Monument project, which culminated in the presentation of a statue of General Lafayette to France by American school children. For this service he was made an officer of the French Legion of Honor. Entering the diplomatic service, he was American consul at Hanover, Germany (1906-12), Sheffield, England (1912-13), and Aix-la-Chapelle, Germany (1913-15). His writings include *The Proofs of Life after Death—A Twentieth Century Symposium* (1902); *England and Germany in the War* (1915); and *Adequate Brevity—Philosophy of Coolidge* (1924).

Thomson, César, died Aug. 24, 1931.

Thursby, Emma Cecilia, died July 4, 1931.

Tittoni, Tommaso, died Feb. 7, 1931.

Todd, Albert May, American chemist, died in Kalamazoo, Mich., Oct. 6, 1931. He was born near Nottawa, Mich., June 3, 1850, and attended Northwestern University. In 1889 he organized A. M. Todd & Co., chemists. He was Prohibition nominee for governor of Michigan in 1894 and was a member of Congress during 1897-99, having been elected on the Democratic ticket. An advocate of public ownership of public utilities, he was president of the Public Ownership League of America from its foundation in 1916 to 1922. He was the author of *Municipal Ownership in Europe and America* (1918) and *The Relation of Public Ownership to Social Justice and Democracy* (1920).

Tomlinson, Everett Titworth, An American clergyman and author, died in Elizabeth, N. J., Oct. 30, 1931. He was born in Shiloh, N. J., May 23, 1859, and attended Williams College, later receiving the Ph.D. degree from Colgate University in 1888 and the Litt.D. degree from Bucknell University in 1906. After serving as principal of the high school at Auburn, N. Y. (1881-83), and as head master of the preparatory department of Rutgers College (1883-88), he became pastor of the Central Baptist Church in Elizabeth, N. J., where he remained until 1910. As executive secretary of the Ministers and Missionaries Benefit Board of the Northern Baptist Convention from 1911 to 1926, he devised one of the most successful of church pension systems. He was also a writer of popular stories for boys, usually with historical setting. Among these are *The Boy Soldiers of 1812* (1895); *Three Young Continentals* (1896); *Tecumseh's Young Braves* (1897); *Boys with Old Hickory* (1898); *Boys of Old Monmouth* (1898); *A Jersey Boy in the Revolution* (1899); *In the Hands of the Redcoats* (1901); *The Red Chief* (1905); *The Camp-Fire of Mad Anthony* (1907); *Light Hooves Harry's Legion* (1910); *The Young Minute-Man of 1812* (1912); *Scouting with Daniel Boone* (1914); *The Story of General Pershing* (1917); *Young People's History of the American Revolution* (1921), and *Days and Deeds of '76* (1927).

Tompkins, Clementina, American painter, died in New York City, Nov. 9, 1931. Born in Washington, D. C., she attended the Peabody Art Institute in Baltimore, later studying in Brussels and Paris under Leon Bonnat. She exhibited in a number of Paris Salons and in the Corcoran Art Gallery in Washington, and was a medalist at the Centennial Exposition in Philadelphia in 1876. Typical of her work are "Little Musician" (1876) and "Rosa—la fleuse" (1878).

Truppel, Admiral Oscar von, German naval officer, died in Berlin, Aug. 20, 1931. He was born in Katzhütte, May 17, 1854, and in 1871 joined the German Navy, being promoted through the grades to admiral in 1910. As commander of the *Kron-Prinz Wilhelm* during the German naval cruise of 1897-99, he witnessed Dewey's victory over the Spanish squadron in Manila Bay in May, 1898. From 1901 to 1911 he was governor of the German colony, Kiauchau, China.

Tyler, Bardard Henry, American painter, died in Yonkers, N. Y., June 6, 1931. He was born in Oneida, N. Y., Apr. 22, 1855, and attended Syracuse University and the National Academy of Design, New York City, studying under Theodore Kaufmann and William M. Chase. He is represented in the Corcoran Art Gallery, Washington, and the Albright Memorial Library, Scranton, Pa. Among his portraits are those of President Roosevelt, Rear Admiral Willard H. Brownson, the Rt. Rev. James E. Freeman, and Alexander S. Cochran.

Tyler, Henry Mather, American educator, died in Northampton, Mass., Nov. 3, 1931. He was born in Amherst, Mass., Nov. 18, 1843, and was graduated from Amherst College in 1865. After acting as instructor in Latin at Amherst during 1868-69 and as professor of Greek and German at Knox College during 1869-72, he was ordained to the Congregational ministry, serving until 1877 as pastor in Fitchburg, Mass. He then became professor of Greek at Smith College, where he was appointed dean of the faculty in 1900. He retired as professor emeritus in 1912. He was the author of *A Greek Play and Its Presentation* (1891) and edited *Selections from Greek Lyric Poets* (1879).

Tyler, James Gale, American painter, died in Pelham,

N. Y., Jan. 29, 1931. Born in Oswego, N. Y., Feb. 15, 1855, he studied marine painting under A. Oary Smith, and contributed illustrations and marine art studies to *Harper's Century*, and other magazines. He also had painted since 1901 every one of the yacht races for the *America's Cup*. Among his works are "The Abandoning of the Jeanette"; "The Constitution"; "St. Paul's Shipwreck"; and "The Mayflower."

Tyler, The Rt. Rev. John Poynts, Protestant Episcopal Missionary Bishop of North Dakota, died in Fargo, N. D., July 13, 1931. He was born in Hanover Co., Va., June 15, 1862. Following his graduation from the Virginia Theological Seminary in 1888, he was ordained deacon and then priest in the Protestant Episcopal Church and served as rector of Christ's Church, Millwood, Va. (1892-95), St. Paul's Church, Greenville, Ohio (1895-96), and the Church of the Advent, Philadelphia, Pa. (1896-1904). He was made Archdeacon of Virginia in 1904 and Archdeacon of Cumberland (Md.) in 1907, serving also as rector of St. John's Church, Hagerstown, Md., from 1907 to 1913. In 1913 he was elected Bishop of the Missionary District of North Dakota and was consecrated Jan. 6, 1914.

Tynan, Katharine, died Apr. 2, 1931.

Urban, Ignatz, German botanist, died in Berlin, Jan. 7, 1931. He was born in Warburg, Jan. 7, 1848, and attended the Universities of Bonn and Berlin. In 1878 he became an assistant at the Royal Botanical Garden at Dahlem, and from 1889 to 1913 was subdirector. His special field was the flora of the West Indies, which he described in *Symbola Antillana* (9 vols., 1898-1925).

Urueta, Carlos Adolfo, Colombian statesman, died in Bogotá, Sept. 13, 1931. He had served successively as Senator from the department of Bolívar, Representative from Bogotá, member of the permanent commission of the Ministry of Foreign Relations, and Minister to the United States. In 1930 he was appointed by President Hoover member of the permanent commission of conciliation of the United States and Hungary. At the time of his death he was Minister of War in the cabinet headed by Gen. Augustin Morales Olaya as Minister of Government, to which he had been appointed in July, 1931.

Ury, Lesser, German painter, died in Berlin, Oct. 18, 1931. He was born in Birnbaum, Nov. 7, 1862, and was educated in Düsseldorf. He was especially noted for his street and coffee house scenes. His works are found in the National Gallery, Berlin, the Museum of Gatz, and the Henneberg Gallery, Zurich.

Usher, Rear Admiral Nathaniel Reilly, died Jan. 9, 1931.

Van Allen, William Harman, American clergyman, died in Munich, Germany, Aug. 23, 1931. He was born in Cameron, N. Y., Feb. 16, 1870, and was graduated from Syracuse University in 1890, receiving the S.T.D. degree from that institution in 1904, the L.H.D. degree from St. Stephen's College in 1910, the D.C.L. degree from the University of Bishop's College, Quebec, in 1911, and the LL.D. degree from Alfred University in 1912. After acting as head master of St. John's School in New York City and as general secretary of the Church Association for the Advancement of the Interests of Labor, he was ordained in the Protestant Episcopal Church in 1894, and for the next two years was private secretary to the Rt. Rev. Frederic D. Huntington, Bishop of central New York, with charge of St. Luke's and St. Ann's chapels in Syracuse. During 1896-97 he was rector of the Church of the Epiphany in Trumansburg, N. Y., and during 1897-1902 of Grace Parish in Elmira, N. Y. He was then called to the Church of the Advent in Boston, Mass., where he remained until his retirement in 1929. For some time he was a member of the editorial staff of the *Living Church*, writing under the pen name "Presbyter Ignotus." During and after the World War he served with the American Expeditionary Forces in France and Germany. In 1921 he was made a Chevalier of the Order of Leopold II of Belgium, and in 1926 was admitted to the Memorial of Merit of St. Charles the Martyr.

Van Slyke, Lucius Lincoln, American chemist, died in Geneva, N. Y., Sept. 30, 1931. Born in Centerville, N. Y., Jan. 6, 1859, he was graduated from the University of Michigan in 1879, receiving the Ph.D. degree in 1882. In 1885 he became professor of chemistry at Oahu College, Honolulu, and government chemist for the Hawaiian Islands. From 1890 to 1929 he was chief research chemist at the New York Agricultural Experiment Station in Geneva, N. Y., where he made important contributions toward the advancement of the chemistry of milk, cheese, and butter. He also was professor of dairy chemistry at the New York State College of Agriculture, Cornell University, after 1920.

Vendôme and Alençon, Philippe Emmanuel Maximilien Marie Eudes, Duke of Prince of the House of Bourbon-Orléans, died in Cannes, Feb. 1, 1931. He was born at Obermail, near Méran, Jan. 18, 1872, younger son of Ferdinand, Duke of Alençon, who was a grandson of King Louis Philippe of France. In 1896

he married Henriette, Princess of Belgium, a sister of King Albert. During the World War he was associated with the French Red Cross, serving as principal delegate on the Belgian front and as a director of the Franco-Belgian Hospital at Calais. A commission, however, was refused him in the French Army in accordance with the law enacted in 1886 that all princes of the two former sovereign houses of France be barred from service in the army or navy.

Vidal, Paul, French composer and conductor, died in Paris, Apr. 10, 1931. He was born in Toulouse, June 16, 1863, and studied at the Paris Conservatory under Marmontel, Durand, and Massenet, winning in 1888 the *Grand Prix de Rome*. In 1899 he became chorus master at the Opéra and in 1908 first conductor. After 1914 he was first conductor at the Opéra Comique and professor at the Conservatory. He also was honorary president of the Society of Music Editors, Authors and Composers and a chevalier of the Legion of Honor. He composed the incidental music for several plays, such as *La Reine Fiammette*; the operas, *Guernica* (1895), *La Burgonde* (1898), and *Ramona* (1908); and the ballets, *Pierrot Assassin* (1886) and *La Maladetta* (1893). He was particularly happy as a composer of songs, among which were *Le Jeu du Sabot* and *La Menace du Jeu*.

Vincent, H(arry) A(iken), American painter, died in Rockport, Mass., Sept. 27, 1931. He was born in Chicago, Ill., Feb. 14, 1864, and was self-taught in his profession. He exhibited at the National Academy of Design in New York City, the Art Institute of Chicago, the Carnegie Institute in Pittsburgh, and the Pennsylvania Academy of Fine Arts in Philadelphia, and was represented in the permanent exhibition of the Butler Art Institute, Youngstown, Ohio, with "Rockport Harbor." Among the awards which he received were the Shaw and Lidor prizes of the Salmagundi Club of New York in 1907 and 1918, respectively. He was elected an associate member of the National Academy of Design in 1919.

Votey, Josiah William, American civil engineer, died in Burlington, Vt., Sept. 16, 1931. He was born in Ovid, N. Y., July 23, 1860, and was graduated from the University of Vermont in 1884. Remaining at that institution, he was instructor in civil engineering until 1889, assistant professor until 1890, associate professor until 1893, and professor thereafter. He also was dean of the college of engineering after 1901 and sanitary engineer for the Vermont Board of Health after 1908. In 1920 he was president of the Vermont Society of Engineers, and in 1924 of the Land Grant Colleges Engineering Association.

Waddill, Edmund, Jr., American jurist, died in Richmond, Va., Apr. 9, 1931. He was born in Charles City Co., Va., May 22, 1855. Admitted to the Virginia bar in 1877, he successively served as judge for Henrico Co., Va. (1880-83), Federal attorney for the Eastern District of Virginia (1883-85), and member of the State House of Representatives (1885-89). He was elected to the 51st Congress from the 3d Virginia district in 1888, serving until 1891. In 1898 he was appointed Federal district judge for the Eastern District of Virginia, and in 1921 Federal circuit judge for the 4th Judicial Circuit. He had been senior circuit judge since 1925.

Wagner, Samuel Tobias, American civil engineer, died Aug. 7, 1931, in Philadelphia, Pa., where he was born Aug. 30, 1861. He was graduated from the University of Pennsylvania with the B.Sc. degree in 1881 and with the C.E. degree in 1884. After being connected with the Phoenix Iron Company of Phoenixville, Pa., until 1893, he served successively as assistant engineer in charge of the Pennsylvania Avenue Subway and Tunnel for the Bureau of Surveys, Philadelphia, and as assistant engineer in charge of improvement and filtration of the Philadelphia water supply. In 1902 he was appointed by the Philadelphia & Reading Railway Co. assistant engineer in charge of grade-crossing elimination, and during his term as chief engineer from 1915 to 1927 attained national prominence for his part in changing the course of the Schuylkill River, near Port Clinton, Pa., thereby eliminating two long bridges and a long tunnel of the Reading lines. At the time of his death he was consulting engineer for the Philadelphia & Reading Railway Co.; professor of engineering (since 1892) and president of the board of the Wagner Free Institute of Science. He received the James Laurie prize of the American Society of Civil Engineers in 1915.

Walker, John Brisben, died July 7, 1931.

Wallace, Hugh Campbell, died Jan. 1, 1931.

Wallach, Otto, died Mar. 1, 1931.

Walters, Henry, died Nov. 30, 1931.

Warburg, Emil, German physicist, died in Berlin, Aug. 1, 1931. He was born in Altona, Elbe, Mar. 9, 1846, and attended the Universities of Heidelberg and Berlin. He was appointed professor of physics at the University of Strassburg in 1872, at the University of Freiburg in 1876, and at the University of Berlin in 1895. From 1905 to 1922 he was president of the Fed-

eral Physical-Technical Institute. He was also a member of the Prussian Academy of Sciences. His researches pertained to the kinetic gas theory, acoustics, electrolysis, galvanic polarization, capillary electrical phenomena, and oxidation of nitrogen. He published *Lehrbuch der Experimentalphysik* (1893) and *Über die Wärmeinheit* (1900).

Ward, Robert de Courcy, died Nov. 12, 1931.

Warren, Frederick Morris, died Dec. 6, 1931.

Warthin, Alfred Scott, died May 23, 1931.

Waterlow, Sir William (Alfred), British printer, died July 6, 1931, in London where he was born Apr. 23, 1871. After attending Marlborough, he became a solicitor in 1896 and two years later was appointed a director of Waterlow Bros. & Layton, Ltd., printers and stationers. He later became managing director of this firm which had been controlled by his family since 1790 and to which there was awarded in 1914 the contract for printing the British Treasury notes. He was also Lord Mayor of London from 1920 to 1930 and Sheriff of the City during 1928-29. In 1919 he was created a Knight of the British Empire and in 1930 a Baronet.

Wedepohl, Theodor, German painter, died in New York City, Mar. 28, 1931. He was born in Westphalia, Germany, in 1863, and studied at the Imperial Academy of Arts in Berlin and later in Munich, Paris, and Rome. He was established in Berlin until 1926, when he came to the United States. His specialty was portrait painting. Among the 1500 persons who posed were two Emperors, Wilhelm II, and his father, Frederick III, many lesser royalty, famous statesmen, generals, scientists, artists, and financiers. He also painted landscapes, the most notable of which were Icelandic scenes.

Wegener, Alfred Lothar, died November, 1930.

Weidig, Adolf American composer, died in Hinsdale, Ill., Sept. 23, 1931. He was born in Hamburg, Germany, Nov. 28, 1867, and studied violin at the Hamburg Conservatory under Bargheer and at the Munich Academy of Music under Abel. Coming to the United States in 1892, he settled in Chicago where he was a member of the Chicago Orchestra until 1896 and of the Spiering Quartet until 1901. In 1898 he was appointed teacher of harmony and composition and assistant director of the American Conservatory of Music in Chicago. At the time of his death he was associate director of this institution and also vice president of the American Associations of Music. Among his compositions are *Quartettino* and *Serenade* (for string quartet); *Capriccio* and *Three Episodes* (for orchestra), *Italian Suite* (for violin and piano); *O Sing unto the Lord* (motet for mixed voices); *Semiramis* (symphonic poem); also two symphonies and three overtures. He was the author of *Harmonic Material and Its Uses* (1923).

Weiss, Albert Paul, American psychologist, died in Columbus, Ohio, Apr. 3, 1931. He was born in Steingrund, Germany, Sept. 15, 1879, and was brought to the United States in childhood. He was graduated from the University of Missouri in 1910, receiving the Ph.D. degree in 1916. After 1918 he was professor of experimental psychology at Ohio State University. He was the author of *A Theoretical Basis of Human Behavior* (1925). At the time of his death he had completed a study of the *Psychology of the Highway*, having been chairman of a committee of the National Research Council devoted to that problem.

Wetterle, Emile, died July 24, 1931.

Wettstein, Richard, Austrian botanist, died in the Tyrol, Aug. 10, 1931. He was born in Vienna, June 30, 1863. In 1892 he was appointed professor and director of the Botanical Institute and Gardens at the University of Prague and in 1899 was appointed to the same post at the University of Vienna. In 1901 he was leader of an expedition to Brazil, under the auspices of the Austrian Academy of Sciences, to investigate the flora of the country. He had been editor of *Oesterreichischen Botanischen Zeitschrift* since 1899 and *Zeitschrift für induktive Abstammungs- und Vererbungslehre* in 1908-09. His principal work is *Handbuch der systematischen Botanik* (2 vols., 1902-08).

White, Frank Edson, American industrialist, died in Chicago, Ill., Jan. 15, 1931. He was born in Peoria, Ill., Sept. 9, 1873. Beginning in the meat packing business with E. Godel & Sons in Peoria in 1890, he was made department manager for the Western Meat Company, San Francisco, in 1893 and for Armour & Co., Chicago, in 1895. He was elected a director of the Armour Company in 1912, vice president in 1914, and president in 1923. He was also director of numerous banking and industrial enterprises and was active in Chicago civic affairs.

White, Gaylord Starin, American clergyman and sociologist, died in New York City, Nov. 25, 1931. He was born in New Rochelle, N. Y., Mar. 3, 1864, and was graduated from Princeton University in 1886 and from the Union Theological Seminary in 1890. Ordained to the Presbyterian ministry, he served as assistant pastor of the Rutgers Church, New York City,

and in 1898 became pastor of the City Park branch of the First Presbyterian Church, Brooklyn. From 1901 to 1918 he was director of field work of the Union Theological Seminary, and from 1901 to 1923 head worker at the Union Settlement. After 1913 he was professor of applied Christianity at the Union Theological Seminary, and after 1920 director of the department of church and community. At the time of his death he was also dean of students.

Wight, William Ward, American lawyer, died in Milwaukee, Wis., Jan. 2, 1931. He was born in Troy, N. Y., Jan. 14, 1849, and was graduated from Williams College in 1869 and with the LL.B. degree from the Albany Law School in 1873. Removing to Milwaukee two years later, he was engaged in the practice of law there until his death. He was also founder of the Milwaukee Civil Service Reform Association and was secretary and librarian for the Milwaukee Law Library Association more than 50 years. In 1880 he became secretary of Milwaukee (later Milwaukee-Downer) College and in 1907 was elected its president, serving until 1924. His works include *Life of Henry Clay Payne* (1907) and *Louis XVII* (1915).

Wilcox, Reynold Webb, American physician, died in Princeton, N. J., June 6, 1931. He was born in Madison, Conn., Mar. 29, 1856, and was graduated from Yale in 1878 and with the M.D. degree from Harvard in 1881, studying also in Vienna, Heidelberg, Paris, and Edinburgh. Engaging in practice in New York City, he was appointed professor of medicine at the New York Post-Graduate Medical School in 1884, where he remained until 1908. He was also consultant at St. Mark's Hospital, Manhattan, the Ossining (N. Y.) Hospital, the Eastern Long Island Hospital, and the New Jersey State Hospital in Trenton. Among the organizations of which he was president were the American Therapeutic Society (1901-02), the American Association of Medical Jurisprudence (1913-14), the American Congress on Internal Medicine (1915-17), and the American College of Physicians (1915-21). He retired from active practice in 1924. His works include *System of Case Records* (1887); *Materia Medica and Therapeutics* (1892); *Manual of Fever Nursing* (1904); and *Treatment of Diseases* (1907).

Wiley, Andrew J., died Oct. 8, 1931.

Williams, The Most Rev. David, Canadian prelate of the Church of England, died in London, Ont., Oct. 7, 1931. He was born in Silian, Wales, Mar. 14, 1859, and attended St. David's College, Lampeter, and Oxford University. Following his ordination in 1885, he served two years as curate of Festiniog, Wales, and was then sent to Canada to teach in the Huron Theological College. He was special preacher at St. Paul's Cathedral, London, during 1888-92 and, returning to Canada, was rector of St. James's Church, Stratford, Ont., during 1892-1904. In 1903 he was made Archdeacon of Perth, and in 1905 Bishop of Huron. After 1926 he was Metropolitan of the Province of Ontario.

Williams, Gardner Stewart, died Dec. 12, 1931.

Williams, J(ohn) Whitridge, American physician, died Oct. 21, 1931, in Baltimore, Md., where he was born Jan. 26, 1866. He was graduated from Johns Hopkins University in 1886 and with the M.D. degree from the University of Maryland in 1888, later studying at the universities of Berlin, Vienna, Leipzig, Prague, Paris, and Heidelberg. He became connected with the medical school of Johns Hopkins University in 1889 as assistant, and ten years later was appointed professor of obstetrics and obstetrician-in-chief at the Johns Hopkins Hospital. He also served as dean of the school during 1911-23. He was president of the American Gynecological Society during 1913-14, of the American Association for the Study and Prevention of Infant Mortality during 1914-16, and of the Medical and Chirurgical Faculty of Maryland during 1915-16. His publications include *Text-Book of Obstetrics* (1903) and numerous monographs on obstetrical and gynecological subjects.

Williams, William Henry, American railway official, died in St. Louis, Mo., Oct. 14, 1931. He was born in Athens, Ohio, June 25, 1874. From 1890 to 1901 he held various positions as stenographer and cashier with the Pennsylvania and Pittsburgh & Lake Erie Railroads, and then became assistant secretary and assistant to the general manager of the Baltimore & Ohio Railroad. In 1905 he was appointed traffic manager of the Merchants and Manufacturers Association and the Chamber of Commerce of Pittsburgh, Pa., returning to the railroad service two years later as assistant to the president of the Delaware & Hudson Railroad. He became 3d vice president of that line in 1907 and vice president in 1916, serving until 1928. He also was chairman of the board of the Missouri Pacific Railroad and several of its subsidiaries from 1924 to 1930. In 1931 he assumed the presidency of the Wabash Railway, with which he had been connected as chairman of its executive committee since 1915.

Willson, Augustus Everett, American politician and former Governor of Kentucky, died in Louisville, Aug. 24, 1931. He was born in Maysville, Ky., Oct. 13, 1846,



and was graduated from Harvard University in 1869. After studying for a short time at the Harvard Law School he entered the law offices of Lathrop, Bishop & Lincoln in Boston, but returned to Louisville the following year, becoming associated with John M. Harlan. In 1897, after having worked for 25 years to make the Republican party a factor in the State, he was elected Governor of Kentucky, the second Republican to hold that office. During his term (1907-11) he used the militia to put down the tobacco "night-riders" and pardoned the men convicted of the assassination of his Democratic predecessor, William Goebel.

Willy. See Gauthier-Villars, Henry.

Wilson, The Ven. James Maurice. British clergyman and educator, died in Steep, Petersfield, Apr. 15, 1931. Born Nov. 6, 1836, he attended St. John's College, Cambridge, and was natural science and mathematics master at Rugby School during 1859-79 and head master of Clifton College during 1879-90. He then became Archdeacon of Manchester, and in 1905 was made Canon of Worcester, holding that incumbency until 1926. He also was Hulsean lecturer at Cambridge in 1898, Lady Margaret preacher in 1900, and lecturer on pastoral theology in 1903. In 1921 he was president of the British Mathematical Association. He wrote on the relations of religion and science.

Wing, Asa Shove. American insurance official, died June 5, 1931, in Sandwich, Mass., where he was born Jan. 29, 1850. He became associated with the Provident Life & Trust Co. of Philadelphia (later the Provident Mutual Life Insurance Company) in 1867 and was made president in 1906. He was also director in many Philadelphia banking and industrial enterprises.

Wittpenn, H. Otto. American industrialist and politician, died in Hoboken, N. J., July 25, 1931. He was born in Jersey City, N. J., Oct. 23, 1871. After acting as supervisor of Hudson County, he was elected mayor of Jersey City in 1904 and reelected for two succeeding terms thereafter. In 1913 he was appointed by President Wilson naval officer of the Port of New York, serving throughout both Wilson administrations. In 1916, as Democratic candidate, he was defeated for Governor of New Jersey by Walter E. Edge, Republican. At the time of his death he was a member of the New Jersey State Highway Commission. He also served as president of the New Jersey State Board of Children's Guardians and as a member of the Board of Control of the New Jersey State Department of Institutions and Agencies and of the National Prison Association Committee on Delinquent Women. In 1931 he was appointed by President Hoover as American delegate to the International Commission for Criminology and Prison Management. His business interests concerned the brick manufacturing firm of Houghtaling and Wittpenn, the Hoboken Land & Improvement Co., and the presidency or directorship of banks in Hoboken and Jersey City.

Wolheim, Louis. American motion picture actor, died in Los Angeles, Calif., Feb. 18, 1931. He was born in New York City, Mar. 28, 1881, and was graduated from Cornell University in 1906, later becoming an instructor in mathematics at that institution. His first stage appearance was in *The Jest* with John and Lionel Barrymore in 1919. Noted for his grim face and pugnacious personality, he achieved a great success in the title rôle of Eugene O'Neill's *The Iceman* and as Captain Flagg in *What Price Glory?* About 1925 he took up film work, appearing in *Little Old New York*, *What Price Glory?*, *Lovers' Island*, *Two Arabian Knights*, *Sorrell and Son*, *The Tempest*, *Frozen Justice*, *Wolf Song*, *Condemned*, *The Awakening*, *Danger Lights*, *The Racket*, and *All Quiet on the Western Front*.

Wood, Arthur Julius. American engineer and educator, died in State College, Pa., Apr. 18, 1931. He was born in Newark, N. J., Sept. 3, 1874, and was graduated from the Stevens Institute of Technology in 1896. After acting as associate editor of the *Railroad Gazette*, he became instructor in mechanical engineering at the Worcester Polytechnic Institute in 1900, professor of mechanical and electrical engineering at Delaware College in 1902, and professor of mechanical engineering at the Pennsylvania State College in 1904. In 1912 he organized at the latter institution the courses in railway mechanical engineering, and from 1918 to 1922 was in charge of the college's Engineering Experimental Station. At the time of his death he was head of the department of mechanical engineering. He was also an authority on the technique of refrigeration, and was president of the American Society of Refrigerating Engineers during 1928-29. He was the author of *Principles of Locomotive Operation* (1915).

Wood, Commodore Moses Lindley, U. S. N., Ret. American naval officer, died in Washington, D. C., Apr. 3, 1931. He was born in Lexington, Mo., Aug. 12, 1854, and was graduated from the United States Naval Academy in 1875. Promoted through the grades to captain, he commanded the U. S. S. *Eagle* (1902-04), *Dixie* (1906-07), and *Maryland* (1908-09). He re-

tired with the rank of commodore in 1909, but was ordered to active duty on the entry of the United States into the World War, serving as president of the Naval Examining and Retiring Boards for the 8d Naval District and as president of the Special General Courts Martial, New York Navy Yard.

Woodley, Oscar Israel. American educator, died in Clermont, Fla., Nov. 24, 1931. Born in Ontario, Canada, Oct. 19, 1861, he was graduated from the Michigan State Normal College, Ypsilanti, in 1886 and from Albion (Mich.) College in 1901. After acting as superintendent of schools in Sauk Center, Minn., Menominee, Mich., and Passaic, N. J., he became in 1910 president of the State Normal School, Fairmont, W. Va. In 1915 he was elected president of Marshall College, Huntington, W. Va., where he remained five years. He was secretary of the Florida Educational Association during 1923-24, and was the author of *The Profession of Teaching* (1917).

Worthington-Evans, Sir Laming, died, Feb. 14, 1931. Wyllie, William Lionel, died Apr. 6, 1931.

Ysaie, Eugene, died May 12, 1931.

Zesler, Sigmund. American lawyer, died in Chicago, Ill., June 4, 1931. He was born in Bielitz, Silesia, Austria, Apr. 11, 1860, and studied law and political science at the University of Vienna and at Northwestern University, being graduated from the latter in 1884. Admitted to the Illinois bar, he was associate counsel for the defense in the Anarchist cases of 1886-87 and was chief assistant corporation counsel for Chicago during 1893-94. He was also lecturer on Roman law at Northwestern University during 1884-86 and again during 1892-93 and on constitutional law at the John Marshall Law School during 1901-04. In 1904 he became master in chancery for the Circuit Court of Cook Co., which office he held until 1920. He was prominent in the American Free Trade League and the Municipal Voters' League, being president of the latter in 1925.

Zimmermann, Leopold. American banker, died in New York City, Sept. 15, 1931. He was born in Oberseemen, Hessen, Germany, June 3, 1853, coming to the United States in 1869. At the age of 19 he opened his own office as a money broker in Wall Street, and in 1877 organized the firm of Zimmermann and Forshay, of which he was director until his death. In 1893 this firm became a member of the New York Stock Exchange, and for many years before the World War was correspondent for the principal banks of Central Europe and fiscal agent for the German Government.

Zimmern, Heinrich. German Orientalist, died in Leipzig, Feb. 23, 1931. He was born in Graben, July 14, 1862, and attended the universities of Leipzig, Berlin, Erlangen, and Strassburg. He was appointed professor of Assyriology at the University of Leipzig in 1894, and professor of Oriental languages in 1900. His works include *Babylonische Rassepalmen* (1895), *Beiträge zur Kenntnis der babylonischen Religion* (1896-1901), *Vergleichende Grammatik der semitischen Sprachen* (1898), and *Sumerische Kultbilder* (1912-13). With August Fischer he also had edited *Leipziger semitischen Studien* (1903-30) and *Zeitschrift für Assyriologie* (after 1923).

Zorrilla de San Martín, Juan Uruguayan poet, diplomat, and educator, died Nov. 3, 1931, in Montevideo, where he was born, Dec. 28, 1855. He attended the University of Montevideo and the College of the Immaculate Conception of Santa Fé, Argentina. In 1877 he founded *El Bien Público*, a Catholic periodical, and the following year became a judge in the department of Montevideo. After serving as deputy during 1887-90, he was appointed Minister to Spain, and later became professor of aesthetics in the faculty of architecture at the University of Montevideo. Among his poems are: *Notas de un himno* (1876); *La leyenda patria* (1878); *Tabaré* (1888); and *La profecía de Ezequiel* (1921).

**NEGRI SEMBILAN**, nā'grē sēm'hē-līn'. A federation of nine divisions, constituting a state in the Federated Malay States. See **FEDERATED MALAY STATES**.

**NEGRO ACTIVITIES**. See **COMMUNISM**.

**NEGRO IN INDUSTRY**. See **LABOR**.

**NEHRU**, PANDEIT MOTILAL. An Indian Nationalist leader, died in Lucknow Feb. 6, 1931. Born May 6, 1861, he attended Muir College, Allahabad, and began the practice of law in 1883. In 1895 he was enrolled as an advocate of the Allahabad high court, and was for some years a member of the United Provinces legislative conference. In 1919 he became associated with Mahatma Gandhi in the Indian nationalist movement, founding its organ, the *Independent*, and serving as president of the Indian National Congress at Amritsar. In

1922, with C. R. Das, he organized the Swaraj party, was its leader in the Indian Legislative Assembly, and accomplished its fusion four years later with the National Congress party. He also actively promoted the boycott of the Indian Statutory Commission on its appointment in 1927, and was chairman in 1928 of the committee of the All-Parties Conference which framed the Nehru Report, formulating a plan of Dominion status for India. When this scheme was rejected by the Government, he urged all parties in the Indian National Congress, of which he was president, to strive for complete independence, and in 1930 inaugurated the campaign of civil disobedience.

**NEJD.** See **ABAHIA**.

**NEMATODES.** See **ZOOLOGY**.

**NEMES SALE.** See **AET SALES**.

**NEPAL**, nē-pōl'. An independent kingdom in the Himalayas between Tibet and British India, under British influence. The area is about 54,000 square miles, the population about 5,000,000. Capital, Kathmandu (80,000 inhabitants); reigning sovereign in 1931, Maharajadhiraja Tribhuvana Bir Bikram. The Government is a military oligarchy, under a partially hereditary Prime Minister. Prime Minister in 1931, Maj.-Gen. Sir Bhim Shamsher Jang Rana, who assumed office Dec. 16, 1929.

**NERVE GROWTH.** See **MEDICINE**, **PROGRESS OF**.

**NETHERLAND EAST INDIES.** A possession of the Netherlands in the East Indies, comprising the group of islands in the Pacific lying between 6° N. and 11° S. latitude, and between 95° and 141° E. longitude. Capital, Batavia.

**AREA AND POPULATION.** The usual method of dividing the colony is as follows: (1) Java and Madoera (Madura); (2) the Outposts, consisting of Sumatra, Borneo, Celebes, a part of New Guinea, the Molukka Islands, Timor Archipelago, Bali, and other small islands. The area is estimated at 733,642 square miles; population, at the preliminary census of 1930, 60,731,024, of whom 41,719,524 were in Java and Madoera. The total population at the 1920 census was 49,350,834. Europeans in Java and Madoera numbered 193,618, natives, 40,890,244; other Orientals (chiefly Chinese), 635,662. The chief cities, with their 1930 populations, were: Batavia in Java, 437,433; Soerabaja (Surabaya), 336,814; Soerakarta, 163,013; Semarang, 217,775; Bandoeng, 166,722; Djokjakarta (Jogjakarta), 136,554; all in Java. Palembang in Sumatra had 109,169 inhabitants.

**PRODUCTION.** Agriculture, mining, and manufacturing are the chief industries, with the former predominating. In 1930, there were 23,810,000 acres under cultivation, of which 2,880,000 acres represented plantations operated by Europeans. Production of the chief crops in 1930 was: Sugar (in Java), 2,969,000 metric tons; rubber, 269,000 metric tons; coffee, 250,955,000 pounds in 1929; tea, 148,050,000 pounds; rice (Java and Madoera), 260,913,000 bushels. Corn, tobacco, cassava roots, copra, cinchona, citronella oil, palm oil, kapok, sisal, and agave are other export products. The islands produce about 95 per cent of the world's quinine output. Tin production for the year ended June 30, 1931, was 34,910 metric tons; for 1931-32 the production was restricted to 29,910 tons under an international agreement reached at London early in 1931. Petroleum output (1930) was 40,150,000 barrels (39,279,000 barrels in 1929). Teak forests

were estimated to cover 1,897,000 acres. Manufacturing is confined to the preparation of rubber, sugar, tea, rice, etc. for export. Agriculture and business were badly depressed in 1931, as a result of poor demand and low prices for the principal export products.

**COMMERCE.** Preliminary trade figures for 1931 showed exports valued at 810,193,000 florins (\$325,700,000) and imports of 548,578,000 florins (\$220,528,000), compared with exports of 1,203,039,000 florins and imports of 833,512,000 florins in 1930. The favorable balance of trade was 261,615,000 florins, compared with 369,527,000 florins in 1930 (1 florin = \$0.4020 at par). Of the 1930 imports, the Netherlands supplied 16.8 per cent; Singapore, 11.2 per cent; the United States, 10.7; and the United Kingdom, 10.5.

**FINANCE.** As a result of the trade decline, government finances showed a deficit of approximately 180,000,000 florins (\$72,360,000) at the close of 1931. A drastic retrenchment policy was introduced in an effort to balance the budget. The 1931 budget estimates placed ordinary receipts at 813,251,000 florins (\$326,927,000) and ordinary expenditures at 824,880,000 florins (\$331,602,000). The public debt, all funded, on Dec. 31, 1930, was provisionally calculated at 986,765,000 florins (\$396,680,000).

**COMMUNICATIONS.** At the end of 1929, there were 2702 miles of state-owned railway lines in operation, gross receipts of which were 81,853,000 florins (\$32,905,000) for the year. Highways (1930) extended 36,175 miles, of which 25,050 miles were macadam. A weekly air service connected Batavia with Amsterdam in the Netherlands. A total of 19,965 vessels, of 12,273,000 net tons, entered the ports during 1930. Belawan, Batavia, Sabang, Samboe, and Soerabaja were the principal ports of call.

**GOVERNMENT.** Executive authority is vested in a governor-general, assisted by an advisory council of five members. Both the Governor-General and members of the Council are nominated by the Queen of the Netherlands. Legislative authority is shared between the Governor-General and the Volksraad, or legislative assembly. The chairman of the Volksraad is appointed by the Crown. Part of the members are appointed by the Government and part are elected by the local councils; the Volksraad must consist of 30 native, 25 Dutch, and not more than 5 foreign-born subjects, such as Chinese. Administration is conducted through 3 provinces in Java and Madoera and through 4 governments and 18 residencies in the other possessions. There is a standing army of 35,000, composed mostly of natives. Governor-General A. C. D. de Graeff was succeeded on Sept. 12, 1931, by B. C. de Jonge. The Volksraad in 1931 passed a bill providing for the gradual abolition of the system of penal sanction, under which contract labor in North Sumatra was recruited. See **NETHERLANDS**. **THE**.

**NETHERLANDS, THE, OR HOLLAND.** A constitutional monarchy of Europe, bounded by the North Sea on the west and north; on the east by Germany, and on the south by Belgium. Capital, The Hague; reigning sovereign in 1931, Queen Wilhelmina Helena Pauline Maria.

**AREA AND POPULATION.** With an area of 13,213 square miles, the Netherlands had a population of 7,920,388 at the census of 1930. The estimated population on Oct. 1, 1931, was 8,006,600; in 1920, the census population was 6,865,314. From 1926 to 1930, births averaged 178,229 an-



nually and deaths 75,936, the excess of births being 102,296. In 1930, the birth rate per 1000 of population was 23.1 and the death rate 9.1. The chief cities, with 1930 census populations, are: Amsterdam, 752,003; Rotterdam, 581,899; 's Gravenhage (The Hague), 436,568; Utrecht, 153,884; Haarlem, 119,859; Groningen, 105,005.

**EDUCATION.** The 1928-29 enrollment in the primary schools was 1,118,025; secondary schools, 31,707; preparatory schools, 10,645; and universities, 8653. The four public universities are at Leiden, Utrecht, Groningen, and Amsterdam.

**PRODUCTION.** The Dutch national economy is based primarily on intensive agriculture and animal husbandry, although manufacturing and mining are important factors. In 1929, there were 2,305,000 acres of arable land, or 27 per cent of the total area; 2,172,000 acres of permanent meadow, and 595,000 acres of woods and forests. The chief crops are cereals, sugar beets and flax. Livestock in 1930 included 2,366,000 cattle, 2,018,000 swine, 485,000 sheep, and 299,000 horses. Butter production in 1930 was 192,241,000 pounds; cheese, 301,810,000 pounds. Coal is the chief mineral produced, the output in 1930 totaling 12,211,083 metric tons, compared with 11,581,201 in 1929. Four of the eight coal mines are government owned.

The important shipbuilding, textile, and machinery industries are dependent upon the Netherland East Indies (q.v.) for a large part of their business. Holland normally ranks third among the shipbuilding nations of the world. In 1930, 74 sea-going vessels of 153,072 gross tons were launched, of which 51, of 128,195 tons, were motor vessels. Diamond cutting, flour milling, and printing are other leading industries.

**COMMERCE.** According to preliminary figures of the Central Bureau of Statistics, imports in 1931 declined to 1,893,000,000 florins, as compared with 2,418,255,000 florins in 1930, while exports decreased to 1,312,000,000 florins, as against 1,718,880,000 florins in the previous year (1 florin, or guilder, equaled \$0.4020 at par). The principal imports, in order of value, in 1930 were iron and steel, textile manufactures, machinery (other than electric); coal, coke and briquets. The chief exports, in order of value, were coal, coke and briquets; cotton piece goods, cheese, wireless apparatus, butter, and eggs. Germany in 1930 furnished 31.8 per cent of all Dutch imports for consumption, as compared with 10.6 per cent by Belgium, 9.4 per cent by Great Britain, and 8.7 per cent by the United States. Of the 1930 exports of Netherland products, Great Britain took 22.3 per cent; Germany, 21.3; Belgium, 11; and France, 8.1.

**FINANCE.** The budget for 1932, as introduced in Parliament by the Finance Minister Sept. 15, 1931, estimated ordinary receipts and expenditures at 544,000,000 florins and 594,000,000 florins, respectively, and capital income and expenditure at 276,000,000 florins and 412,000,000 florins, respectively. The estimates for 1931 anticipated revenues (both ordinary and extraordinary) of 657,306,000 florins and total expenditures of 767,900,000 florins. The deficit in the 1931 ordinary budget was provisionally estimated at 26,000,000 florins. The Treasury remained in a strong financial position during 1930, with no foreign indebtedness and the floating debt largely offset by outstanding collectible claims. The public debt on Jan. 1, 1931, totaled

2,713,730,000 florins, of which 2,386,010,000 florins represented the funded debt.

**COMMUNICATIONS.** There were 2300 miles of railway lines in 1930, owned by two private companies in each of which the government held a controlling interest. Highways extended 15,534 miles, of which 10,563 miles were macadam. Government-subsidized air lines linked Amsterdam with London, Paris, Brussels, Hamburg, Zurich, and Malmö (Sweden). A weekly air service was in operation between Amsterdam and Batavia in the Netherland East Indies. The Dutch merchant marine on June 30, 1930, comprised 1401 vessels (100 tons or over), aggregating 3,086,315 gross tons capacity. About two-thirds of the total tonnage entered and cleared at Dutch ports (64,788,000 tons in 1929) passed through Rotterdam.

**GOVERNMENT.** Executive power is vested in the Sovereign and legislative power conjointly in the Sovereign and the Parliament, which is called the States-General and consists of two houses. The upper House is composed of 50 members, elected by the Provinces, and the lower House of 100 deputies, elected by direct suffrage. There is a consultative State Council of 14 members, appointed by the Sovereign. The Ministry in 1931 was composed as follows: President of the Council of Ministers, Minister of the Interior and of Agriculture, Dr. Ch. J. M. Ruys de Beerenbrouck (Catholic), appointed Aug. 10, 1929; Foreign Affairs, Dr. F. Beelaerts van Blokland; Finance, Dr. D. J. de Geer; Justice, Dr. J. Donner; Colonies, S. de Graaf; Defense, Dr. L. N. Deckers; Public Works, Dr. P. J. Reymer; Labor, Commerce, and Industry, Dr. J. Th. Verschuur; Instruction, Science, and Arts, Dr. J. Terpstra. The Cabinet is independent of Parliament, being appointed directly by the Queen.

**HISTORY.** The Netherlands was one of the few countries of the world which escaped political turmoil and disorder during 1931. The attention of the nation was absorbed in efforts to ward off the effects of the world-wide depression, which seriously reduced productive activity. The Government's strong financial position and the absence of foreign obligations enabled it easily to weather the European financial storm; the exchange value of the florin remained above par throughout most of the year. The Amsterdam Stock Exchange was closed for one day following the abandonment of the gold standard by Great Britain, but the Netherlands Bank on September 27 announced that it would unconditionally maintain the gold standard.

On November 19, the lower Chamber, by a vote of 56 to 36, passed a measure increasing the general import tariff from 8 to 10 per cent ad valorem. The measure was designed to prevent dumping in Holland by Great Britain and other countries with depreciated currencies and to offset the new British tariff. On November 12 a national crisis committee of 52 leading citizens was established to deal with the increasing unemployment problem. Declining revenues forced the Government on September 17 to suspend work on the great Zuider Zee reclamation project, which eventually was to reclaim 550,000 acres, an area equivalent to 7 per cent of the existing land area of Holland. The drainage of a 50,000-acre section was completed early in 1931 and some 9000 acres were distributed to farmers. See **NAVAL PROGRESS.**

**NEVADA. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 91,058, in 1920 it was 77,407. The native whites numbered 69,150 (1930), 55,897 (1920). The foreign-born whites, 12,275 (1930), 14,802 (1920). There were, in 1930, 516 Negroes, 4871 Indians and 3090 Mexicans. Of 42,884 persons listed as in gainful occupations in 1930, 4134 were farmers and 4748 were wage workers on farms. Reno, the most populous city, had 18,529 inhabitants (1930), 12,016 (1920). The capital is Carson City.

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay .....	1931	177,000	223,000*	\$2,185,000
	1930	222,000	448,000*	4,077,000
Potatoes .....	1931	8,000	800,000	180,000
	1930	8,000	510,000	551,000

\* Tons.

**MINERAL PRODUCTION.** Like other States dependent on the non-ferrous metals for their mineral industry, Nevada underwent a severe decline in mining activity in 1930. There were treated only 4,757,178 short tons of the ores of gold, silver, copper, lead or zinc or their combinations, as against 7,355,500 tons treated in 1929. The value of the recoverable metals in these ores was, for 1930, \$21,455,517; for 1929, \$33,030,237. Though the value of gold in monetary terms is not subject to reduction, there were produced but 149,064 fine ounces of gold; 163,711 ounces had been produced in 1929. The production of silver totaled 4,219,832 fine ounces in 1930; in 1929, 4,923,526. That of copper was 109,203,512 pounds for 1930; for 1929 it had been 140,138,809 pounds, as to quantity and as to value, \$24,664,430, constituting in itself two-thirds of the mineral total for that year. The production of lead rose to 23,058,381 pounds for 1930, from 19,682,568 pounds for 1929; but the value for 1930 was less than the \$1,240,632 of 1929. Zinc production increased sharply to 29,168,117 pounds for 1930, from 16,920,083 for 1929; its value for 1930 was consequently somewhat higher than the \$1,116,725 of 1929. There was a substantial gypsum production, last officially reported for 1929 at 225,514 short tons, in value \$1,290,854. The total value of the State's mineral production was \$36,776,293 for 1929; for 1928, \$34,881,787.

The value of the mine production of gold, silver, copper, lead, and zinc in Nevada decreased from \$21,455,517 in 1930 to about \$10,936,300 in 1931, according to the U. S. Bureau of Mines. Compared with the 1930 production there were decreases in the output and value of all metals. The gold output from mines in Nevada decreased from \$3,081,436 (149,065 fine ounces) in 1930 to about \$2,935,400 (142,000 fine ounces) in 1931. Nevada was widely searched for gold during the year and in districts where silver had predominated gold was found in paying quantity. The silver production from mines in Nevada decreased from 4,219,832 fine ounces in 1930 to about 2,496,000 ounces in 1931 and the value from \$1,624,635 to about \$723,800. The Tonopah district produced about 650,000 ounces, a decrease from 1,931,194 ounces in 1930. The mine production of copper in Nevada in 1931 in terms of marketed and estimated metal was 72,046,400 pounds, valued at about \$5,979,800. This output

compares with 109,203,512 pounds and \$14,196,457 in value in 1930.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 rendered the number of the State's manufacturing establishments as 123. These employed 2201 wage earners (about 9 per cent fewer than had been employed in 1927). Their wages for the year totaled \$3,585,425. Cost of materials, fuel and purchased electricity came to \$13,896,029. The manufactured product was valued at \$33,717,059 (an increase of 25.7 per cent over the total for 1927).

**FINANCE.** State expenditures in the year ended Dec. 31, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$2,639,117 (of which \$467,568 was for local education); for interest on debt, \$58,540; for permanent improvements, \$1,768,217; total, \$4,465,874 (of which \$2,428,827 was for highways, \$693,108 being for maintenance and \$1,735,719 for construction). Revenues were \$4,426,087. Of these, property and special taxes formed 34 per cent; departmental earnings and remuneration to the State for officers' services, 5.3; sale of licenses, 24.3 (including gasoline sale taxes amounting to \$677,835). The State's funded debt outstanding on Dec. 31, 1930, was \$980,000. Of this amount, \$300,000 had been contracted for highways. Net of sinking-fund assets, debt was \$906,100. On a property valuation of \$207,851,131 were levied in the year taxes of \$1,376,160.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 2108.63. A small additional lineage of 0.35 mile had come into operation during the year preceding, while 14.37 miles had been abandoned. In 1931 were built 33.09 miles of additional first track.

**EDUCATION.** For the academic year 1929-30 the total number of those enrolled as pupils in the public schools of the State was 18,041. Of these, 650 were in kindergartens, 13,629 in elementary grades or common schools and 3762 in high schools. There were 337 schools, of which 295 were elementary, these including 185 one-room schoolhouses, while 33 were high schools. The year's expenditure for support and maintenance of elementary public schools was \$1,353,192; for support and maintenance of high schools, it was \$673,136. Yearly salaries of teachers, principals, superintendents and instructors averaged \$1571. The State's central educational organization was altered in 1931 by the enactment of a law creating a new State Board of Education, to which each of the five supervisory districts was, by election, to contribute a member. The Governor and the State Superintendent of Public Instruction were to be members ex-officio.

**LEGISLATION.** The State Legislature held its regular biennial session. Apprehensive of competition through easier divorce laws under consideration in Arkansas and Idaho, the legislators amended the divorce law, which was credited with yielding the State an annual \$3,000,000 in various sorts of public and private revenue. The preliminary period of residence in the State requisite to qualify divorce plaintiffs was reduced to six weeks, and it was rendered unnecessary for the presentation of grounds of divorce action to offer particulars save when the defendant contested. A bill to legalize gambling was also enacted.

**POLITICAL AND OTHER EVENTS.** Work was begun on the Hoover Dam project in the spring, to im-

pound the Colorado River at the Arizona border. Large numbers of workers were brought and settled near Las Vegas, Nevada, and a base for the constructors' activities was set up, adding greatly to business in the State. In August a part of the working force on the project demanded higher wages and improved comforts. The contractors refused the demands and sought to lay off the men. A general strike resulted, in which the workers had the backing of the executive council of the American Federation of Labor.

The new divorce law went into effect on May 2; in the course of May, 321 divorces were granted at Reno under the six-weeks' residence provision, as against 2109 divorces and annulments decreed in the entire year 1929 under the old law.

See MARRIAGE AND DIVORCE.

**OFFICERS.** Governor, Fred B. Balzar; Lieutenant-Governor, Morley Griswold; Secretary of State, W. G. Greathouse; Controller, Edward C. Peterson; Treasurer, George B. Russell; Attorney-General, Gray Washburn; Superintendent of Public Instruction, Walter Anderson.

**JUDICIARY.** Supreme Court: Chief Justice, Ben W. Coleman; Associate Justices, J. A. Sanders and Edward A. Ducker.

**NEVADA, UNIVERSITY OF.** A coeducational State institution of higher education in Reno, Nev., founded in 1874. There was an enrollment of 945 students for the autumn term of 1931. The summer session of 1931 had a registration of 118. There were 75 members on the faculty. The productive funds of the university amounted to \$335,437, and the income for the year to \$695,899. The library contained 53,985 volumes. President, Walter E. Clark, Ph.D., LL.D.

**NEWARK MUSEUM.** See ART EXHIBITIONS; SCULPTURE.

**NEW BRITAIN** See BISMARCK ARCHIPELAGO and NEW GUINEA, TERRITORY OF.

**NEW BRUNSWICK** (brünz'wîk). One of the Maritime Provinces of Canada, bounded on the east by the Gulf of St. Lawrence and Nova Scotia, on the north by Quebec, and on the west by the State of Maine. The area is 27,985 square miles and the population at the census of 1931 was 408,219, compared with 387,876 in 1921. The chief cities, with the 1931 census populations (preliminary), are: St. John, 46,640 (47,166 in 1921); Moncton, 20,617 (17,488); and Fredericton, the capital, 8828 (8114). In 1929, there were 10,224 living births, 5213 deaths, and 3117 marriages. Enrollment in the public schools in the same year totaled 93,580 and the average daily attendance was 61,127.

Agriculture, mining, manufacturing, fishing, and lumbering are leading industries. The acreage under field crops in 1930 was 911,490 acres (908,659 in 1929) and the value of production was \$18,554,000 (\$23,835,000 in 1929). About half of the 21,476 square miles of forest is owned by the Province. The production of lumber and other saw-mill products (1929) was valued at \$12,164,604. The fish catch for the same year, valued at \$5,935,635, was the largest in six years. The provisional value of mineral production for 1930 was \$2,270,812, as compared with \$2,439,072 in 1929. Coal, copper, antimony, and gypsum are mined. With 860 manufacturing establishments, 18,517 employees, and a capital investment of \$117,965,970, there were produced in 1929 manufactured produce valued at \$71,433,966 gross and \$30,980,431 net.

Ordinary revenues and expenditures of the

Province for the fiscal year ended Oct. 31, 1930, totaled \$6,513,285 and \$7,357,020, respectively. For the preceding year revenues were \$5,991,375 and expenditures \$6,521,575. The bonded indebtedness in 1929 stood at \$39,525,803. A bond issue of \$5,215,000, bearing interest at 4½ per cent, was sold April 8, 1931, to a Canadian syndicate. The Province in 1931 had 11,836 miles of highway. A daily airplane service between Moncton and Charlottetown, P. E. I., was opened Oct. 10, 1931.

Government is vested in a lieutenant-governor and a legislative assembly of 48 members elected for five years. Lieutenant-Governor in 1931, H. H. McLean. Premier and Attorney-General, J. B. M. Baxter (Conservative), who resigned in May, 1931, to accept a seat on the Supreme Court. He was succeeded May 10 by Charles D. Richards (Conservative).

**HISTORY.** The worst fire in the history of Canada since the Halifax fire of 1917 swept the west side of St. John harbor on June 22, 1931. Shipping, wharves, elevators, warehouses, government buildings, and private residences valued at over \$5,000,000 were destroyed. Most of the property was owned by the St. John Harbor Commission and the Canadian Pacific Railway. Contracts for the reconstruction of six piers were let the following month. See CANADA.

**NEW CALEDONIA**, kâl'ê-dô'n'yâ. A French colony, comprising the island of New Caledonia, the southernmost of the Melanesian Islands, lying about 875 miles east of Australia, and the following dependencies: Isle of Pines, Wallis Archipelago, Loyalty Islands, Huon Islands, and Fotuna and Alofi. The island of New Caledonia has a length greater than 248 miles and an average width of 31 miles. Area, 8548 square miles. Population, according to the census of 1926, 51,816, of whom 14,983 were free whites, 1281 of convict origin, and 27,490 Melanesians and Polynesians. The native population July 1, 1930, was 27,777; on the same date immigrants included 7000 Javanese and 6000 Tonkinese. Capital, Noumea, with 10,226 inhabitants in 1920. Governor in 1931, M. Guuyon.

**NEWCOMB, H. SOPHIE, COLLEGE FOR WOMEN.** See THE TULANE UNIVERSITY OF LOUISIANA.

**NEWCOMBE, EDMUND LESLIE.** A Canadian jurist, died in Ottawa, Ont., Dec. 9, 1931. He was born in Cornwallis, N. S., Feb. 17, 1859, and was graduated from Dalhousie College, Halifax, in 1878, receiving the LL.B. degree from the University of Halifax in 1881. Called to the Nova Scotia bar in 1883, he was created King's Counsel in 1893. He was associate British agent and leading counsel for Canada in the pecuniary claims arbitration between Great Britain and the United States and counsel for the Canadian Government in the *S.S. Empress of Ireland* inquiry (1914). He also was chairman of the select committee for the revision of the statutes of Canada (1902-06) and chairman of the Military Service Council to administer the Military Service Act (1917-19). In 1924 he was appointed judge of the Supreme Court of Canada, representing the Maritime Provinces.

**NEW DELHI, INDIA.** See CITY AND REGIONAL PLANNING.

**NEWFOUNDLAND**, nüf'ünd-länd'. A large island in the northeastern part of the Gulf of St. Lawrence, forming one of the British dominions. Area, 42,734 square miles; population in

1930, 275,888 (including Labrador), as compared with 263,033 at the census of 1921. Labrador, a dependency of Newfoundland, has an area of 110,000 square miles and a population (1928) of 4086. Capital of Newfoundland, St. John's, with a population in 1930 of 58,500. Other towns, with their populations in 1921, were Bonavista, 4025; Harbor Grace, 3825; Carbonear, 3320. Births for the period 1926 to 1930 averaged 6885 annually and deaths 3811; birth and mortality rates per 1000 inhabitants for the same period were 25.5 and 14.1, respectively.

**PRODUCTION.** Fishing is the basic industry, with farming, mining, manufacturing, and lumbering as supplementary sources of national income. The codfish catch for the 1931 season was estimated at 124,500,000 pounds, compared with 115,360,000 pounds in 1930. Seals caught (1930) numbered 241,236; whales, 319. With prices 50 per cent lower than in 1929 and demand for fish products at a minimum, economic conditions in Newfoundland were severely depressed during 1930 and 1931. Hay, potatoes, turnips, and cabbage are the chief crops, grown on 188,000 acres of arable land. There were (1930) about 9,600,000 acres of forests. Newsprint mills operated at capacity during 1931, exporting 267,420 tons, valued at \$17,134,807. Iron ore production of the Wabana (Bell Island) mines was 530,000 short tons in 1931 (preliminary), compared with 1,319,000 tons in 1930. Lead and zinc concentrates are other mineral products.

**COMMERCE.** According to preliminary returns, exports in 1931 were valued at \$33,537,369, compared with \$40,051,959 in 1930 (figures in Newfoundland dollars). Imports totaled \$25,261,701, as against \$31,871,151 in 1930. Paper and dried codfish are the leading exports. In 1929-30, Canada and the United States each supplied about 38 per cent of Newfoundland's imports and the United States purchased 28.5 per cent of its total exports.

**FINANCE.** The financial position of the Government became desperate in 1931. A surplus of \$144,900 was reported for the fiscal year ended Mar. 31, 1930. In 1930-31, however, there was a deficit of \$1,974,600, expenditures totaling \$11,895,100 and revenue \$9,920,500. The Finance Minister's estimates for 1931-32 placed expenditures at \$10,865,000 and revenues at \$10,010,801, leaving an anticipated deficit of \$854,199. A railway deficit of \$750,000 for 1930-31 also was forecast. The public funded debt on June 30, 1930, amounted to 87,592,000 Newfoundland dollars, compared with 85,477,000 on the same date of 1929. In July, 1930, an additional loan of \$5,000,000 was floated in Montreal and New York. For financial developments in 1931, see *History*.

**COMMUNICATIONS.** In 1930, there were 974 miles of railway line, of which 905 miles were government owned. Highways (1931) extended more than 1000 miles, but only 880 miles were passable for motor cars. A winter air-mail service between St. John's and St. Anthony was opened on Feb. 18, 1931. Vessels in the foreign trade entering the ports in 1929-30 numbered 1700, of 1,722,429 net registered tons capacity.

**GOVERNMENT.** Executive power is vested in a governor, assisted by an executive council of not more than 10 members, and legislative power, in a council of not more than 24 members and an elected house of representatives of 40 members. Women have the franchise. Governor and commander-in-chief in 1931, Sir John Middleton, ap-

pointed in August, 1928. The Ministry constituted in November, 1928, was composed in part as follows: Prime Minister and Minister of Justice, Sir R. A. Squires; Colonial Secretary, A. Barnes; Finance and Customs, P. J. Cashin; Posts and Telegraphs, W. W. Halfyard.

**HISTORY.** The Government of Newfoundland was twice saved from default on its debt payments during 1931 by advances secured from a syndicate of Canadian banks. The seriousness of the financial situation became evident in April, 1931, when the Finance Minister's annual budget statement revealed large deficits in the 1930-31 and 1931-32 budgets. In May no tenders were received for an \$8,000,000 loan authorized by the Newfoundland Legislature. Following further loan negotiations in New York and Montreal, the Prime Minister announced (June 20) that a Canadian banking syndicate had agreed to meet interest and sinking fund payments on Newfoundland's debt due June 30 and July 1. Repeated rumors that Newfoundland officials had offered to sell Labrador were substantiated when Prime Minister Bennett announced in the Canadian Parliament that his Government was considering the proposition.

In August, the Government drastically reduced its personnel, salaries, rail and steamer transport services, and work on public roads in an effort to prune expenditures by \$1,000,000. J. H. Penson and Sir Percy Thompson of the British Treasury were asked to reorganize the Dominion's financial structure. Under a plan recommended by the experts and adopted by the Government, effective Dec. 1, 1931, Mr. Penson was placed in charge of the Finance Department, with the widest powers of supervision and control over all Government expenditure. Despite these steps, the Government was again unable to secure a loan. On December 14, a Cabinet Minister announced that the Government had offered to sell Labrador outright to Canada for \$100,000,000. Faced with the alternative of defaulting on Jan. 1, 1932, interest and sinking fund payments, the Government on Dec. 30, 1931, accepted the stringent conditions under which four Canadian banks offered to advance \$2,200,000 at 5½ per cent for six months. The conditions called for the imposition of an embargo on gold export, acceptance of the notes of the Canadian banks as legal tender in Newfoundland, retention of the newly inaugurated system of Treasury supervision, control of the customs revenue, and the floating of a domestic loan to meet the 1931-32 deficit. The banks, in return, agreed to accept a bond issue covering the advances they had made to the Newfoundland Government during the year.

See **LABRADOR**; **CANADA** under *Foreign Relations*. Consult J. R. Smallwood, *The New Newfoundland* (New York, 1931).

**NEW GUINEA**, gín'ē. The name applied to both an island in the East Indies and to those territories in the western Pacific, including a portion of the island, which were transferred from Germany to Australia, under mandate of the League of Nations, by the Treaty of Versailles. The area of the island of New Guinea, which ranks after Australia and Greenland as the third island in size in the world, is estimated at from 310,000 to 335,000 square miles, and the population at slightly below 1,000,000. The northeastern portion, formerly Kaiser Wilhelm Island, is included in the Australian mandated area; the sec-

tion west of 140° E. longitude belongs to the Netherland East Indies; and the southeastern part constitutes the colony of Papua, or British Guinea, also administered by Australia. See NETHERLAND EAST INDIES, PAPUA.

**TERRITORY OF NEW GUINEA.** The Territory of New Guinea, under Australian mandate, consists of that section of the island known as North Eastern New Guinea, the Bismarck Archipelago (New Britain, New Ireland, Lavonagai, and the Admiralty Islands), and part of the Solomon Island group. Area, about 93,000 square miles. The estimated native population was 487,266 and the non-indigenous population on June 30, 1930, numbered about 4155. The territory is administered by an Australian official from the seat of government at Rabaul, New Britain. Administrator in 1931, Brig. Gen. E. A. Wisdom.

**NEW HAMPSHIRE. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 465,293, in 1920 it was 443,083. The native whites numbered 381,690 (1930), 351,098 (1920). The foreign-born whites, 82,660 (1930), 91,233 (1920). There were 790 Negroes (1930). Of 190,666 persons listed as in gainful occupations, 12,006 were farmers, 8972 farm laborers for wages, 44,797 factory operatives, 9665 factory laborers and 6328 retail dealers. Manchester, the most populous city, had 76,834 inhabitants (1930), 78,384 (1920); Nashua, 31,463 (1930), 28,379 (1920); Concord, the capital, 25,228 (1930), 22,167 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame . . . .	1931	344,000	877,000*	\$4,449,000
	1930	350,000	387,000*	5,302,000
Potatoes . . . . .	1931	9,000	1,485,000	891,000
	1930	9,000	1,665,000	1,748,000
Corn . . . . .	1931	13,000	598,000	412,000
	1930	13,000	685,000	614,000

\* Tons.

**MINERAL PRODUCTION.** The latest totals published by the U. S. Bureau of Mines for the mineral industries of the State covered 1929. They indicated these industries as fairly stable but not as of rising importance. The quantity of stone quarried decreased to 135,640 short tons for 1929, from 166,040 for 1928; the value of the total to \$1,153,465 for 1929, from \$1,423,426 for 1928. The total value of the State's mineral products was \$3,725,951 for 1929; for 1928, \$3,816,065.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 1065 (an excess of about 3.5 per cent over the number of establishments for 1927). In these establishments were employed 65,119 wage earners (slightly fewer than in 1927). The wages paid them amounted to \$70,107,388 (falling below the wage total of 1927 by 3.7 per cent). Materials for manufacture, plus fuel and purchased electricity, cost \$185,375,703. The manufactured product of the year was valued at \$331,366,164 (or 1.2 per cent higher than the figure for 1927). The value added by manufacture was estimated at \$145,990,461. Manchester, the leading manufacturing community, in 1929, had 187 establishments, 19,163 wage earners, a wage total of \$18,308,194, and a manufactured product for the year which was valued at \$85,802,651.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 1165.61.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$9,265,410; for interest on debt, \$207,121; for permanent improvements, \$2,701,017; total, \$12,173,548 (of which \$6,720,392 was for highways, \$4,482,169 being for maintenance and \$2,238,223 for construction). Revenues were \$11,098,473. Funded State debt outstanding on June 30, 1930, totaled \$5,095,636, of which \$1,770,000 was for highways. Net of sinking-fund assets, it was \$5,095,636. On an assessed valuation of \$676,031,023 the State levied in the year ad valorem taxes of \$2,996,687.

**EDUCATION.** For the academic year ended June 30, 1931, the number of persons of school age in the State was reported as 91,061. There were enrolled in the public schools 77,268 pupils. Of these, 59,763 were in elementary schools, 15,353 in high schools, and 2152 in evening schools. The year's current expenditures for public school education totaled \$6,226,310. The teachers' yearly salaries averaged: in elementary schools, \$1513.73 for men and \$1121.74 for women; in high schools, \$2165.64 for men and \$1512 for women.

**LEGISLATION.** A regular session of the State Legislature was held, concluding on May 7. It made provision for the application of receipts from the tax on estates and from a franchise tax on gas and electric utilities to the retirement of the State debt. Costs of investigations of the rates of public utilities by the Public Service Commission, up to the proportion of one-half of 1 per cent of the existing value of the company or companies investigated, were made chargeable to the companies. Further support was given the effort of the State to eradicate tuberculosis from dairy herds. Appropriations were made for institutional construction, to the total of \$300,000. The mothers' aid law was rendered more liberal, and death benefits under the workmen's compensation law were augmented.

An approach to the old age pension system was made by a statute to provide assistance to persons over 70 years old domiciled in homes, instead of the previous form of relief at a county farm (See OLD AGE PENSIONS). The direct State tax for the ensuing two years was reduced by an estimated \$160,000, to \$1,400,000. Among changes made in the banking laws was the establishment of a specific reserve of 5 per cent of savings deposits in cash and public funds of the United States. The maximum that a bank might lend to a single debtor was reduced.

**POLITICAL AND OTHER EVENTS.** A cement-and-steel double-arch bridge spanning the Connecticut River between the New Hampshire shore and Bellows Falls, Vermont, was completed and was dedicated on April 16. It was the third successive bridge at this site, and the site was the first occupied by a bridge over the river in any part of its length. A boundary dispute of long standing, between New Hampshire and Vermont, was submitted during the summer to a Federal Master appointed by the United States Supreme Court. Vermont asserted jurisdiction to the middle of the Connecticut River, while New Hampshire claimed to the western bank. The New Hampshire Gas and Electric Company contracted during the year for the delivery of electric cur-



rent to it from the power ship *Jacona*, on the Piscataqua River, thus creating an innovation in the power industry of the State.

**OFFICERS.** Governor, John G. Winant; Secretary of State, Enoch D. Fuller; State Treasurer, Charles T. Patten; Attorney-General, Ralph W. Davis; Commissioner of Education, James N. Pringle.

**JUDICIARY.** Supreme Court: Chief Justice, Robert J. Peaslee; Associate Justice, Leslie P. Snow, John E. Allen, Thomas L. Marble, Oliver W. Branch.

**NEW HAMPSHIRE, UNIVERSITY OF.** A co-educational State institution of higher learning in Durham, N. H., founded in 1866 in Hanover, N. H., as part of Dartmouth College, transferred to Durham as State College in 1893, and made State university in 1923. It consists of a college of liberal arts, a college of agriculture, a college of technology, a graduate school, an agricultural experiment station, and an extension service in agriculture and home economics. The 1931-32 enrollment was 1662, of whom 1208 were men and 454 women. The summer session had a registration of 410. The faculty and research and extension staffs totaled 207. The endowment amounted to \$1,268,635, and the income for the year was \$1,547,651. Minor changes in the freshman curricula were made in all three colleges of the university, and changes of great importance were effected in the college of liberal arts first-year programmes. Higher standards for admission to the graduate school were established. The degree of master of education was authorized by the board of trustees. The library contained 70,418 volumes. President, Edward Morgan Lewis, A.M., LL.D., Litt.D.

**NEW HEBRIDES,** *hēb'ri-dez*. A group of islands about 1400 miles east of Australia and 700 miles west of the Fiji Islands, including Espiritu Santo, Malekula, Efate or Sandwich Island, Epi, Erromanga, Tanna, and Aneityūm. The group is under the joint administration of France and Great Britain, according to the convention of 1906. Capital, Port Vila. The area is approximately 5700 square miles and the population in 1929 was 64,569, including 1024 whites (700 French and 250 British), and 4945 Asiatics.

**NEW IRELAND.** See BISMARCK ARCHIPELAGO.

**NEW JERSEY. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 4,041,334, in 1920 it was 3,155,900. The native white population increased to 2,984,767 (1930), from 2,298,474 (1920). The foreign-born whites, to 844,442 (1930), from 738,613 (1920). The number of Negroes rose sharply to 208,828 (1930), from 105,899 (1920). The increase among Negroes was largely in the counties of Essex, which contained 60,236 (1930), as against 28,956 (1920), and Union. Of 1,712,125 persons listed as in gainful occupations in 1930, only 64,471 were in agriculture, while 736,285 were in manufacturing and mechanical industries (including 141,464 in the building industry), 329,327 in trade, 178,949 in transportation, 170,492 in domestic or personal service and 125,641 in professional service. Newark had 442,337 inhabitants (1930), 414,524 (1920); Jersey City, 316,715 (1930), 298,103 (1920); Paterson, 138,513 (1930), 135,875 (1920); Trenton, the capital, 123,356 (1930), 119,289 (1920); Elizabeth, 114,589 (1930), 95,783 (1920); Camden, 118,700 (1930), 116,309 (1920); Bayonne, 88,979 (1930), 76,754 (1920).

**AGRICULTURE.** The following table shows the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Potatoes . . . . .	1931	41,000	7,831,000	\$4,699,000
	1930	37,000	7,511,000	7,135,000
Hay, tame . . . . .	1931	207,000	852,000*	4,998,000
	1930	205,000	807,000*	6,631,000
Corn . . . . .	1931	170,000	6,970,000	8,624,000
	1930	168,000	6,048,000	5,748,000
Peaches . . . . .	1931	.....	2,200,000	1,430,000
	1930	.....	1,340,000	2,278,000
Sweet potatoes . . . . .	1931	18,000	1,950,000	1,865,000
	1930	12,000	1,440,000	1,728,000
Wheat . . . . .	1931	49,000	1,323,000	754,000
	1930	53,000	1,246,000	1,084,000
Apples . . . . .	1931	.....	3,520,000	2,464,000
	1930	.....	4,242,000	4,030,000

\* Tons.

**MINERAL PRODUCTION.** The clay products of the State, forming regularly the greater part of its yearly mineral total, yielded \$39,417,968, virtually the same total as the \$39,379,278 of 1928. More of the structural products, brick and tile, was produced, the total for 1929 being \$19,112,238, as against \$18,160,009 for 1928. The total for pottery on the other hand diminished to \$20,359,730 for 1929, from \$21,219,269 for 1928. There were produced, in 1929, 2,740,410 short tons of stone, and in 1928, 3,186,940 tons; in value, \$4,219,553 for 1929 and \$4,578,642 for 1928. The greater part of the 336,488,000 pounds representing the mine production of zinc in the Eastern States was attributed to the mines of New Jersey, operated by the New Jersey Zinc Company, but separate figures for the State were not published. In 1930 the iron mines of the State, despite reduced activity elsewhere in this industry, shipped 391,528 long tons of ore, or considerably more than the 285,115 tons of 1929; by value the shipments were \$1,632,827 for 1930 and, for 1929, \$1,157,848. In by-product ovens was produced much coke; 918,814 short tons in 1930 and 897,530 in 1929. It was derived entirely from coal brought in from other States. There was a heavy production of sand and gravel (to the value of \$5,585,285 for 1929) as in other States having extensive construction industries. The total value of the State's mineral production, coke excluded, was \$71,891,861 for 1929; for 1928, \$70,865,363.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 8364 (6 per cent above the number for 1927). These establishments employed 441,105 wage earners (some 10.7 per cent more than had been employed in 1927). Wages paid these earners aggregated \$628,097,520 (about 16 per cent more than had been paid in 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$2,103,042,433 (7.9 per cent more than for 1927).

The manufactured product of the year was valued at \$3,937,656,019 (an excess of 15.2 per cent over the figure for 1927). Value added by manufacture, in 1929, was reckoned as \$1,834,613,586. Newark, the chief manufacturing community, had 1724 establishments, 66,788 employed wage earners, a wage total of \$114,311,834, and a product of \$501,803,091; Paterson had 914 establishments, 32,298 employed wage earners, a wage total of \$43,518,745, and a product of \$196,297,602; Jersey City, 624 establishments, 26,640 wage earners employed, a wage total of \$39,188,406, and a product of \$317,469,167; Camden, 232



establishments, 28,993 wage earners, a wage total of \$35,583,585, and a product of \$231,135,097.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 2298.82. An addition of 2.45 miles of line had been put in service during the year preceding, and only 0.33 mile had been abandoned.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$57,184,364 (of which \$21,696,988 was for local education); for conducting public-service enterprises, \$1,018,627; for interest on debt, \$3,851,162; for permanent improvements, \$36,584,840; total, \$98,638,993 (of which \$37,186,789 was for highways, \$7,636,813 being for maintenance and \$29,649,976 for construction); \$1,038,928 of expenditure was interdepartmental. Revenues were \$106,550,366. Funded debt outstanding on June 30, 1930, totaled \$98,216,000, of which \$50,000,000 was for highways. Net of sinking-fund assets, it was \$67,900,880. On an assessed valuation of \$6,829,018,324 the State collected in the year ad valorem taxes of \$40,237,980.

**EDUCATION.** There were enrolled in the public day schools of the State, in the academic year 1930-31, 800,221 pupils. Of these, 47,046 were in kindergartens, 592,974 in elementary schools, 37,254 in junior high schools, 19,262 in senior high schools, 95,354 in four-year high schools, and 8331 in special classes. The year's expenditures for public-school education totaled, \$113,622,087, of which \$17,063,467 was for debt service. The total did not include \$16,759,064 of outlay defrayed chiefly by issues of bonds. The salaries of the 27,891 teachers averaged \$2143.54 by the year. According to State Superintendent Elliott, the requirement was made effective during the year, that all obtaining certificates to teach in elementary schools must have two years of training in normal school.

**CHARITIES AND CORRECTIONS.** The State's central agency for the care and custody of persons in 1931 was the Department of Institutions and Agencies.

State institutions under the board, with their populations of Nov. 1, 1931, were: for the insane, hospitals at Greystone Park (3958), Trenton (2679), and Holmdel (815); feeble-minded, a State School at Vineland (1187), State Colonies for Feeble-Minded Males at New Lisbon (631), and Woodbine (476), and North Jersey Training School (females, 511); State Village for Epileptics, Skillman (1213); Sanatorium for Tuberculous Diseases, Glen Gardner (469); State Prison, Trenton (1439) and State prison farms at Leesburg (236) and Bordentown (101); reformatories at Rahway (males, 879), Annandale (males, 333), and Clinton (females, 229); State Home for Boys, Jamesburg (621) and State Home for Girls, Trenton (314); Home for Disabled Soldiers, Kearny (38) and Home for Disabled Soldiers, Sailors, Marines, and their Wives and Widows, Vineland (211). The State Board of Children's Guardians had jurisdiction over 28,649.

**LEGISLATION.** The Legislature sat in regular session until April 23. It enacted much the greater part of the measures of governmental reform known as the Abell programme. Among the alterations in the State government thus effected were: The creation of a centralized State Tax Department; a receivership commission to take

charge of the affairs of any municipality in default on its bonds; provision for a State Purchasing Department; the organizing of a central accounting department. The State House Commission was augmented to include two members of the Legislature, and its hearings were made public. Provision was made for listing all State expenditures and revenues, including dedicated funds, in the preparation of appropriation bills; also, the Governor's approval was required for expenditures on the part of the State Highway Commission. Under the new centralized Tax Department were placed the assessment and collection of virtually all State taxes, those on inheritances, motor vehicles, billboards, corporations, franchisees, banking, insurance, and agriculture. The old State Board of Taxes and Assessment was restricted to dealing with appeals.

The quarterly publication of State bank deposits was required, and the limit of 2 per cent for the deposits of the State in a bank was removed. Appropriations were made to the total of about \$36,000,000 for the fiscal year. They exceeded those for the year previous by some \$5,000,000; the excess was ascribed to appropriations for construction, in line with the need for public work to reduce unemployment. An annual amount equal to 1 per cent of the previous year's road construction expenditures was assigned to work for beautifying State roads. The State gave its permission for the Port of New York Authority to issue bonds for the construction of a vehicular tunnel from Weehawken to Thirty-fourth St., Manhattan.

The sum of \$6,400,000, the State's share of receipts accruing from a refinancing of the Camden Bridge over the Delaware River, was allocated by statute among the municipalities. An old age pension was enacted, to furnish an allowance at the rate of one dollar a day for all persons over the age of 70 years who had been residents of the State for 15 years and who had less than \$3000 in real estate or cash. The system was to be supported by a fund derived from inheritance tax receipts and was to be administered by county boards. See OLD AGE PENSIONS.

The Legislature was recalled in special session by Governor Larson on June 29, and passed, in conformity with Pennsylvania, a measure creating a Delaware River Port Authority. This body, modeled upon the Port of New York Authority, was to develop means of transportation in the region of Camden and Philadelphia. Convening again on October 5, the Legislature passed measures for the relief of the unemployed, appropriating \$9,616,000 and setting up administrative machinery. It provided for matching county and municipal appropriations for special relief of the needy with like amounts of State money. It also passed a resolution petitioning Congress to permit light wines and beer.

Recalled again, the Legislature met on October 26 and passed an act to permit the election on December 1 of a Representative in the Fifth District, to fill a vacancy left by the death of Representative Ackerman; the election could not otherwise have been held in time to fill the place by the convening of Congress. A fourth special session, adjourned on December 15, rushed through a measure for redistricting the State for the election of Representatives, in accordance with the new Federal reapportionment, which gave New Jersey 14 seats in the House, in place of 12. The act was quickly put through by the Repub-

hican majority in the anticipation that it would forestall a less favorable measure by the succeeding Legislature, in which Democrats were to control the Assembly. Banking bills, to permit more rapid reorganization of closed banks, and a measure to expand the programme of State relief for the destitute were enacted.

**POLITICAL AND OTHER EVENTS.** Three important actions against New York were pressed during the year by the State of New Jersey. They were the suit against New York to prevent the diversion of water from the upper course of the Delaware River, in which New Jersey lost its case; the suit to prevent the dumping of New York City garbage at sea, in which New Jersey was successful; and the proceeding before the Interstate Commerce Commission to put an end to the practice of free lighterage between rail heads and points in New York harbor, which remained unsettled.

The Delaware River suit was brought before the United States Supreme Court, which appointed Charles N. Burch its Special Master to hear the facts. Mr. Burch after holding hearings reported to the Court against New Jersey's contentions. The Court rendered, on May 4, a decision written by Justice Holmes, in which the principle of rationing the water according to the respective needs of the riparian States was set forth. The decision permitted New York to divert from the upper river 440,000,000 gallons a day, which was about 73 per cent of the quantity that New York had sought to get. It required in return that proper disposal be made of sewage and industrial waste turned into the river at certain New York points, and that New York turn water back into the river if necessary, to maintain a specified minimum flow.

In the garbage dumping case New Jersey, after submitting its facts to a Special Master, Edward K. Campbell, won from the Supreme Court, on May 19, a decree enjoining New York City from dumping in the Atlantic Ocean the scow-loads of garbage that, it was complained, had polluted the New Jersey beaches. The Court's decision rejected the argument of New York that the dumping of the garbage, having been done outside the territorial limits of the United States, was therefore outside the Supreme Court's own jurisdiction. It granted "reasonable time" for the city to construct incinerators for garbage disposal.

In the lighterage case the representatives of New Jersey, after a series of hearings, filed briefs supporting the State's demand for the abolition of free lighterage and the consequence therein implied of lower freight rates to points within the New Jersey part of the port area.

The State Court of Errors and Appeals (court of last resort) held, in a decision of October 19, that the Hudson County "ripper" bill of 1930, replacing the county park and boulevard commissions with a board of State appointees, was unconstitutional. The working of the decision was to restore county control of boulevards and parks. The Delaware River Bridge at Camden was taken over on July 1 by a Delaware River Joint Commission of the States of New Jersey and Pennsylvania. The bridge was refinanced by the Commission and the proceeds of the new financing were used to reimburse the States for the cost of the bridge. Another bridge over the Delaware River, that between Burlington and Bristol, built by private capital at a cost of

\$2,000,000, was opened for highway traffic on May 2.

Newark and a large number of other municipalities in the same part of the State negotiated with a view to uniting in carrying on the Chimney Rock water development and connecting it with a reservoir to be built north of Bound Brook. A protracted strike in the silk mills of Paterson occurred in the latter part of the year. The township of North Bergen became involved in financial difficulties in June and invoked the help of the newly created State Receivership Commission.

**ELECTIONS.** Ex-Governor A. Harry Moore, Democrat, was elected Governor on November 3, defeating David Baird, Jr., by 735,713 votes to 503,387 according to unofficial count. The plurality was the largest ever given in the State for Governor and the total vote was the largest ever given for Governor save in the Presidential year 1928. The landslide was widely attributed to discontent with the Republican national administration.

The lower Legislative house passed into Democratic control by an accession of 20 seats, previously Republican, out of the Assembly's total of 60. The counties generally, with one or two exceptions rejected by referendum an option given them by enactment to transfer municipal charity work to county boards.

At a special election on December 1, in the Fifth Congress District, Percy H. Stewart, Democrat, was elected Representative, to fill the vacant seat of Representative Ackerman, deceased. The district had formerly been strongly Republican.

**OFFICERS.** Governor, Morgan F. Larson; Secretary of State, Thomas A. Mathis; Treasurer, Albert C. Middleton; Comptroller, John McCutcheon; Attorney-General, William A. Stevens; Commissioner of Education, Charles H. Elliott.

**JUDICIARY.** Chancellor, Edwin Robert Walker; Supreme Court, William S. Gummere (Chief Justice), Thomas W. Trenchard, Charles W. Parker, Luther A. Campbell, Frank T. Lloyd, Clarence E. Case, Joseph L. Bodine, Peter F. Daly, Ralph W. E. Donges.

**NEW JERUSALEM.** CHURCH OF THE. An organization which is also known as the New Church, and popularly called Swedenborgian because based upon the statement of Christianity set forth in the writings of Emanuel Swedenborg, Swedish scientist, philosopher, theologian, and seer (1688-1772). The two bodies that now compose it in the United States are the General Church of the New Jerusalem and the General Convention of the New Jerusalem, while in Great Britain the General Conference of the New Church corresponds to the General Convention in the United States.

THE GENERAL CHURCH OF THE NEW JERUSALEM. This body was organized in 1897 under episcopal government with headquarters in Bryn Athyn, Pa., where the church maintains: A cathedral church of unusual architectural interest; the Academy of the New Church, with departments from kindergarten to junior college; and theological and normal schools, with an enrollment of 308 in 1931. It had an adult membership in 1931 of 2045 with 3 bishops, 39 pastors, 3 ministers, and 24 societies, 15 of which were in the United States and Canada. Among the periodicals published by the General Church are *New Church Life*, its official monthly magazine, *New Church Sermons*, and *The Journal of Education*.

THE GENERAL CONVENTION OF THE NEW JERUSALEM IN THE UNITED STATES OF AMERICA. In 1931, the General Convention consisted of about 6000 communicant members. Educational institutions of General Convention included a theological school in Cambridge, Mass., a junior college in Urbana, Ohio, and the Waltham School for Girls, Waltham, Mass. Periodicals included the *New-Church Messenger*, weekly, Brooklyn, N. Y.; the *New-Church Review*, quarterly, Boston, Mass.; the *Swedenborg Student*, monthly, New York City; the *New-Church League Journal*, monthly, Boston, Mass.; *The Helper*, weekly, Philadelphia, Pa.; and *Sunday Afternoons*, weekly, Boston, Mass. In 1931 the Convention held its 110th annual meeting at its church in Cincinnati, Ohio, May 12-19. Officers elected were: President, the Rev. Paul Sperry, Washington, D. C., vice president, Ezra Hyde Alden, Philadelphia, Pa.; treasurer, Albert P. Carter, Boston, Mass.; and secretaries, B. W. Whittemore, Boston, and J. Woodruff Saul, Chicago.

**NEW LONDON, CONNECTICUT, ANNIVERSARY OF BURNING OF.** See CELEBRATIONS.

**NEW MEXICO. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 423,417, in 1920 it was 360,350. The native whites numbered 323,958 (1930), 305,596 (1920). The foreign-born (Mexicans excluded) numbered 7797 in 1930; in 1920, (Mexicans included) 29,077. Mexicans numbered 59,340 in 1930. There were also, in 1930, 2850 Negroes and 28,941 Indians. The urban population, living in communities of at least 2500, increased sharply in the decade, to 106,816, from 64,960, but remained inferior in number to the rural population, 316,501 (1930), 295,390 (1920). Of 142,866 persons reported as in gainful occupations in 1930, 58,971 were in agriculture, 15,948 in manufacturing and mechanical industries, 15,759 in transportation, 13,494 in trade, 11,620 in domestic and personal service and 9916 in professional service. Albuquerque had 26,570 inhabitants (1930), 15,157 (1920); Santa Fe, the capital, 11,173 (1930), 7236 (1920).

**AGRICULTURE.** The following table shows the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton .....	1931	114,000	98,000*	.....
	1930	127,000	99,000*	.....
Hay, tame ...	1931	162,000	336,000*	\$3,696,000
	1930	150,000	321,000*	4,173,000
Dry beans ...	1931	161,000	725,000*	1,522,000
	1930	169,000	456,000*	1,140,000
Corn .....	1931	283,000	5,660,000	2,434,000
	1930	257,000	3,598,000	2,770,000
Wheat .....	1931	264,000	5,112,000	2,325,000
	1930	211,000	1,904,000	1,163,000
Grain sorghums	1931	856,000	7,832,000	1,880,000
	1930	297,000	2,435,000	1,096,000

\* Bales.    † Tons.    ° 100-lb. bags.

**MINERAL PRODUCTION.** The State's production of copper, as reported by the U. S. Bureau of Mines, was 74,187,966 lbs. for 1930, as against 100,165,206 for 1929. That of zinc was approximately 68,277,000 lbs. for 1930 and 68,910,000 for 1929; that of lead 20,867,000 lbs. for 1930 and 22,260,811 for 1929. These quantities, plus some gold and a smaller value in silver, the two attaining about \$1,000,000, came in all to \$13,772,418 for 1930, as against \$24,473,675 for 1929, as the value of the production of all five metals. Next in order of importance, the coal

mines produced, in 1930, 1,924,000 short tons of coal, as against 2,622,769 in 1929, when the year's product had a value of \$8,314,000. While these chief products decreased, the yield of petroleum increased conspicuously to 10,172,000 barrels for 1930, from 1,830,000 for 1929, or more than five-fold, by quantity; by value, to \$9,300,000 for 1930 (estimated), from \$2,170,000 for 1929. Thus petroleum in 1930 rivaled copper as the most valuable of the mineral products. The total value of the State's mineral production was \$37,127,621 for 1929; for 1928, \$30,426,840.

The output of minerals from New Mexico ores and gravels in 1931 in terms of recovered and estimated recoverable metal was estimated at 32,228 ounces of gold, 1,042,000 ounces of silver, 20,822,000 pounds of lead, 63,192,000 pounds of copper, and 56,363,000 pounds of zinc, according to the U. S. Bureau of Mines. The gross value of the New Mexico metal production at average yearly prices of \$20.67 per ounce of gold, \$0.29 per ounce of silver, \$0.038 per pound of lead, \$0.083 per pound of copper, and \$0.038 per pound of zinc in 1931 was gold \$666,212, silver \$302,180, lead \$791,236, copper \$5,244,936, and zinc \$2,141,794, with a total of \$9,146,358, as compared with \$13,748,217 in 1930.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments at 251 (25 per cent more than for 1927). These establishments employed 4490 wage earners (somewhat fewer than for 1927), to whom were paid wages of \$5,639,557 (about 4 per cent more than for 1927). There were used in the process of manufacture materials, fuel and purchased electricity to a total of \$10,484,960 (4 per cent more than for 1927). The manufactured product was valued at \$21,760,361 (an excess of 7.8 per cent over the corresponding total for 1927). The value added by the process of manufacture was reckoned at \$11,275,401.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 2972.81. Additions of line under operation during the previous year had totaled 105.97 miles, while 7.8 miles had been abandoned. In 1931 were built 47.82 miles of new first track.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$6,800,558 (of which \$1,453,425 was for local education); for interest on debt, \$355,935; for permanent improvements, \$5,028,715; total, \$12,185,208 (of which \$6,446,977 was for highways, \$1,836,578 being for maintenance and \$4,610,399 for construction). Revenues were \$8,797,360. Of these, property and special taxes formed 29.5 per cent; departmental earnings and remuneration to the State for officers' services, 10.4; sale of licenses, 39.9 (including gasoline sale taxes amounting to \$2,550,907). The State's funded debt outstanding on June 30, 1930, was \$9,592,000. Of this amount, \$8,333,000 had been contracted for highways. Net of sinking-fund assets, debt was \$9,064,661. On a property valuation of \$344,671,212 were levied in the year taxes of \$2,087,663.

**EDUCATION.** For the school year ended in 1930, the number of persons of school age in the State was reported as 141,091. There were enrolled in the public schools, in that year, 102,084 pupils. Of these, 89,497 were in common schools or elementary grades, and 12,587 were in high

schools. The year's expenditures for public-school education totaled \$7,128,722. Salaries of teachers, by the year, averaged \$1102. In accordance with a permissive law passed by the Legislature, four counties, according to State Superintendent Lusk, in the *Journal of the National Education Association*, made budgetary provision in 1931 for rural-school supervisors. A training school was established at San Jose for teachers to instruct classes of Spanish-speaking pupils.

**LEGISLATION.** A regular session of the Legislature was held. It granted to certain towns and cities, but not to all in the State, the permission to assess and collect a local license tax of 1 per cent upon gasoline and oil sold within municipal limits. Similarly with that of Arizona, the Legislature passed an act for the State control of narcotics, but Governor Seligman vetoed the measure, holding the Federal narcotic act and the existing State act dealing with marijuana to be sufficient. The authority of the Motorbus Department of the State Corporation Commission was extended over carriers not operating over fixed routes, and over contract carriers.

**POLITICAL AND OTHER EVENTS.** Sympathy for Albert B. Fall, long an esteemed citizen of the State, who had held several of its chief offices, was widespread when he was sentenced to prison for his part in the Doheny oil deal. Senators Cutting and Bratton and Governor Seligman joined in urging a popular petition for his pardon.

**OFFICERS.** Governor, Arthur Seligman; Lieutenant-Governor, Andrew Hockenhull; Secretary of State, Mrs. Marguerite P. Baca; State Auditor, Arsenio Velarde; Treasurer, Warren R. Graham; Attorney-General, Ernest K. Neumann; Superintendent of Public Instruction, Mrs. Georgia L. Lusk.

**JUDICIARY.** Supreme Court: Chief Justice, Howard L. Bickley; Associate Justices, John C. Watson, Frank W. Parker, A. H. Hudspeth, Daniel K. Sadler.

**NEW SOUTH WALES.** One of the six original States of the Commonwealth of Australia, located in the southeastern part of the continent. Area, exclusive of the Federal Territory (q.v.), 309,432 square miles; population, excluding aborigines, according to the census of 1921, 2,100,371; estimated Jan. 1, 1931, 2,500,480. Sydney, the capital, had a population in 1921, of 905,047, including suburbs and shipping; estimated Jan. 1, 1931, at 1,253,560. Other towns with their populations in 1930 were: Newcastle and suburbs, 104,640; Broken Hill, 23,260; Auburn, 18,530. The movement of population in 1930 was: Births, 52,128; deaths, 21,235; marriages, 17,383. Although births exceeded deaths by 30,893, there was a net emigration of 7992, compared with a net immigration of 4216 in 1929. The total estimated increase of population was accordingly 22,901 for 1930, compared with 52,485 in 1927.

**PRODUCTION, ETC.** Wheat is the principal crop, the production in 1930-31 being estimated at 68,181,000 bushels from 5,121,400 acres, compared with 34,407,000 bushels from 3,974,064 acres in 1929-30. Other cereals, oranges and other citrus fruits, potatoes, tobacco, sugar cane, bananas, grapes, and apples are raised. Wool production from 49,870,000 sheep in 1930 was 461,852,890 lbs. (484,753,597 lbs. in 1929). Other livestock (1929) included 2,686,132 cattle, 534,945 horses, and 323,499 swine. Mineral production in 1930 was valued at \$8,437,465 (£10,155,164 in 1929). Industrial establishments in

1929-30 numbered 8208, with 162,939 employees, and the total value of output was \$167,250,618, (£86,847,610 representing the value added in process of manufacture).

The value of New South Wales direct overseas imports and exports in 1929-30 and 1930-31 is shown in the article on AUSTRALIA under *Commerce*. For the 1931-32 budget, see AUSTRALIA under *Finance*. For the year ended June 30, 1930, revenue amounted to \$46,904,889 (£50,447,100 in 1928-29) and expenditures to \$52,167,117 (£50,470,660 in 1928-29). The net State loan expenditure in 1929-30 totaled \$10,878,627 and the net State debt on June 30, 1930, was \$270,485,109, on which the annual interest payments aggregated \$13,586,794.

Executive power is vested in a governor assisted by a responsible cabinet, and legislative power in a bicameral legislature, consisting of a legislative council and a legislative assembly. The legislative council, which must not consist of less than 21 members, is appointed for life by the Crown, and consisted of 92 members in 1930. There are 90 members in the Legislative Assembly. Governor in 1931, Sir Philip Game. The Cabinet formed following the Labor party's victory in the State election of Oct. 25, 1930, was headed by J. T. Lang.

**HISTORY.** Developments in New South Wales during 1931 were intimately related to the political history of the Commonwealth as a whole and for the most part are discussed under AUSTRALIA. Within the State, interest centred largely on the bitter controversy between Premier Lang and the Legislative Council, which consistently blocked his efforts to enact radical economic and political legislation. As a result of long negotiation between the Governor and Premier Lang, the former in November, 1931, consented to the appointment of 25 additional members to the Legislative Council. The practical effect was to give the Lang government a majority in the Upper House. The question of the constitutionality of a bill abolishing the Legislative Council was pending on appeal before the Judicial Committee of the Privy Council in Great Britain. The bill was passed by both chambers of the State Legislature, but was declared unconstitutional by the Supreme Court of New South Wales and by the High Court of the Australian Commonwealth.

The Government Savings Bank of New South Wales, which closed on April 23, was reopened September 7 under a bill passed by the Legislative Assembly on August 25 and by the Legislative Council on August 26. The State government guaranteed the repayment of deposits under an act passed in 1906. The savings-bank bill of 1931 provided for a moratorium on the payment of old deposits until Dec. 31, 1933, and for the repayment of the \$7,122,565 owed the bank by the State government over a period of 40 years in equal half-yearly payments beginning July 1, 1934, with interest at 4 per cent. The great bridge 3770 feet in length, spanning Sydney harbor was completed early in 1931.

**NEW YORK. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 12,588,066; in 1920 it was 10,385,227. The native whites numbered 8,958,744 (1930), 7,385,915 (1920). Substantially half of them were of native parentage. The foreign-born whites numbered 3,191,549 (1930), 2,786,112 (1920). The number of Negroes rose to 412,814

(1930), from 198,483 (1920), and their percentage of the whole population rose to 3.3, from 1.9. Other groups in the population of 1930 were: Chinese, 9665; Indians, 6973; Japanese, 2930; Mexicans, 2898; Filipinos, 1982.

Of 5,523,085 persons listed as in gainful occupations, 1,982,564 (to include 406,382 in the building industry) were in the mechanical and manufacturing industries; in trade, 1,147,304; in transportation, 582,480; in professional service, 478,118; in domestic or personal service, 689,548; in agriculture, 267,979. New York City had 6,930,446 inhabitants (1930), 5,620,048 (1920); Buffalo, 573,076 (1930), 506,775 (1920); Rochester, 328,132 (1930), 295,750 (1920); Syracuse, 209,326 (1930), 171,717 (1920); Albany, the capital, 127,412 (1930), 113,344 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ..	1931	3,990,000	5,288,000*	\$46,534,000
	1930	3,955,000	4,542,000*	65,405,000
Potatoes ...	1931	202,000	28,684,000	11,474,000
	1930	198,000	23,364,000	21,028,000
Corn .....	1931	566,000	22,074,000	18,244,000
	1930	555,000	16,050,000	14,985,000
Oats .....	1931	863,000	24,596,000	8,117,000
	1930	872,000	34,880,000	15,347,000
Apples .....	1931	.....	19,100,000	12,415,000
	1930	.....	24,200,000	19,860,000
Wheat .....	1931	211,000	5,311,000	3,050,000
	1930	224,000	4,086,000	3,245,000
Barley .....	1931	173,000	4,325,000	1,946,000
	1930	168,000	5,208,000	3,229,000
Buckwheat ..	1931	158,000	2,844,000	1,166,000
	1930	186,000	2,883,000	2,306,000
Dry beans ..	1931	120,000	1,296,000*	8,838,000
	1930	124,000	692,000*	3,841,000

\* Tons. \* 100-lb. bags.

**MINERAL PRODUCTION.** Almost half of the mineral industry of the State normally consists of the treatment of minerals wholly or chiefly imported from outside its borders. Thus blast furnaces shipped, in 1930, 1,638,323 long tons of pig iron and, in 1929, 2,626,771; by value, \$29,160,894 for 1930 and \$46,960,186 for 1929. Largely in connection with this industry there were produced, in 1930, 3,849,563 short tons of coke, and in 1929, 4,299,470 tons; by value, \$24,657,090 for 1930 and \$25,305,915 for 1929. The production of ferro-alloys attained for 1929 the quantity of 214,826 long tons and the value of \$19,729,001.

Among the native products, the first place was held by clay products, which attained the total value of \$17,661,711 for 1929; for 1928, of \$22,474,405. Stone was quarried to the quantity of 11,693,640 short tons (1929), 10,743,470 tons (1928); and to the value of \$15,895,914 (1929), \$15,785,511 (1928). Cement mills' shipments totaled 10,256,086 barrels (1930), 10,742,992 (1929); by value \$15,380,703 (1930), \$15,597,868 (1929). The yield of petroleum increased to 3,802,000 barrels (1930) from 3,377,000 (1929); by value it was \$10,300,000 (1930, estimated), \$13,170,000 (1929). The gypsum produced attained 1,284,338 short tons, in value \$8,339,852, for 1929. The yield of salt was 2,009,280 short tons (1930), 2,194,590 (1929); in value, \$5,837,103 (1930), \$6,470,051 (1929). An increasing natural-gas production amounted to 8,387,000 M cubic feet, or \$5,538,000, for 1929. Mines in the State furnished 755,074 long tons of iron ore (1930), 875,564 (1929); in value, \$3,063,155 (1930), \$3,941,985 (1929). The total value of the State's production, of native minerals alone, was

\$109,361,349 for 1929; for 1928, \$108,025,720.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 39,300 (a reduction of less than 1 per cent below the number for 1927). These establishments employed 1,106,976 wage earners (3.2 per cent more than the number employed in 1927). Wages paid these earners totaled \$1,051,133,696 (3 per cent more than had been paid out in 1927 for such wages). There were used in the process of manufacture materials, fuel and purchased electricity to the value of \$5,018,231,694 (which exceeded the cost under this head for 1927 by about 2 per cent). The manufactured product was valued at \$9,979,958,958 (this being 0.2 per cent higher than the value of the manufactures of 1927). Value added by manufacture was \$4,961,727,264. New York City accounted as usual for the greater part of the State's manufacturing activity. Its 20,434 establishments employed 505,080 wage earners, whose wages totaled \$914,055,108, while its manufactured product was valued at \$5,987,817,097; Buffalo had 1398 establishments, 68,914 wage earners therein employed, a wage total of \$100,031,775, and a product of \$720,903,181; Rochester, 931 establishments, 58,359 wage earners, \$82,377,902 in wage payments, and \$380,102,233 of product; Syracuse, 441 establishments, 26,413 wage earners, \$39,070,091 in wage payments, and \$181,193,115 of product.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 8311.72. Additional line put under operation during the year preceding, 5.21 miles, had been exceeded by line abandoned, which totaled 24.27 miles. In 1931 the only reported additional construction was 3.3 miles of track, of which 1.6 miles were first track and 1 mile was second track.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$202,677,673 (of which \$88,023,308 was for local education); for interest on debt, \$15,528,309; for permanent improvements, \$73,609,838; total, \$291,875,820 (of which \$66,476,013 was for highways, \$31,110,385 being for maintenance and \$35,365,628 for construction). Revenues were \$296,508,837. Funded debt outstanding on June 30, 1930, totaled \$385,658,370, of which \$258,026,000 was for highways and a canal system. Net of sinking-fund assets, it was \$276,826,739. On an assessed valuation of \$27,034,695,261 the State collected in the year ad valorem taxes of \$2,279,907.

**EDUCATION.** For the academic year 1929-30, the number of persons of school age in the State was reported as 3,867,404. The number of those enrolled in the public schools was 2,141,479. Of this number, 1,716,645 were graded as elementary pupils and 424,834 as high-school pupils. The year's expenditures for public-school education totaled \$391,417,287. This sum was composed chiefly of \$259,483,424 for current expenses and \$78,441,054 for capital outlay. About \$53,000,000, or all but a slight part of the remainder, represented debt charges and redemption. The salaries of teachers, by the year, averaged \$2389.55. A study of the proposed revision of the curriculum of the secondary schools of the State was in progress during the course of the year.



**CHARITIES AND CORRECTIONS.** For the State agency having the central authority over a great part of the State's institutional work, the name "Department of Social Welfare," bestowed by a resolution of 1929, was ratified by popular vote in 1931 through an amendment of the State constitution, replacing the name "Department of Charities." A State Board of Social Welfare, composed of 12 appointees of the Governor, serving eight years at per-diem compensation, was the head of the department, which, however, had an executive chief, the Commissioner of Social Welfare, appointed by the board. The department controlled and administered the following institutions: New York State Training School for Girls, Hudson; State Agricultural and Industrial School (delinquent boys), Industry; the Thomas Indian School, Iroquois; State Women's Relief Corps Home (soldiers' and sailors' mothers, wives, widows, and daughters), Oxford; State Training School for Boys, under construction at Warwick. The board also supervised 1054 charitable, correctional, and reformatory institutions and agencies supported wholly or partly from taxation; supervised children placed out or boarded out; supervised local boards of child welfare; supervised State relief to the aged under the act of 1930, which went to 44,828 recipients (October, 1931); directed Indian affairs; and performed many other duties.

**LEGISLATION.** The regular annual session of the Legislature sat until April 10. It dealt with the issue of State hydro-electric construction on the St. Lawrence River and other public projects; with Congressional reapportionment; with measures to reduce the hardships of adverse times; with Prohibition; and with the demand for the investigation of the officials of New York City. It provided for a State budgetary expenditure of \$347,000,000 for the ensuing fiscal year, but made only minor change in the system of taxation.

The passage of the Cornaire water-power act was hailed as concluding the effort of some 20 years to create a State system for the development of electricity from water-power sites in the St. Lawrence River, along the northern border. The policy of developing this resource by the direct enterprise of the State had long been opposed by a strong Republican contingent, led by Senator Knight, favoring private development. Governor Roosevelt, leading the partisans of State development, gained strong Republican support in certain parts of the State, in addition to that of his own party, and was thus able to put through a measure embodying most of the recommendations of the commission that had been appointed to study the plan the year before.

The Cornaire act created a body of five trustees, to be appointed by the Governor, for the purpose of carrying on the hydro-electric project. This Power Authority, somewhat analogous in character to the Port of New York Authority, was to carry on the construction of dams and plants at the power sites, when and if the necessary international arrangements were made; bonds were to be issued to meet the costs of construction; they were to rest on the credit of the Power Authority, and before issuing them this body was to make such contracts, if possible, with private electric distributors for the sale of the resulting current as would assure the service of the debt to be incurred; the trustees were to have large powers in the negotiating of such contracts, in order to as-

sure favorable rates to the public. Both the Power Authority's bonds and its property were to be exempt from State taxation.

Other provisions made for public projects by the Legislature were: Permission to the Port of New York Authority to construct a midtown vehicular tunnel under the Hudson River at Thirty-fourth St.; creation of a commission to consider the plan of creating a State Bridge Authority; extension of the limits of the Adirondack State Park to include an additional 1,550,000 acres about its existing circumference, but in which the State owned actually only about 349,000 acres; second and concluding passage of the proposal for a State constitutional amendment to allow a bond issue of \$20,000,000 for reforestation work, the amendment to be submitted to popular vote for ratification.

The State was redistricted into 45 districts for the election of the 45 Representatives assigned to it, in place of the existing 43, in the new Federal reapportionment. The two additional districts were formed out of territory entirely outside of New York City. This was done by the Republican majority in both houses, with the aid of the Democratic delegation from the county of Queens. It was strongly opposed by the other Democrats in the Legislature and by the Governor. In order to circumvent the certainty of his veto the redistricting measure was in the form of a concurrent resolution of the two houses, not requiring to be sent to the Governor. The opposition impugned the constitutionality of this means of allotting Federal representation. See COURT DECISIONS AND LITIGATION, below.

The Legislature voted and Governor Roosevelt signed a measure to petition Congress to call a National constitutional convention to consider the repeal of the Eighteenth Amendment. By enactment was created a division of the Department of Education, charged with dispensing medicinal liquor to physicians, under regulations to be fixed by that department. A bill looking to the general State sale of alcoholic beverages was defeated by a close vote in the Senate, after passing the Assembly. While the Legislature cut some of the chief features from the Administration's health bill, it voted \$750,000 for the establishment of three State hospitals for tuberculosis. The maximum weekly hours of women and minors employed in mercantile establishments was made 48 hours, and they were required to have a weekly half-holiday. The State tax on savings banks was reduced to six-tenths of 1 per cent on surplus, from 1 per cent.

The speed of 40 miles an hour on public roads was made lawful. Actors, stage hands, and musicians were exempted from prosecution as participants in obscene plays, and authors and producers were made solely answerable. Life interest that had been retained by a decedent in property that he had transferred was rendered subject to State tax on decedents' estates. A recodification of the law on towns was vetoed as amending the law insufficiently. A bill to authorize insurance companies to write insurance of employment was vetoed also. Extensive amendment of the banking laws, sponsored by the Superintendent of Banks as a sequel of suspensions of State banking institutions in 1930, was laid over for a year, bankers' organizations having requested the postponement.

With regard to New York City, the chief legislative action was the voting of a concurrent resolution for a legislative investigation of the city's



administration. It was provided by resolution, for the purposes of this inquiry, that the investigating committee should have power to exempt witnesses from the consequences of self-incrimination in their testimony; the intention was that persons examined should thus be deprived of the opportunity to plead self-incrimination when they sought to avoid giving information of their own or their associates' prosecutable acts.

Two acts were passed to enable the city to bring into its own possession and to unify its privately conducted transit lines. The two provided alternative ways of proceeding. One of the measures permitted the city to set up a Board of Control, which might issue securities of its own and in exchange for these acquire the securities of transit companies. The other measure permitted the existing Transit Commission to effect unification and to lease the unified system to an operating company. The charter of New York City was amended to permit the city to issue \$10,000,000 in certificates of indebtedness so as to obtain means for the relief of unemployment.

The application of the Dwellings Law, previously postponed, was deferred for four years more, with regard to multiple dwellings for which plans had been filed before the passage of the law. With the approval of both parties was enacted a measure to provide 12 more justices for the Supreme Court, Second (Long Island) Judicial District. Seven distinct sinking funds of New York City were combined into one, in order that their combined resources might be applied to lower the net city debt and the tax rate as affected by sinking fund needs. The power was granted for one year to corporations, public utilities excepted, to contribute to relief funds.

*Special Session.* A special session was convened on August 25 for the purpose of investing the Hofstadter legislative committee with power that the Courts held it lacked, to grant immunity to witnesses and so to compel their testimony. The necessary measure was passed. Measures were also enacted, according to Governor Roosevelt's recommendations, to appropriate \$20,000,000 for relief of the destitute, to raise the money by an increase of 50 per cent in the State's personal income tax, and to create a special commission of three appointees of the Governor to administer the fund.

**POLITICAL AND OTHER EVENTS.** The year's receipts from the State income tax, one of its principal sources of revenue, fell to less than one-half of the corresponding receipts of the year before, and the previously very productive transfer tax, derived largely from transfers of stock shares, also slumped heavily. Losses of income were partly made up by surplus carried from the year previous and were partly corrected by vetoes of appropriations. In the late summer, however, it became necessary to make State provision for the relief of widespread want among the unemployed. The \$20,000,000 appropriated for this purpose was raised by short-term notes and was to be covered by receipts in 1932 from a special increase in the rate of personal income taxes. A contingent liability of \$25,000,000 against the State or its subdivisions was created by a decision of the U. S. Circuit Court of Appeals invalidating a tax imposed in the years 1923-26 at the rate of 1 per cent on capital, upon national banks.

Governor Roosevelt was successful in imposing on the Legislature, despite its Republican majorities in both houses, legislation along the lines of

his plans for electric development on the St. Lawrence and for the administration of special relief of the unemployed through a committee of his own appointment. He took in August the initiative of writing a letter to President Hoover on the subject of Federal negotiations with Canada on the development of a St. Lawrence waterway, as a means to preventing action that might leave the plans of New York out of consideration.

*New York City Transit.* No conclusive action was taken during the year with regard to the proposal of New York City to unify its three subway and allied transit systems under public ownership. The situation with regard to the private companies and particularly the Interborough was clarified by the termination of the Interborough's efforts to establish in the State courts a right to charge a fare in excess of five cents. A decision rendered in the Appellate Division on April 10 affirmed previous decisions of the Supreme Court (not in New York State the court of last resort) and of the Transit Commission that the 5-cent fare as fixed by contract was binding upon the company. The Court of Appeals, the State's highest court, decided unanimously on July 15 to the same effect. There remained to the company only the possibility of carrying its case back to the Federal courts, whence it had previously been referred to State tribunals. The effect of the decisions was to render the transit companies more amenable to proposals for public acquisition. The city authorities, however, facing the prospect of more favorable terms later on and likewise the impediments to large financing in a period of economic depression, refrained until December from active negotiations. On December 20, the Transit Commission issued a plan for the acquisition of transit facilities by a Board of Transit Control; but the plan was widely opposed as rendering the City liable in case the bonds of this body should fail to pay interest.

*Litigation with New Jersey.* A suit brought by the State of New Jersey in the Federal Supreme Court to prevent the diversion of water from the East Branch of the Delaware River for augmenting the water supply of New York City was decided mainly in favor of New York. The court ruled, however, that New York's diversion of water must be limited to 440,000,000 gallons a day. See NEW JERSEY; *Political and Other Events.*

New Jersey won in the United States Supreme Court a suit for a decree to stop the City of New York's practice of dumping garbage from scows into the Atlantic Ocean beyond the territorial waters. The court rejected the defense that the acts at issue had been performed outside its jurisdiction and forbade the practice, granting New York City, however, a respite in order that it might build plants for the disposal of the refuse. (See NEW JERSEY under *Political and Other Events.*) In the proceeding of New Jersey before the Interstate Commerce Commission hearings were held before examiners to consider the contentions of New York State and City and of New Jersey as to the practice of the railroads serving the port of New York to grant free lighterage to points on the port waterfront. New Jersey contended for the abolition of free lighterage on the ground that its communities along the waterfront were entitled to lower railroad rates, since they could be served by certain of the chief railroads without lighterage. Hearings were terminated, and the case awaited the submission of counsel's

briefs late in the year. See also *MASSACHUSETTS* under *Political and Other Events*.

**Water Pollution.** The Legislature having created a State commission on river and harbor pollution to act jointly with similar commissions created by the States of New Jersey and Connecticut, the three bodies met and organized as the Tri-State Anti-Pollution Commission. They promoted a programme by which the communities bordering on the waters of and adjacent to New York Harbor were to give up discharging sewage into the tidal waters and to make arrangements for its disposal by other means.

**City Investigations and Reforms.** The year was marked by an outburst of reformatory activity against the public officials and the Tammany organization of New York City. An inquiry into the conduct of the City Magistrates and their courts, which had been instituted by the Appellate Division and begun in the year previous, was continued under the direction of Samuel Seabury. It disclosed irregularities in the official behavior of magistrates, and led to the resignation of several. Information as to alleged abuses of magistrates in the arrangement of bail, in the examination of defendants, and similar matters was obtained. Policemen of the vice squad, according to testimony, had engaged in the practice of extorting money from women by raiding their premises and arresting them on charges of prostitution; a number of the accused policemen were discharged from the force and prosecuted.

Alleged laxity in prosecution on the part of District Attorney T. C. T. Crain, who had been elected in New York County on the Tammany ticket, led the City Club to formulate charges against him and to address to Governor Roosevelt a demand for an investigation. The Governor appointed Samuel Seabury a commissioner to investigate the charges. Seabury submitted in September a report criticizing Crain's record on the ground of inefficiency but finding against him no sufficient statutory cause for removal.

The investigation of the affairs of the city provided by the Legislature was undertaken by a legislative committee having as its head S. H. Hofstadter, a Republican State Senator from Manhattan. Samuel Seabury, already engaged in other investigations, was made counsel to the committee. He directed the inquiry into a great number of municipal activities, among which were the proceedings of the Board of Standards and Appeals, the authority for settling questions as to the application of the zoning law. Dr. William F. Doyle, a former veterinarian who had become a leading pleader before this board and who had admitted dividing large fees received in this practice, was called before the committee in the intention to learn whether any portion of his fees had gone to persons of predominating political influence. He refused to tell with whom he had split his fees, on the ground that it might incriminate him. The committee extended to him the immunity from self-incrimination that the Legislature, anticipating refusals of testimony on this ground, had empowered the committee to grant. Doyle still declined to give the information and was committed to jail for contempt. His was made a test case of the validity of refusals on the part of witnesses friendly to the city government to give testimony likely to prove damaging. His appeal from commitment for contempt was rapidly carried up to the Court of Appeals. This court affirmed the validity of his imprisonment for contempt, in a

decision of August 10, on the ground that he had refused to answer a question that might have revealed him as engaging in bribery; but it declared invalid the claim that Doyle could further rightfully be committed for refusal to answer a question that would have involved only the conspiracy to bribe. To grant amnesty in the latter case, the court held, a resolution of the Legislature was insufficient, and an act signed by the Governor would be required. In compliance with this decision the necessary act was passed by a special session of the Legislature called by Governor Roosevelt.

A body known as the City Affairs Committee preferred to Governor Roosevelt in March a set of charges against officials of the city government and demanded that he remove Mayor Walker. The Mayor responded with a detailed denial of the charges on April 20, and the Governor dismissed the charges, finding them lacking in supporting facts. The city administration itself made a defensive move by proceeding to the investigation of a number of officials and the removal of discredited members of the police force.

**Public Relief.** The support of destitute persons was a considerable burden on the city not only through the winter of 1930-31 but throughout the summer that followed. The expense of providing work and assistance to this class was met by the issue of city indebtedness, as provided by an act of the Legislature. A similar act provided for the granting of further relief during the winter of 1931-32. Through its Emergency Work Bureau, the City of New York thus expended some \$8,500,000 up to the middle of 1931, in addition to the expenditure of private funds through the Prosser Committee, which had been organized in the previous autumn to help the destitute through the winter.

For the winter of 1931-32 great funds for the relief of the destitute were provided. The chief of these was the Emergency Unemployment Relief Committee's fund, styled the Gibson Fund as the chairman of the committee was Harvey D. Gibson. By voluntary private contributions this fund was brought above \$18,000,000 in December. The city government appropriated \$15,000,000 for a "work-relief programme," to be available in 1932; also \$5,000,000 for a "home-relief programme." The city's share of the State's Temporary Emergency Relief Fund added \$3,250,000 to the total available. A fund raised by the Mayor brought another \$2,000,000 from city employees. The total of all these funds was about \$45,500,000; but the city government's \$20,000,000 share was merely appropriated, not disbursed into the hands of a distinct organization, and was therefore subject to the uncertainties attending municipal finances at the time.

**Building and Public Works.** Although private construction was hindered by economic depression it was by no means wholly checked in New York City. The city's tentative assessment roll issued on October 1 added to the assessed total of real estate the sum of \$437,482,588 on account of buildings constructed in the course of the year preceding. Work was started by the city on July 7, at Ward's Island on a \$30,000,000 plant for the disposal of sewage, to be the first unit of a set of such plants, designed to end the discharge of sewage into the harbor waters, in consonance with like efforts on the part of other harbor communities. (See *Water Pollution*, above.)

The city took title in July to the block bounded

by Vesey, Barclay, and Church streets, and West Broadway, under agreement to furnish to the Federal Government a site for a new post office, to replace the old edifice at Broadway and Park Row. The War Department approved in January a modification of the North River bulkhead line that would permit of the building of longer piers along part of the line, and the construction of four piers, each 1100 feet long, between Fifty-third and Fifty-ninth streets, was authorized by the Sinking Fund Commission, to provide Manhattan berths for great liners. Work was begun on April 30 on a \$16,000,000 structure, the first unit of a union freight terminal projected by the Port of New York Authority. The site of this unit was between Eighth and Ninth avenues and Fifteenth and Sixteenth streets, in Manhattan. The work of straightening the Hell Gate channel and deepening it to 36 feet was completed in April and passage thus supplied for large vessels between the East River and Long Island Sound. See ARCHITECTURE.

*Cessation of the New York World.* The heirs of Joseph Pulitzer, long proprietor of the *World* and the *Evening World*, obtained permission on February 26 to break the injunction in his will forbidding the sale of these newspapers. They immediately sold to the Scripps-Howard interests, owners of the *Telegram*, and the *World* newspapers ceased separate publication. Their distinctive name was preserved in the title *World-Telegram*.

*Bank of United States.* The suspension of the Bank of United States, which had taken place on December 11, 1930, had many consequences which were felt in 1931. An active campaign was waged against Superintendent of Banks Broderick for his alleged shortcoming in having failed to take earlier action to shut down the institution and conserve its resources for the depositors. Max D. Steuer, appointed special assistant district attorney for the purpose, conducted an investigation into the affairs of the bank and the conduct of its officials. He obtained indictments against several of the bank's officers. After a trial in the Court of General Sessions, lasting 12 weeks, Bernard K. Marcus, president; Saul Singer, executive vice president; and Herbert Singer, the latter's son, were found guilty of misappropriation of funds, and were sentenced to prison terms, which for the two elder men were to run from three to six years. The sentenced men took appeal.

Efforts to reorganize the failed bank were unavailing, and in September an initial dividend in liquidation, to some 400,000 depositors, at the rate of 30 per cent, was allowed by the court. As the law provided that stockholders in a failed State bank be assessed to the par value of their shares to make good its insolvency, and as many of the depositors had been induced to buy stock, great numbers had their dividends canceled or reduced by assessment. The suffering among depositors who had lost small savings was widespread and severe. Superintendent of Banks Broderick and 28 directors and others were indicted for neglect on October 9.

*Tyrone Natural Gas Field.* Important finds of natural gas were made in the Tyrone field, chiefly in Schuylcr County. This field was first tapped commercially on February 26, 1930, by a well giving a substantial flow at a depth of 2075 feet. Drilling in 1931 produced large flows in the neighborhood of Corning and Wayne. Large companies obtained leases of gas rights and started

the development of the natural gas discoveries on a systematic plan.

*Court Decisions and Litigation.* The State tax on estates was declared invalid, in a decision of Surrogate O'Brien, with regard to certain of the provisions of the law as it existed from Mar. 12, 1928, to Sept. 1, 1930, whereby the State had collected from collateral relatives of non-resident decedents in excess of the 2 per cent provided against the realty of such decedents. The decision rendered it possible that the State would have to make many refunds. Attorney General Bennett ruled that the redistricting of the State for Representatives by concurrent resolution of the Legislature was unconstitutional, and following this ruling the State officials refused to honor the mandate. Suit was accordingly brought to compel them and to test the constitutionality of the step. Justice Staley of the Supreme Court of Albany County ruled on November 7 that the resolution was invalid. Appeal was taken to the Appellate Division, Third District, which on December 30 sustained Staley.

*Emergency Relief Administration.* This body, created by the relief legislation of the special session, came into being at the end of September, when Governor Roosevelt appointed as its members Jesse I. Straus, Philip Wickser of Buffalo and John Sullivan of the State Federation of Labor. It held large independent powers over the expenditure of \$20,000,000 in State relief funds to be used in the ensuing winter.

*Interstate Bridges.* The Port of New York Authority completed and put into operation on October 24 the George Washington Bridge, a suspension bridge for vehicular and other traffic, spanning the Hudson River between 178th St., Manhattan, and Fort Lee, New Jersey. Another bridge built by the Port of New York Authority, a steel-arch structure described as the longest of its kind in the world, connecting Staten Island with Bayonne, N. J., was finished and opened on November 14. See BRIDGES.

*Niagara Power Controversy.* Governor Roosevelt put forward the claim of the State to be heard in connection with Federal negotiations with Canada on the subject of waterway and power development in the St. Lawrence River. His first communication on the subject not having been answered, he brought the matter to public attention. The Federal Administration then gave general assurance of intention to consider the claims of the State. Thereupon Governor Roosevelt charged Chairman Frank P. Walsh of the recently created State Power Authority to seek an understanding with the Federal Department of State. Secretary of State Stimson wrote Chairman Walsh on November 4 to the effect that negotiations with Canada would proceed without the granting of the prior conference sought by New York State.

*ELECTIONS.* In the elections for the Legislature the Republicans maintained undiminished their existing Assembly strength of 80 as against 70 Democrats. The possibility that the Democrats might gain power and stop the Hofstadter committee's inquiry into public affairs in New York City was thus removed. A popular vote was cast in the State on six proposed amendments to its constitution. The following were adopted: No. 1, to abolish the State census; No. 3, to permit the State to undertake its great project of reforestation; No. 5, to change the name of the Department of Charities to Department of Social Welfare.

Amendment No. 2, to allow members of the Legislature to take other office during their legislative terms, a privilege that had been abused and abolished a century before, was rejected; so also were No. 4, to create an additional judicial district, and No. 6, to permit a county system of property assessment in Westchester.

The 7th District (in New York City) elected J. J. Delaney, Democrat, to a vacancy in the Federal House of Representatives. Twelve new Supreme Court Justices for the Long Island District, created by statute, nominated by both major parties, but opposed on the ground that there had been a bipartisan judicial deal, were elected over No-Decal candidates by about 6 to 1. Democrats were elected mayors in some 16 cities up-State. Utica voted on November 3, by 12,500 to 10,915, in favor of a plan of municipal government by a limited council with a city manager.

**OFFICERS.** Governor, Franklin D. Roosevelt; Lieutenant-Governor, Herbert H. Lehman; Secretary of State, Edward J. Flynn; Comptroller, Morris S. Tremaine; Attorney-General, John J. Bennett, Jr.; Commissioner of Education, Frank P. Graves.

**JUDICIARY.** Court of Appeals: Chief Judge, Benjamin N. Cardozo; Associate Judges, Cuthbert W. Pound, Frederick E. Crane, Irving Lehman, Henry T. Kellogg, John F. O'Brien, Irving G. Hubbs.

**NEW YORK CITY.** See CRIME; UNEMPLOYMENT; NEW YORK under *Political and Other Events*.

**NEW YORK CITY REGIONAL PLAN.** See CITY AND REGIONAL PLANNING.

**NEW YORK UNIVERSITY.** A nonsectarian institution for the higher education of men and women in New York City, chartered in 1831. It comprises the following divisions: At University Heights, a college of arts and pure science, college of engineering, Guggenheim School of Aeronautics; at Washington Square, the graduate school, school of law, school of commerce, accounts, and finance, Washington Square college, school of education, school of retailing, university extension division, and the institute of education; at the Wall Street division, the graduate school of business administration and courses in the school of commerce, accounts, and finance. The Medical college is on East Twenty-sixth Street, the dental college on East Twenty-third Street, and the college of fine arts on East Forty-third Street.

The enrollment for the year 1930-31 in all divisions of the university, after deducting all duplications, was 40,665. The enrollment in the different degree-conferring units was as follows: University college of arts and pure science, 1094; school of law, 1467; University and Bellevue Hospital Medical College, 528; college of engineering, 877; graduate school, 881; school of education, including both graduate and under-graduate divisions, 7493; school of commerce, accounts, and finance, including the Wall Street division, 9146; Washington Square college, 6686; graduate school of business administration, 906; school of retailing, 884; college of fine arts, 1422; and college of dentistry, 448. In other divisions, the enrollment was as follows: Summer school, 4521; extension, 3572; institute of education, 2814; life-insurance training courses, 263; public health (correspondence) courses, 396; institute of fine arts, 356. The faculty of the university numbered 1814.

The productive funds for the year 1930-31

amounted to \$6,872,894, and the income was \$296,531. The total income of \$7,652,378 was derived as follows: Student fees, \$6,649,053; dormitory rents, \$20,701; gifts, \$303,116; other income, \$382,976; and income from endowments, \$296,531. The libraries contained 389,688 volumes. Chancellor, Elmer Ellsworth Brown, Ph.D., LL.D.

**NEW ZEALAND.** 28' land. A self-governing British dominion in the southern Pacific Ocean, about 1200 miles southeast of Australia; consisting mainly of two islands, North and South Islands. Capital, Wellington.

**AREA AND POPULATION.** New Zealand has an area of 103,415 square miles (104,015 square miles, including outlying and annexed islands). The population on Mar. 31, 1931, totaled 1,488,595, compared with 1,408,139 at the 1926 census. In 1926, there were 63,670 Maoris. Births for the years 1926 to 1930 inclusive averaged 27,420 annually and deaths 11,951. The average birth rate per 1000 inhabitants for the same period was 19.7 and the death rate 8.6. The population of the principal cities in 1926, with 1930 estimates in parentheses, was (excluding Maoris): Wellington, 98,661 (108,270); Auckland, 87,829 (102,800); Christchurch, 83,114 (88,390); Dunedin, 67,544 (67,270).

**EDUCATION.** In 1929, there were 254,449 pupils in primary schools, 29,941 in secondary schools, 11,187 in technical schools, and 4713 in the four universities at Dunedin, Christchurch, and Wellington (two).

**PRODUCTION.** Animal husbandry is the chief industry. In 1929, only 1,933,000 acres, or 3 per cent of the total area, was under cultivation, while there were 16,855,000 acres of permanent meadows and improved pastures, and about 13,000,000 acres of forests. Values of the leading crops for the 1929-30 crop year were: Wheat, \$11,127,000; oats, \$13,930,000; and hay, \$14,835,000. Barley, corn, potatoes, peas and beans, and flax are other products. Coal, gold, and silver are the principal minerals mined; coal production in 1930 was 2,542,000 tons. For the year ended Mar. 31, 1929, the factory output from 5136 establishments was valued at \$453,600,000, of which \$162,000,000 represented the value added in process of manufacture. Wages in all industries were reduced about 10 per cent in 1931 and in July of that year the registered unemployed numbered nearly 40,000.

**COMMERCE.** Exports in 1930 were valued at \$215,145,000, compared with \$263,648,000 in 1929, while imports were valued at \$209,386,000, compared with \$237,475,000 in 1929. The United Kingdom supplied 47.3 per cent of the total 1930 imports and took 80.2 per cent of the exports. The United States furnished 17.6 per cent of the imports and purchased 4.7 per cent of the exports, the respective values being \$36,847,000 and \$10,301,000. The value of the four leading export commodities in 1930 was: Butter, \$57,088,000; frozen meats, \$53,309,000; wool, \$37,299,000; cheese, \$31,333,000. In 1931 both imports and exports decreased more than 50 per cent from the 1930 levels.

**FINANCE.** For the fiscal year ended Mar. 31, 1931, budget estimates envisaged revenues of £25,210,000 and expenditures of £24,874,000. Closed accounts, however, showed a deficit of £1,639,000, due to a decline in revenue, and a deficit of £6,850,000 was forecast for 1931-32. In the 1931-32 budget, provision was made to

meet the deficit by £1,800,000 of additional taxation, by economics and salary reductions, and by the temporary use of Treasury reserves. For developments in 1931, see *History*. The public debt on Mar. 31, 1930, totaled £267,383,000 (\$1,301,219,000), of which £116,526,000 was internal and £150,857,000 external indebtedness.

**COMMUNICATIONS.** Railway lines in operation in 1930 totaled 3287 miles, all except 116 miles being state owned. Highways extended 48,433 miles, including 30,629 miles of macadam. A total of 599 vessels, of 2,297,000 net registered tons capacity, entered the ports in 1930 and 607, of 2,351,000 tons, cleared. About 34 per cent of the total imports and 25 per cent of the exports passed through Wellington.

**GOVERNMENT.** Executive power rests with a Governor-General appointed by the Crown on recommendation of the Dominion government, and legislative power in the Governor-General and a general assembly of two houses, namely, the Legislative Council of 41 members, appointed for seven years, and the House of Representatives of 80 members, elected for three years by direct suffrage. Governor-General in 1931, Lord Bledisloe (Charles Bathurst), appointed in 1929. The Cabinet formed by the United party on May 28, 1930, was composed in part as follows: Prime Minister, Minister of Finance, External Affairs, Customs and Stamp Duties, G. W. Forbes; Lands and State Forests, E. A. Ransom; Railways, W. A. Veitch; Public Works and Transport, W. B. Taverner; Internal Affairs and Industries and Commerce, P. A. de la Perrelle; Agriculture and Mines, A. J. Murdoch.

**HISTORY.** On Feb. 3, 1931, New Zealand experienced the most severe earthquake in its history, which partially destroyed the business sections of the towns of Napier and Hastings on the eastern shore of North Island. The loss of life on February 3 and in succeeding shocks in the same vicinity was 261 and the material damage was estimated at about £1,250,000, the sum which Parliament later appropriated for restoration purposes (see *EARTHQUAKES*).

In addition to the problem of earthquake reconstruction, the Forbes Government was faced with the increasingly severe repercussions of the world-wide depression upon the Dominion's economy. Controlling only 29 of the 80 seats in the House of Representatives, the Government was forced to rely upon the coöperation of the Reform party in dealing with its responsibilities. This coöperation at first took the form of an inter-party economic committee. On September 22, however, the Cabinet was reorganized on the basis of a coalition between the United and Reform parties, with Mr. Forbes as Prime Minister. The step was intended to prolong the life of Parliament in order to avoid the turmoil and uncertainty of an electoral campaign.

The Coalition Government's drastic programme of retrenchment encountered bitter opposition from the Labor party and the Government finally appealed to the country for an unequivocal mandate to take all the measures they considered necessary to stave off bankruptcy and restore prosperity. The general election, held December 2, gave the United-Reform coalition 51 seats out of the 80 in the lower House. The standing of the parties following the election, with the number of seats held previously in parentheses, was: Reform party, 29 (28); United party, 21 (20); Coalition Independent, 1; Labor

party, 24 (19); Independents, 5 (4). Two of the five Independents promised general support of the Government.

The Coalition Ministry confirmed by the election was composed in part as follows: Prime Minister, External Affairs, and Railways, G. W. Forbes (leader of the United party); Public Works, Transport and Unemployment, J. G. Coates (leader of the Reform party); Finance, Customs, and Attorney-General, W. D. Stewart (Reform party); Education, Industries, Commerce, and leader of the Legislative Council, R. Masters (United party); Lands, E. A. Ransom (United party); Native Affairs, Sir Apirana Ngata (United party); Justice and Defense, J. G. Cobbe (United); Postmaster-General, Labor and Internal Affairs, A. Hamilton (Reform); Health, J. A. Young (Reform). For the trade dispute with Canada, see CANADA under *Foreign Relations*.

**NICARAGUA**, nē'ká-rī'gwá. The largest of the Central American republics. It is bounded on the north by Honduras, on the east by the Caribbean Sea, on the south by Costa Rica, and on the west by the Pacific Ocean. Capital, Managua.

**AREA AND POPULATION.** The area is estimated at about 51,600 square miles, of which 4500 square miles are lake area. Population, according to the census of 1920, 638,118; estimated at 750,000 in 1929. The population of the chief cities in 1920, with latest estimates in parentheses, was: Managua, 27,839 (50,000 in 1929); León, 38,318 (50,000); Granada, 16,773 (25,000); Matagalpa, 10,271 (7000).

**EDUCATION.** About 62 per cent of the population is illiterate. Of approximately 50,000 children of school age (6 to 14 years) in 1929 a total of about 23,495 were enrolled in state elementary schools.

**PRODUCTION.** Agriculture is the principal source of wealth, lumbering, cattle raising, and mining constituting subsidiary industries. Banana growing is the predominant industry of the east coast, although coconuts, pineapples, and other fruits are cultivated. Important crops of the western region are coffee, sugar cane, cacao, corn, and beans. Some rice and tobacco is grown. Coffee normally accounts for about one-half the total value of exports and is the main factor in the national economy. The average coffee crop is about 36,000,000 pounds; in 1930 lack of rain reduced the coffee and sugar cane yields. Banana shipments in 1930 totaled 3,861,073 stems (4,092,388 in 1929).

**COMMERCE.** According to the report of the Collector General of Nicaragua Customs, the total foreign trade in 1930 declined to \$16,515,718 from \$22,669,966 in 1929. Exports amounted to \$8,343,358 (\$10,872,526 in 1929) and imports to \$8,172,360 (\$11,797,440 in 1929). The visible balance of trade, which had been unfavorable by \$925,114 in 1929, was favorable by \$170,998 in 1930. The United States in 1930 furnished \$5,023,615 worth of imports (\$7,389,738 in 1929) and purchased \$4,150,183 worth of Nicaraguan exports (\$5,754,038 in 1929). The chief exports, in order of value, were coffee, bananas, wood, gold, and sugar. Leading imports were cotton goods, iron and steel manufactures, flour, chemicals and medicines, and silk goods. The value of coffee shipments declined to \$3,792,217 in 1930 from \$5,902,754 in 1929 and \$6,792,464 in 1928.

**FINANCE.** Closed Government accounts for 1929 were reported to have balanced at 6,553,000 cordobas (1 cordoba equaled \$1 at par). In 1930,











according to preliminary figures, receipts and expenditures each totaled about 5,500,000 cordobas. To offset declining revenues, salary reductions and other economies were put into effect by the Government and additional taxes were levied. In the latter part of 1930, however, the financial position of the Government was reported to be difficult. The bonded debt on Jan. 1, 1931, was reported at 3,940,000 cordobas, compared with 4,470,375 cordobas on Mar. 31, 1930.

**COMMUNICATIONS.** The principal railway line is the state owned Pacific Railroad, with about 159 miles of track, which links the port of Corinto with Managua, León, Granada, and Diriamba. A new line from San Jorge to San Juan del Sur was opened in 1930, and construction was under way on 72 miles of new line from León to Sauce. In 1930 there were 350 miles of motor roads. In 1929, 2401 vessels of 959,817 tons entered Nicaraguan ports and 2384 vessels of 965,984 tons cleared.

**GOVERNMENT.** Executive power is vested in a president, acting through responsible ministry, and legislative power in a Congress with two chambers, the Senate of 24 members elected for six years and the Chamber of Deputies of 43 members elected for four years by universal male suffrage. In the 1930 elections, the Liberals secured control of both the Chamber of Deputies and the Senate. President in 1931, José María Moncada (Liberal), elected Nov. 4, 1928, for a four-year term.

#### HISTORY

**GUERRILLA WARFARE CONTINUES.** The guerrilla warfare carried on since 1927 by Augusto Sandino and other insurgent leaders against the Moncada Government and the American forces supporting it assumed more serious proportions in 1931. It took a heavy toll of American lives and furnished the occasion for the declaration by Secretary of State Henry L. Stimson of a new intervention policy on the part of the United States, which attracted wide attention in Latin America and Europe.

The ranks of the Sandinistas were swelled by recruits from the increasing numbers of unemployed plantation workers. They were reported to be well supplied with arms and ammunition. The killing of eight United States Marines from ambush on Dec. 31, 1930, was followed in January and February by repeated contacts between insurgents and patrols of Marines or of the *Guardia Nacional* (Nicaraguan constabulary), with a number of casualties on both sides. From the Tipitapa agreement of 1927 to the end of February, 1931, the campaign to force the surrender of armed bands operating in northwestern Nicaragua cost the lives of 108 American Marines and an estimated total of 3765 Nicaraguans.

Despite the increasing activity of outlaw bands, Secretary of State Stimson announced Feb. 13, 1931, that the United States would continue to withdraw American troops from Nicaragua as rapidly as they could be replaced by the *Guardia Nacional*. More than 700 Marines engaged in combat duty were ordered withdrawn by the following June. About 500 Marines were to remain to instruct the *Guardia* and as personnel of an aviation unit until after the local election scheduled for November, 1932. Mr. Stimson implied that the United States would then discontinue its policy of supervising Nicaraguan elections and of furnishing officers for the *Guardia*. At the time of his statement, all but 15 of the 200 *Guardia* officers

were Americans. Fear that civil warfare would again involve the country upon the withdrawal of American forces was expressed by former President Díaz and prominent Nicaraguans.

While stating that he was opposed to the immediate withdrawal of American forces from Nicaragua, President Moncada favored the establishment of an entirely native volunteer army to carry on the campaign against Sandino. He believed such a move would deprive the insurgent chief of his local prestige as an opponent of American imperialism. The State Department frowned on the suggestion, however, and instead it was arranged to increase the size of the *Guardia* by 500 men to a total of about 2200 and to build a network of roads and trails to facilitate the pacification of outlaw-ridden districts. To provide for the execution of this programme, Nicaragua obtained a credit of \$1,000,000 in New York.

**THE MANAGUA EARTHQUAKE.** The gradual evacuation of American forces was in progress when on March 31 a violent earthquake and fire virtually destroyed Managua, the capital of the republic. In the catastrophe, approximately 2000 persons, including a number of Americans, were killed, 7000 injured, 45,000 rendered homeless, and property valued at from \$15,000,000 to \$20,000,000 was destroyed. While Marines and members of the *Guardia* maintained order, aid was rushed to the stricken city by United States naval vessels and airplanes, by neighboring Central American countries, and by the American Red Cross. U. S. Army Engineers, taken from their work of surveying the proposed Nicaraguan canal, confined the fire to an area of 31 blocks and repaired the damaged water system. By the end of April about 21,000, or less than half of the population, remained in the city and 20,000 of these were dependent upon rations issued by the Red Cross. Some 1200 native workers were engaged in rebuilding the city. See EARTHQUAKES.

**EAST COAST RAIDED.** While Marine and *Guardia* forces were engaged in succoring the inhabitants of the stricken capital, Sandino's outlaws left the fastnesses of northwestern Nicaragua early in April and advanced in small groups along four rivers upon outlying camps of the Bragmans Bluff Lumber Company, an American concern operating in the vicinity of Puerto Cabezas on the northeast coast. Approximately 300 Americans in that region, with investments totaling about \$16,500,000, were guarded by 136 members of the *Guardia*, officered by 14 U. S. Marines. Surprising small settlements at Logtown, Moss Farm, and other points, the bandits captured and killed eight American civilian employees of the lumber company, four British subjects, one Colombian, one Guatemalan, and one German missionary. A Marine officer was killed in a subsequent armed clash. *Guardia* patrols, reinforced by new units rushed from western Nicaragua by airplane, drove back the bandits with equally heavy losses before they reached Puerto Cabezas, their avowed objective. In the meantime United States cruisers had arrived at Bluefields, Puerto Cabezas, and Gracias a Dios and bluejackets and Marines were landed to protect those points pending the arrival of *Guardia* forces.

**SANDINO OFFERS TERMS.** On May 4 Pedro José Zepeda, Sandino's representative in Mexico City, announced the conditions under which he said Sandino would lay down his arms. They were the immediate withdrawal of American forces and a pledge by the Nicaraguan Government to secure

the revision of the Bryan-Chamorro canal treaty of 1916 and to obtain the return to Nicaragua of banks, railways, and custom houses controlled by American interests. The proposal was ignored by the United States and Nicaraguan Governments.

Guerrilla warfare continued on a reduced scale throughout the summer, with repeated clashes between Sandinistas and *Guardia* patrols. On October 27, Sandino's representative in Mexico City reported that the rebel leader was about to launch another offensive and thereafter increasing insurgent operations were reported from northern Nicaragua and along the east coast. The town of Chichigalpa on the railroad between Chinandega and León was looted by insurgents November 23. A state of siege was declared in the Departments of León and Chinandega on November 25 and early in December the American Legation at Managua reported that 300 short-term auxiliaries had been added to the *Guardia* to aid in checking insurgent operations. Brig. Gen. R. C. Berkeley relieved Brig. Gen. Frederic L. Bradman as commander of the U. S. Marine forces in Nicaragua on November 25.

**STIMSON'S NEW POLICY.** Upon news of the outlaw attacks on the east coast, Secretary of State Stimson on April 17 instructed the American Minister at Managua as follows:

In view of outbreak of banditry in portions of Nicaragua hitherto free from such violence, you will advise American citizens that this government cannot undertake general protection of Americans throughout that country with American forces. To do so would lead to difficulties and commitments which this government does not propose to undertake. Therefore the department recommends to all Americans who do not feel secure under the protection afforded them by the Nicaraguan Government through the Nicaraguan National Guard to withdraw from the country or at least to the coast towns, whence they can be protected or evacuated in case of necessity. Those who remain do so at their own risk and must not expect American forces to be sent inland to their aid.

On the previous day the State Department announced that the withdrawal of Marines from combat duty was proceeding, despite the developments on the east coast, and would be completed by June 3, 1931. Generally speaking, the previous policy followed by successive American administrations had been to afford protection to both American and other foreign citizens in Nicaragua wherever disturbances occurred. The unfavorable reaction of a section of the American press to the new policy caused Secretary Stimson to amplify his previous message in a statement issued April 18. The situation in Nicaragua, he said, had wholly changed since the United States intervened in 1926 to protect its citizens and other neutrals from the consequences of the war then in progress between Liberals and Conservatives. Neutral zones were then established for the protection of foreigners with the consent of both the Liberal and Conservative commanders.

In 1931, Mr. Stimson pointed out, his problem was not one "of the protection of American citizens in Nicaragua from a war, but from murder and assassination . . . by small groups of confessed outlaws—treated as outlaws by the Nicaraguan Government." The dense jungle of the east coast made it impossible for regular troops to operate there effectively, even if it were attempted. Furthermore, in the interval since 1926 a Nicaraguan constabulary force of over 2100 had been created and trained by American officers for fighting under jungle conditions. The Secretary of

State indicated that henceforth the Nicaraguan Government would be held responsible for the safety of Americans and other foreigners in the country. He said:

By assisting the Government of Nicaragua in organizing and training a competent *Guardia* we are not only furnishing the most practical and effective method of meeting the bandit problem and the protection of Americans and foreigners in Nicaragua from its attendant perils, but we are at the same time recognizing that it is a problem with which the sovereign government of Nicaragua is primarily concerned, and a problem which it is primarily the right and duty of that government to solve.

Mr. Stimson's policy was vigorously supported by President Hoover in a statement issued April 21. The President denounced Sandino as a cold-blooded bandit "outside the civilized pale" and expressed confidence in the ability of the Nicaraguan Government to bring him to justice.

**OTHER EVENTS.** In preparation for American supervision of the Nicaraguan Presidential election scheduled for 1932, Major Charles F. P. Price of the Marine Corps officiated as "electoral observer" of the municipal elections held in Nicaragua in October, 1931. In an effort to balance its budget, the Nicaraguan Government during the year established government monopolies in the sale of petroleum products and matches. Establishment of the oil monopoly necessitated the ousting of the West India Oil Company, a subsidiary of the Standard Oil Company, which had been in business in Nicaragua for 15 years. Legislative decrees promulgated January 14 and February 25 provided, respectively, for the establishment of a new port at Nacascolo in the Gulf of Fonseca and that at least 75 per cent of the employees of every business concern must be citizens of Nicaragua. See CANALS for discussion of the proposed Nicaraguan Canal.

**BIBLIOGRAPHY.** An authoritative study of United States-Central American relations, with specific reference to Nicaragua, appeared in two *Foreign Policy Reports* by Dr. Raymond Leslie Buell—"The United States and Central American Stability," July 8, 1931 (vol. vii, no. 9) and "The United States and Central American Revolutions," July 22, 1931 (vol. vii, no. 10). See also Lawrence Dennis, "Nicaragua: In Again, Out Again," *Foreign Affairs*, April, 1931.

**NICHOLS MEDAL.** See CHEMISTRY, INDUSTRIAL.

**NICKEL.** The Dominion of Canada, principally from the ores mined at Sudbury, Ont., supplies approximately 90 per cent of the world's production of nickel, the only other producer of importance being New Caledonia. The nickel production of Canada in 1931 was estimated at 65,484,184 pounds, valued at \$14,500,000, a decrease of 36 per cent from 1930 when it amounted to 103,708,857 pounds valued at \$24,455,133. The United States, while an important consumer, produces but small amounts of nickel, mainly in the form of nickel salts and metallic nickel obtained as a by-product in the electrolytic refining of copper. This fell in 1930 to 308 short tons with a value of \$312,803, while secondary nickel recovered as metal, and the non-ferrous alloys and salts aggregated 2900 short tons valued at \$2,030,000.

The imports of nickel into the United States in all forms in 1931 were valued at \$7,078,699 as against \$12,872,163 in 1930, and ores and matte for refining amounted to 11,029,709 pounds valued at \$1,530,557 as against 20,593,361 pounds

valued at \$2,940,074 in 1930. See CHEMISTRY, INDUSTRIAL.

**NICOLAYITE.** See MINERALOGY.

**NIDAROS.** See NORWAY under *History*.

**NIGER, COLONY OF THE.** A colony in the interior of French West Africa, lying east of the upper Niger and north of British Nigeria; formerly a military territory. Area, about 463,200 square miles; population, 1,473,601 in 1929, including 349 Europeans. Capital, Niamey. The local budget for 1930 balanced at 23,650,000 francs (1 franc equals \$0.0392 at par). The colony is an administrative part of French West Africa (q.v.). Lieutenant-Governor in 1931, M. Choteau.

**NIGERIA, COLONY AND PROTECTORATE OF.** A West African territory, belonging to Great Britain; divided into the Northern and Southern Provinces. The area is approximately 335,700 square miles and the population, 19,409,001, of whom 11,037,275 were in the Northern Provinces (area, 275,724 square miles). Europeans in the country numbered 5939. For administrative purposes the British portion of the mandated territory of Cameroons is attached to Nigeria. The seat of government is at Lagos. Including Cameroons, the area at the census of Apr. 23, 1931, was 372,674 square miles and the population 20,762,083. In 1929, there were about 2985 primary and elementary schools, with 194,700 pupils, in addition to 30,203 Mohammedan schools with 300,500 pupils.

**PRODUCTION.** The chief products and exports are palm oil and kernels, cotton lint, cacao, and mahogany. Nigeria ranks sixth among tin-producing countries.

**COMMERCE.** Imports declined sharply in value in 1930 to £12,045,000 from £13,219,000 in 1929, while exports decreased to £15,134,000 from £17,757,000 in 1929. Cotton piece goods (£3,401,325) and fish were the principal 1929 imports. Trade was chiefly with the British Empire, which supplied £9,772,187 of imports in 1929.

**FINANCE.** Revenue of the entire colony and protectorate in 1929-30 totaled £6,045,621 and the total expenditure £6,986,500 (including £696,599 advanced for loan works). The public debt stood at £23,559,209 on Mar. 31, 1930.

**COMMUNICATIONS.** The two main railway lines, with their branches, aggregated 1743 miles of line in 1930. There is an extensive network of motor highways, but the numerous rivers and creeks form the principal routes of transportation.

**GOVERNMENT.** The Northern Provinces and Southern Provinces are each administered by a lieutenant-governor appointed by the King but subject to the authority of the Governor. The Governor is assisted by an executive council and by a partly elective legislative council, which legislates for the Southern Provinces only. Laws affecting the Northern Provinces are promulgated directly by the Governor. Governor in 1931, Sir Donald C. Cameron, appointed December, 1930.

**NILE DELTA RECLAMATION.** See RECLAMATION.

**NINEVEH.** See ARCHAEOLOGY.

**NITRATE.** See CHILE under *Production and History*.

**NITROGEN INDUSTRY.** See FERTILIZERS.

**NOBEL PRIZES.** The Nobel prizes for 1931 were presented in Stockholm and Oslo on December 10 to, or on behalf of, the following persons who, in accordance with the will of Alfred Bernhard Nobel, the Swedish inventor and philan-

thropist, were considered to have made the greatest contributions towards the progress of the world and the welfare of mankind: Karl Bosch and Friedrich Bergius (chemistry) Germans; Otto Heinrich Warburg (medicine) German; Erik Axel Karlfeldt (literature) Swede; and Nicholas Murray Butler and Jane Addams (peace) Americans. The award in physics for 1931 was not announced. The award in literature is made by the Swedish Academy; the awards in physics and chemistry by the Royal (Swedish) Academy of Sciences; the award in medicine by the Caroline Institute (the faculty of medicine in Stockholm); and the peace award by a committee of five, elected by the Norwegian Storting. Owing to the depreciation of Scandinavian currency, however, the prizes were worth in 1931 only about \$31,500.

The award of the prize in chemistry to Doctors Bosch and Bergius emphasized the contribution of science to industry. Doctor Bosch was honored for his process of large-scale production of ammonia through adaptation of the Haber process in the synthesis of nitrogen and hydrogen. After attending the University of Leipzig, he became associated in 1899 with the Badische Anilin und-Soda Fabrik. He was appointed director in 1914 and general director in 1919, developing this corporation into one of the greatest chemical manufacturing in the world and erecting the huge Oppau works near Ludwigshafen and the Leuna works near Merseburg, where application was made of his process of manufacturing ammonia, as well as fertilizers and other by-products. After 1925 he was also general director of the I. G. Farbenindustrie.

Doctor Bergius, co-recipient of the prize in chemistry, developed the Bergin process of the hydrogenation of coal by which methanol and certain substitutes for gasoline might be obtained. He had also devoted considerable research to combining coal and hydrogen so as to increase the efficiency of coal as a source of energy, and to producing sugar from wood.

The award of the prize in medicine to Dr. Otto Heinrich Warburg was in recognition of his researches in connection with enzymes, including the oxidation process in living cells. His researches in the field of cancer were outstanding, and he had also studied the fermentation process involved in respiration. He had been a member of the Kaiser Wilhelm Institute for Biology in Berlin since 1918.

The prize in literature was awarded posthumously to Erik Axel Karlfeldt (q.v.), the Swedish poet, who was permanent secretary of the Swedish Academy and chairman of the committee which annually awarded this prize.

Dr. Nicholas Murray Butler, president of Columbia University, the joint winner of the Nobel peace prize, had been for many years one of the world's active leaders in the advancement of the ideals of peace. In 1925 he became president of the Carnegie Endowment for International Peace. He was also president of the American board of the Federation of International Conciliation and was one of the most influential proponents of the Kellogg-Briand peace pact. His works on this subject include: *The International Mind* (1913) and *A World in Ferment* (1918). Jane Addams, head resident of Hull House, Chicago, since the founding of the settlement in 1889 and co-recipient of the Nobel peace prize, had served the cause of peace



not only as a writer and lecturer but as president since 1915 of the Women's International League for Peace and Freedom. She had presided over International Congresses of the League at The Hague (1915), Zurich (1919), Vienna (1921), The Hague (1922), Washington (1924), Dublin (1926), and Prague (1929). She was the author of *Newer Ideals of Peace* (1907) and *Peace and Bread in Time of War* (1922).

**NON-FEDERATED MALAY STATES.** A group of five Malay states under British protection but not included in the Federated Malay States (q.v.). They are divided in area and population as follows:

State	Capital	Area	Population (1921)
Johore	Johore Bharu	7,678	282,234
Kedah	Alor Star	3,648	338,554
Kelantan	Kota Bharu	5,713	286,863
Trengganu	Kuala Trengganu	5,500	153,765
Perlis	Kangar	816	40,091
Total		22,855	1,101,000

The population of Johore in 1929 was 336,829, including 200,780 Malays, 111,345 Chinese, and 21,245 Indians. The same racial mixture prevails in the other states. Rubber is the principal product and tin is mined in Trengganu and Perlis. Agriculture is similar to that in the Federated Malay States (q.v.). The states are each governed by a sultan, assisted by a state council and a British adviser, who exercises the actual power. The Governor of the Straits Settlements (q.v.) is *ex officio* High Commissioner for all the Malay states. A railway line connecting several of the States with Singapore was opened on Sept. 5, 1931.

See **BRITISH MALAYA**.

**NORTH AUSTRALIA.** See **NORTHERN TERRITORY**.

**NORTH CAROLINA. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 3,170,276; in 1920 it was 2,559,123. The whites numbered 2,234,948 (1930), 1,783,779 (1920). The Negroes, 918,647 (1930), 763,407 (1920). The proportion of whites rose slightly to 70.5 per cent (1930), from 69.7 (1920). Whites were nearly all native—2,226,160 (1930), 1,776,680 (1920). The foreign-born whites numbered but 8788 (1930), 7099 (1920). The State contained, in 1930, 16,579 Indians.

Of the population, the urban portion (living in communities of at least 2500) totaled 809,487 (1930), as against only 490,370 (1920). The rural part numbered 2,360,429 (1930), 2,068,753 (1920). Of 1,141,129 persons reported as in gainful occupation in 1930, 499,923 were in agriculture, of whom 270,187 were farmers and 93,874 farm laborers for hire. Those in manufacture and the mechanical industries numbered 286,245, of whom 87,242 were in cotton mills and 22,501 in knitting mills; in trade there were 99,193; in professional service, 55,702; in transportation, 53,968; in domestic or personal service, 101,436.

Charlotte, the most populous city, had 82,675 inhabitants (1930), 46,338 (1920); Winston-Salem, 75,274 (1930), 48,395 (1920); Durham, 52,037 (1930), 21,719 (1920); Asheville, 50,193 (1930), 28,504 (1920); Greensboro, 53,569 (1930), 19,861 (1920); Raleigh, the capital, 37,379 (1930), 24,418 (1920).

**AGRICULTURE.** The accompanying table shows

the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Tobacco	1931	689,000	468,520,000	\$44,041,000
	1930	766,000	585,990,000	75,598,000
Cotton	1931	1,848,000	775,000	.....
	1930	1,643,000	775,000	.....
Corn	1931	2,345,000	48,072,000	20,671,000
	1930	2,238,000	40,194,000	87,380,000
Hay, tame	1931	715,000	877,000	8,801,000
	1930	623,000	532,000	10,268,000
Peanuts	1931	281,000	823,150,000	6,786,000
	1930	281,000	207,900,000	6,861,000
Potatoes	1931	79,000	8,532,000	5,119,000
	1930	76,000	7,220,000	8,664,000
Sweet potatoes	1931	80,000	6,560,000	3,608,000
	1930	75,000	6,750,000	6,075,000
Wheat	1931	339,000	4,407,000	3,173,000
	1930	265,000	2,862,000	3,120,000
Oats	1931	197,000	4,831,000	1,722,000
	1930	186,000	3,534,000	2,403,000

\* Pounds. \* Bales. \* Tons.

**MINERAL PRODUCTION.** Stone retained its lead among the mineral products in point of the value of the yearly product. The output nevertheless fell off, there being quarried 1,607,670 short tons in 1929, as against 2,126,560 in 1928; by value, \$3,880,113 in 1929 and \$4,690,949 in 1928. The yearly value of clay products diminished to \$3,196,830 for 1929, from \$3,826,493 for 1928. The total value of the State's mineral production was \$10,963,896 for 1929; for 1928, \$11,480,406.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 3792 (almost 27 per cent higher than the number for 1927). These employed 208,068 wage earners (or 1.7 per cent in excess of the number thus employed in 1927). To these earners were paid wages totaling \$159,794,761 (not quite 1 per cent above the figure for 1927). Materials, fuel, and purchased electricity, used in the process of manufacture, cost \$614,140,001 (which exceeded the corresponding cost for 1927 by nearly 10 per cent). The manufactured product was valued at \$1,301,319,152 (which exceeded the total for 1927 by 12.7 per cent). Value added by manufacture was estimated as \$687,179,151. Winston-Salem, the most important manufacturing centre, had 85 establishments, employed 15,895 wage earners, paid them wages of \$13,462,979 and produced manufactures of the value of \$291,161,279. Durham had 62 establishments, 7172 employed wage earners, \$5,974,348 of wage payments, and a product of \$137,645,909.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 5161.35. No additions had been made in the course of the year preceding, but a total of 27.44 miles of line had been abandoned. No building of additional line or main trackage in 1931 was reported.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$28,585,812 (of which \$6,450,840 was for local education); for interest on debt, \$8,065,039; for permanent improvements, \$13,756,272; total, \$50,429,025 (of which \$19,704,209 was for highways, \$8,771,825 being for maintenance and \$10,992,384 for construction). Revenues were \$46,573,844. Funded State debt outstanding on June 30, 1930, totaled \$173,282,400, of which \$108,399,600 was

for highways. Net of sinking-fund assets, it was \$164,931,691.

**EDUCATION.** For the academic year 1929-30, the number of persons of school age in the State was reported as 1,031,947. There were enrolled in the public schools 866,939 pupils. Of these, 750,002 were in the common schools or elementary grades, and 116,937 were in high schools. The year's expenditures for public school education were: current, \$28,616,603; total (including capital outlay) \$33,425,755. The salaries of teachers averaged \$849.56 by the year. The Legislature of 1931 gave much attention to the proposed plan to furnish sufficient State support to public schools to insure a minimum term of six months. It sought to do this without increasing the direct ad-valorem tax on property. While a direct tax of 15 cents on the \$100 was to provide part of the money, a number of indirect taxes were imposed, the design being to raise the total of State aid to schools to \$17,000,000, from \$6,500,000.

**CHARITIES AND CORRECTIONS.** The State's general administrative functions with regard to the care and custody of persons continued in 1931 to rest chiefly in the State Board of Charities and Public Welfare. This board of seven unpaid appointees had as its executive officer a Commissioner of Public Welfare. Under him were divisions administering child welfare, county organization matters, supervision of institutions, mental health and hygiene, and work among the Negroes. The State's practice of employing prisoners on highway labor continued, but was somewhat modified. An act of 1931, providing State maintenance for all public roads, gave the management and maintenance of all prisoners serving over 60 days but not committed to the State Prison into the charge of the State Highway Commission. That body thus came to control over 4000 prisoners. A new State's Prison was under construction.

**LEGISLATION.** Facing a severe drop in the collection of State taxes, the biennial session of the general assembly was obliged to restrict expenditure. It nevertheless enacted a measure to transfer the duty of road building, in so far as it had rested on counties, to the State Highway Commission. The cost of highway maintenance was also assumed by the State. On the other hand, the county commissioners lost the power to levy the one-cent tax for highway purposes, which in its aggregate had imposed on the inhabitants an ad valorem levy of about \$6,000,000.

A school law was enacted, under the terms of which the State became responsible for the operation of all public schools. To meet the resulting expense, there was enacted a State property tax of 15 cents on the \$100 of assessed valuation. The tax on sales of gasoline was increased to 6 cents, from 5 cents. The Legislature passed a resolution directing the State courts to impound ballots cast in the disputed Bailey-Pritchard Senatorial election, which the Federal marshals had been ordered to seize. A commission of nine was created to make a redraft of the State constitution, which had stood without radical alteration for 63 years. The redraft was to be submitted to the Legislature in 1933. The Governor was charged to name the members of the commission, which he later did, making Chief Justice W. P. Stacy its chairman.

**POLITICAL AND OTHER EVENTS.** Decreased public revenues and other adverse developments in-

cident to bad times caused considerable inconvenience in public finances. The biennium ended on June 30 left the State with a deficit of \$2,230,064, as against a surplus of \$2,121,079 remaining from the previous biennium. The revenue for the fiscal year 1930-31 was reported to have fallen by \$3,392,190 below the estimates that had been made in the preparation of the State budget.

At Asheville, Luke Lea, Luke Lea Jr., and Wallace B. Davis were found guilty, on August 25, of misapplication of funds in the management of the Central Bank and Trust Company, which had suspended in 1930, and were sentenced to prison terms. Asheville and Buncombe County defaulted on debt payments in June. The State Supreme Court ruled on July 2 that the counties of Durham and Duplin must not issue bonds for repayment of current indebtedness, such as would require for their service the levying of a special tax in excess of the 15 cents on the \$100 allowed the counties for a general levy.

At Duke University, a \$4,000,000 medical school and hospital were opened on April 20. Preparations for merging the University of North Carolina at Chapel Hill, the State College at Raleigh and North Carolina College for Women at Greensboro were made in accordance with a resolution passed by the General Assembly.

**OFFICIALS.** Governor, O. Max Gardner; Lieutenant-Governor, R. T. Fountain; Secretary of State, J. A. Hartness; Treasurer, Nathan O'Berry; Auditor, Baxter Durham; Attorney-General, Dennis G. Brummitt; Superintendent of Public Instruction, A. T. Allen.

**JUDICIARY.** Supreme Court: Chief Justice, Walter P. Stacy; Associate Justices, W. J. Adams, Heriot Clarkson, George W. Connor, W. J. Brogden.

**NORTH CAROLINA, THE UNIVERSITY.** A State institution for the higher education of men and, with restrictions as to admission, of women in Chapel Hill, N. C., founded in 1795. The enrollment in the autumn of 1931 was 2825 regular students, with 3736 in extension courses. There were 1865 registered for the 1931 summer session. The faculty had 215 members. The endowment amounted to \$2,000,000, and the total budget for the year was \$1,316,458. The Morehead-Patterson Memorial Tower, the \$100,000 gift of John Motley Morehead, '91, and Rufus Lenoir Patterson, '93, to perpetuate the memory of those members of their families who had been associated with the university, was dedicated on Nov. 26, 1931. The library contained 230,512 volumes. President, Frank Porter Graham, A.M.

**NORTH CENTRAL, formerly NORTHWESTERN, COLLEGE.** A coeducational institution of higher learning in Naperville, Ill., founded in 1861. In the autumn of 1931 there was an enrollment of 505 students, of whom 294 were men and 211 women. There were 39 members on the faculty. The productive funds of the college amounted to \$1,062,974, and the current income for the year was \$169,755. The library contained 20,000 volumes. The Merner Gymnasium and Field House, costing \$350,000, was dedicated in January, 1931. President, Edward Everett Rall, Ph.D.

**NORTH DAKOTA. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 680,845; in 1920 it was 646,872. The native whites numbered 566,095

(1930), 568,451 (1920). Foreign-born whites, 105,148 (1930), 131,503 (1920). The State contained, in 1930, 8387 Indians, 608 Mexicans and 377 Negroes. Of 240,317 persons reported as in gainful occupation in 1930, 134,451 were in agriculture, whereof 78,653 were farmers and 38,888 were farm workers for hire. Persons in trade numbered 25,390; in manufacturing and mechanical industries 16,846; in transportation, 17,955; in professional service, 19,014. Fargo, the most populous city, had 28,619 inhabitants (1930), 21,961 (1920); Bismarck, the capital, had 11,090 (1930), 7122 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Wheat ...	1931	6,204,000	82,717,000	\$16,345,000
	1930	9,896,000	108,471,000	55,654,000
Hay, tame .	1931	1,571,000	1,097,000 *	6,363,000
	1930	1,055,000	1,084,000 *	7,588,000
Flaxseed .	1931	1,006,000	3,521,000	4,120,000
	1930	1,677,000	7,882,000	10,956,000
Barley ...	1931	1,812,000	18,482,000	4,805,000
	1930	2,588,000	43,996,000	11,439,000
Corn ....	1931	1,159,000	21,442,000	7,934,000
	1930	1,035,000	18,112,000	9,599,000
Oats ....	1931	1,498,000	18,276,000	3,472,000
	1930	1,827,000	40,194,000	8,039,000
Rye .....	1931	189,000	4,914,000	1,876,000
	1930	1,223,000	14,064,000	3,375,000
Potatoes .	1931	114,000	8,436,000	2,531,000
	1930	97,000	6,305,000	5,044,000

\* Tons.

**MINERAL PRODUCTION.** Coal, the State's only important mineral product, was less actively mined in 1930, the production falling to 1,630,000 short tons, from 1,802,130 tons for 1929. The value of the coal mined in 1929 was \$3,157,000. The small yearly yield of clay products and of sand and gravel was maintained in 1929. The total value of the State's mineral production was \$3,465,563 for 1929; for 1928 it was \$3,082,621.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 374 (22 per cent more than the number recorded in 1927). The wage earners employed by these establishments numbered 4033 (exceeding the number so employed in 1927 by nearly 24 per cent). The manufacturing wages paid in the year came to \$5,688,308 (about 17 per cent above those of 1927). Materials used in manufacture, plus fuel and purchased electricity, cost \$39,692,399 (an excess of some 15 per cent over the figure for 1927). The manufactured product was valued at \$55,346,976 (or 17.8 per cent above total for 1927). Value added by manufacture was estimated at \$15,654,577.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$9,037,024 (of which \$1,443,533 was for local education); for conducting public service enterprises, \$3,876,578; for interest on debt, \$1,894,125; for permanent improvements, \$3,142,131; total, \$17,949,858 (of which \$3,813,435 was for highways, \$1,374,493 being for maintenance and \$2,438,942 for construction). Revenues were \$17,696,863. Of these, property and special taxes formed 20.7 per cent; departmental earnings and remuneration to the State for its officers' services, 9.7; sales of licenses, 19.7 (including taxes of

\$1,403,080 on sales of gasoline). The State's funded debt outstanding on June 30, 1930, was \$36,358,200. Net of sinking-fund assets, it was \$2,438,038. On property bearing an assessed valuation of \$997,701,484 were levied in the year State taxes of \$3,152,737.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 5275.55.

**EDUCATION.** The Legislature raised the requirements for the certification of teachers in 1931, according to State Superintendent Palmer, writing in the *Journal* of the National Education Association, by requiring at least one year of professional training as requisite to a certificate. The previous minimum had been attendance for 12 weeks in a normal course.

**CHARITIES AND CORRECTIONS.** The State Board of Administration, under the system in operation in 1931, held jurisdiction over the State's seven institutions of care and custody, which had over 3000 of aggregate population. This board was not peculiarly devoted to the care of dependent or delinquent individuals, but had general administrative powers, which extended also over the capitol and other State property and over the State's educational institutions.

**LEGISLATION.** The State Legislature held a regular biennial session, which adjourned on March 6. It made provision for the emergencies caused by the burning of the State capitol. An act was passed to liberalize the State compensation law, but this act was vetoed by Governor Shafer on the ground of indefinite wording. Intangible personal property in corporations in the State, owned by outsiders, was made no longer taxable through death duties on the estates of such possessors.

The Federal reapportionment having reduced the number of the State's seats in the House of Representatives to two, from three, the Legislature did not redistrict the State into Congress districts. Rejecting a plan to set up an eastern and a western district, it simply abolished the old districts and left both its Representatives to be elected by the State at large.

**POLITICAL AND OTHER EVENTS.** The Farmers' Union of North Dakota addressed to the State's delegation in Congress on August 3 a demand that the Federal Government provide a moratorium on debts owed to the farm loan banks and the intermediate credit system and that a special session of Congress be called to pass other measures of relief for the farmer class.

**OFFICERS.** Governor, George F. Shafer; Lieutenant-Governor, John W. Carr; Secretary of State, Robert Byrne; Treasurer, Berta E. Baker; Auditor, John Steen; Attorney-General, James Morris; Superintendent of Public Instruction, Bertha R. Palmer.

**JUDICIARY.** Supreme Court: Chief Justice, A. M. Christianson; Associate Justices, Luther E. Birdzell, A. G. Burr, W. L. Nuessle, John Burke.

**NORTH DAKOTA, UNIVERSITY OF.** A State institution of higher education at University Station, Grand Forks, N. D., founded in 1883. The enrollment for the autumn of 1931 was 1606, of whom 995 were men. The faculty numbered 142. The income for 1931 was derived as follows: State appropriations for maintenance, \$575,100; Federal land grant funds, \$62,000; student fees, \$60,000; other sources, \$22,000; income from dormitories, athletics, etc., \$170,000; extension work, \$4700. Grounds, buildings, and equipment were valued at \$3,978,356. The library contained

100,892 catalogued volumes. President, Thomas Franklin Kane, Ph.D., LL.D.

**NORTH EASTERN NEW GUINEA.** See NEW GUINEA, TERRITORY OF.

**NORTHERN AUSTRALIA.** See NORTHERN TERRITORY.

**NORTHERN RHODESIA.** See RHODESIA.

**NORTHERN TERRITORY.** A territory of the Commonwealth of Australia, situated in the central and northern part of the island continent; divided for administrative purposes into two territories, North Australia (287,220 square miles) and Central Australia (236,400 square miles). Area, 523,620 square miles; population, according to the census of 1921, exclusive of aborigines, 3867; estimated Jan. 1, 1931, at 4616, including about 700 Chinese. The aborigines are estimated to number about 20,000. Principal town and port, Darwin. See EXPLORATION under Australia.

**NORTHWESTERN UNIVERSITY.** A co-educational institution of higher learning in Evanston and Chicago, Ill., founded in 1851. It is composed of a college of liberal arts, a graduate school, and schools of engineering, commerce, journalism, music, education, and speech in Evanston; and schools of law, medicine, dentistry, commerce, and journalism in Chicago. For the autumn term of 1931 there was an enrollment of 11,800, of whom 5500 were registered in evening classes in Chicago. For the summer session of 1931, 2000 students were enrolled. The faculty numbered 673 members of the rank of instructor or above. The endowment as of June 30, 1931, was \$25,425,000, and the income from these funds for the fiscal year 1930-31 was \$1,000,000. In the various libraries of the university there were approximately 350,000 bound volumes and 175,000 pamphlets. President, Walter Dill Scott, Ph.D. LL.D.

**NORTHWEST PROVINCES.** See CANADA.

**NORTHWEST TERRITORIES.** A vast area in northern Canada, largely uninhabited and only partially explored, lying north and west of Hudson Bay and Strait, north of the Prairie Provinces, and east of Yukon Territory. Total area, 1,309,682 square miles (1,258,217 square miles of land and 51,465 of water). The population at the census of 1931 was 7133, compared with 7988 in 1921, or a decrease of 10.7 per cent. Most of the inhabitants were Eskimos and Indians. Furs purchased by traders in 1927-28 were valued at \$2,000,968. The Territories were divided in 1920 into three provisional districts, namely Mackenzie, Keewatin, and Franklin. They are administered by a commissioner, deputy commissioner, and five councilors appointed by the Governor General of Canada. The commissioner in 1931 was William W. Cory.

**NORWAY.** A constitutional monarchy, occupying the western and northern half of the Scandinavian Peninsula. Capital, Oslo; reigning king in 1931, Haakon VII.

**AREA AND POPULATION.** With an area of 125,086 square miles. Norway reported a census population of 2,809,564 on Dec. 31, 1930, as compared with 2,649,775 at the census of 1920. During the five years 1926 to 1930 inclusive, births averaged 50,412 annually and deaths 30,259, the excess of births being 20,153. In 1930 the birth rate per 1000 inhabitants was 17.3 and the death rate 10.4. Overseas emigrants for 1926-30 averaged 8349 annually. The chief cities, with the 1930 census populations, are; Oslo, 249,688; Bergen,

98,546; Trondheim (Nidaros), 54,134; and Stavanger, 46,353.

**EDUCATION.** For the 1927-28 school year, there were 398,600 pupils in elementary schools, and 25,374 in secondary schools. Enrollment in the University of Oslo in 1929 was 3495.

**PRODUCTION.** Norway is a largely barren and mountainous country, in which fishing, lumbering, and manufacturing vie with agriculture as the principal sources of national income. The cultivated area in 1930 was 1,933,000 acres, or 2.5 per cent of the total land area; there were 536,000 acres of meadows and 18,531,000 acres of forests. Cereals, potatoes, and hay are the chief crops. The fish catch in 1930 was valued at about \$20,502,000 (\$21,778,000 in 1929); whale oil production (1929-30) was 1,791,000 barrels, valued at \$34,250,000.

The value of mineral production in 1929 was 34,111,000 kroner (\$9,100,000) and that of smelted metals 96,371,000 kroner (\$25,712,000). The value of all industrial production in 1929 was estimated by the Central Statistical Bureau at 1,670,500,000 kroner (1 krone equaled \$0.2680 at par), or 8 per cent more than in 1928. The output, in metric tons, of the leading mineral and industrial products in 1929 (1930 figures given when available) was: pyrites, 725,000 in 1930; iron ore, 750,000 in 1930; silver ore, 13,992; pig iron, 19,883; ferro-alloys, 124,536; aluminum, 20,500 in 1930; zinc, 37,244; wood pulp (mechanical), 720,005; wood pulp (chemical), 332,245. Nearly one-fourth of Norway's shipping tonnage was idle throughout 1931, the fish catch was worth only about \$16,080,000, whaling operations were suspended because of overproduction, the cereal crop was below normal, and industrial output was lowered by a five-months' lockout of 70,000 workers.

**COMMERCE.** General imports in 1930 were valued at 1,067,102,000 kroner (\$285,983,000), compared with 1,072,638,000 kroner (\$287,467,000) in 1929. Exports amounted to 683,739,000 kroner (\$183,242,000), compared with 752,046,000 kroner (\$201,548,000) in the previous year, a 9 per cent decrease. Of the total imports in 1929, Germany supplied 21.2 per cent; the United Kingdom, 19.3; Denmark and Sweden, 15.1; and the United States, 10.5. Exports went chiefly to the United Kingdom, 27 per cent; Germany, 13; Denmark and Sweden, 9.8; and the United States, 9.8. Ships, iron and steel, machinery, coal and cotton textiles were the leading imports and fish, wood pulp, paper and newsprint, and aluminum were the chief exports.

**FINANCE.** The Government's closed accounts for the fiscal year ended June 30, 1931, showed expenditures of 389,700,000 kroner and revenues of 380,100,000 kroner, compared with 395,800,000 kroner and 410,500,000 kroner, respectively, during 1929-30. Unexpected appropriations included in the closed accounts were subsequently reduced by 3,400,000 kroner, making the final deficit 6,200,000 kroner. For the 1929-30 fiscal year, there was a surplus of 14,700,000 kroner. (One krone equaled \$0.268 at par). The budget estimates for 1931-32 balanced at 357,946,000 kroner. The public debt on June 30, 1930, stood at 1,565,037,000 kroner (about \$419,430,000), of which 782,325,000 kroner (\$209,663,000) was external.

**COMMUNICATIONS.** The Norwegian merchant marine on June 30, 1930, comprised 1916 vessels of 3,668,289 gross tons capacity. Gross earn-

ings for 1930 were estimated at 415,000,000 kroner (\$111,220,000). In 1929, 9647 vessels, of 6,148,000 net registered tons, entered Norwegian ports, and 9589 vessels, of 7,752,000 tons, cleared. There were 2383 miles of railway line on June 30, 1930, of which 2154 miles were state and 229 miles private lines. Highways extended 23,343 miles, mostly graded earth or gravel.

**GOVERNMENT.** Executive power is vested in the King, who acts through a cabinet or council of state, and legislative power in the Parliament or Storting of 150 members, elected for three years by universal suffrage without distinction as to sex. When assembled, the Storting divides itself into the Lagting and Odelsting, comprising one-fourth and three-fourths of the membership of the Storting, respectively. The two sections function much as the upper and lower houses of bicameral Parliaments. As a result of the elections held Oct. 20, 1930, the composition of the Storting was as follows: Labor, 47; Conservative, 41; Radical, 33; Agrarian, 25; Independent Liberal, 3; Radical People's party, 1. The Cabinet of Premier J. L. Mowinckel (Radical) represented a coalition of the bourgeois parties.

**HISTORY.** The significant developments in Norway during 1931 included the overthrow of the Mowinckel Cabinet on May 7, an industrial conflict which paralyzed most of the important branches of Norwegian industry for six months, and the dispute with Denmark over possession of the northeastern coast of Greenland. For details of the Greenland controversy, see *GREENLAND* under *History*.

The Mowinckel Ministry, after three years in office, was defeated, 57 to 55, in the Storting May 7 on a motion of censure. The issue involved was the Government's acquiescence in the entry of British capital into the Norwegian margarine and soap industry. Opposed on this issue by the Board of Trust Control, the Government introduced legislation to curtail the Board's powers. The Parliamentary committee appointed to consider the problem, upheld the Board's contention that the entry of foreign capital would jeopardize national interests and the vote of censure followed. The new Cabinet, which took office May 12, was headed by P. Kolstad (Agrarian). The other members were: Foreign Affairs, Birger Braadland; Social Affairs, M. Vik; Public Works, R. Langeland; Justice, M. Lindboe; Ecclesiastical Affairs, M. Traedal; Commerce, M. Larssen; Agriculture, M. Sundby; Defense, M. Quisling.

The Kolstad Government found itself confronted with a severe industrial struggle, which began on April 8 when employers locked out 40,000 workers, who had refused to accept drastic wage reductions. In March 12,500 laborers had been locked out in the paper industry. The struggle between capital and labor spread to almost every important industry, until nearly 80,000 workers were affected. In June, clashes between strikers and the police at Porsgrund reached serious proportions. Troops were sent to the district and conscripts in the Porsgrund area were called to the colors, while sympathy strikes were called in Oslo, Menstad, and other places. The strike was finally settled September 11 by Government mediation and the acceptance by the strikers of wage cuts averaging 6 to 7 per cent. The cost of the lockout was estimated at about \$120,000,000.

The swing to the Right evidenced in the na-

tional elections of 1930 continued in local elections held throughout the country on Oct. 20, 1931. Socialists and Communists lost heavily, the bourgeois parties electing about 2800 officials out of a total of 4200.

On September 27, Norway followed Great Britain's example and suspended the gold standard. A system of voluntary rationing of foreign exchange was placed in effect. The strong financial position of the Government and of industry in general enabled the country to ward off the worst effects of the financial crisis in Germany, Great Britain, and Central Europe. Methods of effective coöperation between the Scandinavian nations in matters of bankruptcy and other legislation were discussed at a meeting of representatives of Norway, Sweden, Denmark, Finland, and Iceland at Oslo on January 26. See *SVALBARD*.

**NORWEGIAN LITERATURE.** See *SCANDINAVIAN LITERATURE*.

**NOTRE DAME, UNIVERSITY OF.** A Roman Catholic institution at Notre Dame, Ind., founded in 1842 for the higher education of men. The university consists of the colleges of arts and letters, science, engineering, law, and commerce. The enrollment in the summer session of 1931 was 937, of which number 622 were religious, sisters of religious communities also being permitted to attend the summer session. The enrollment for the first semester of 1931-32 was 3172. The faculty numbered 210. The endowment amounted to \$1,000,000, while the income for 1930-31, including student fees and departmental income, was \$1,404,427. The construction of a new college of engineering, a new college of commerce, two large residence halls, and a power house was completed in the fall of 1931. The library contained 150,000 volumes. President, the Rev. Charles L. O'Donnell, C.S.C., Ph.D.

**NOVA SCOTIA**, nŏ'və skŏ'shə. The easternmost of the Maritime Provinces of Canada, Area, 21,428 square miles; population at the census of 1931, 512,846, compared with 523,837 in 1921. Halifax, the capital, had 58,939 inhabitants at the 1931 census (58,372 in 1921). Other leading cities are Sydney, with 22,319 residents in 1931 (22,545 in 1921) and Glace Bay, with 20,704 (17,007). In 1929, living births totaled 10,672; deaths, 6657; marriages, 3510. The Province has four universities, with 1923 students in 1928-29; pupils in elementary public schools in 1929 numbered 113,309.

Agriculture is the chief occupation, with fruit raising as the most profitable branch. The apple crop of 1930 was estimated at about 2,000,000 barrels. The area sown to the chief crops in the spring of 1931 was 505,078 acres, according to the 1931 census, as compared with 635,768 acres in 1921. Field crops harvested from 735,900 acres in 1930 were valued at \$16,646,500, compared with \$20,945,000 from 731,354 acres in 1929. The total value of agricultural production (1929) was \$43,412,000, with dairy products, valued at \$11,464,000, following field crops in importance. The 1930 wool clip was 1,638,000 lbs. Mineral production in 1930, including the small production from Prince Edward Island, was provisionally valued at \$26,771,300, compared with \$30,904,453 in the previous year. Coal production in 1930 totaled 6,252,552 short tons (7,056,133 in 1929); gold, gypsum, and salt are other products. The value of lumber and other sawmill products in 1929 was \$3,205,217. In the same year, there were 1195 manufacturing establish-



ments, with an invested capital of \$135,662,325, a total of 20,966 employees, and an output valued at \$94,292,816, of which \$42,786,293 represented the value added in process of production. The fish catch in 1930 declined in value to \$10,411,200 from \$11,427,491 in the previous year. About 16,000 men were engaged in the industry. There are approximately 1451 miles of railway and 18,000 miles of highway.

Executive power is vested in a lieutenant-governor appointed by the Dominion Government and a legislative assembly of 38 members elected for five years by popular vote. For the fiscal year ended Sept. 30, 1930, the ordinary provincial revenues were \$7,682,066 (\$7,390,410 in 1928-29) and ordinary expenditures \$7,900,987 (\$7,288,486). The bonded indebtedness in 1929 was \$50,072,847. Lieutenant-Governor in 1931, Frank Stanfield; Premier and Minister of Public Works, Col. G. S. Harrington (Conservative). Lieutenant-Governor Stanfield died on Sept. 24, 1931, and was succeeded by William H. Covert. See CANADA.

**NOVELS.** See FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LITERATURE, ENGLISH AND AMERICAN; PHILOLOGY, MODERN; SPANISH-AMERICAN LITERATURES; SPANISH LITERATURE.

**NUTRITION.** See FOOD AND NUTRITION.

**NUTS.** See HORTICULTURE.

**NYASALAND**, nyá' sá-lánd', **PROTECTORATE.** A British protectorate in south central Africa, occupying the southern and western shores of Lake Nyasa. Land area, 37,596 square miles; population on Jan. 1, 1930, 1,356,945 natives, 1936 Europeans, and 1117 Asiatics. Zomba is the seat of government and Blantyre and Limbe in the Shire Highlands are the chief white settlements. In 1929, native schools numbered 2588, with an average attendance of 91,396. Coffee, tobacco, cotton, and tea are the chief crops. In 1929, imports and exports, excluding specie and goods in transit, were valued at £770,855 and £625,480, respectively. In the same year, Government revenue totaled £372,508 and expenditures £410,688. The public debt on Jan. 1, 1930, stood at £822,070. Governor and Commander-in-Chief in 1931, Sir T. S. W. Thomas.

**NYROP**, nyröp, KRISTOFFER. A Danish philologist, died Apr. 13, 1931, in Copenhagen where he was born Jan. 11, 1858. He was educated at the university of his native city, where he obtained the doctorate (1886) and where he became docent (1888). In 1894 he was appointed professor of Romance languages and literatures at the University of Copenhagen, which chair he held until 1928. His main work is *Grammaire historique de la langue française* (5 vols., 1899-1925), which brought him a reputation even in France, and in 1910 he lectured on this subject at the Collège de France.

**OAKES**, GEORGE WASHINGTON OCHS. An American journalist, died in New York City, Oct. 26, 1931. He was born in Cincinnati, Ohio, Oct. 27, 1861, and was graduated from the University of Tennessee in 1880. During the period 1880 to 1900 he was successively reporter, city editor, night editor, managing editor, and publisher of the *Chattanooga Times*, owned by his brother, Adolph S. Ochs. During this period he was also twice mayor of Chattanooga (1894-97). In 1901 he became manager of the *Philadelphia Times*, which had been purchased by his brother, and on the consolidation of this paper and the *Philadelphia Public Ledger* the following year

he was made editor-in-chief, serving in this capacity until the sale of the *Ledger* to Cyrus H. K. Curtis in 1913. After 1915 he was editor of *Current History Magazine* and an officer of the New York Times Company.

**OATS.** As reported by the International Institute of Agriculture the production of 30 countries exclusive of the Soviet Republics but including the 1931-32 crop of Argentina was estimated at 3,151,131,000 bushels, or 6.8 per cent below the yield in 1930 and 10.6 per cent below the annual average of the five years 1925-29. The total area in oats, 97,867,000 acres, was 1.9 per cent below the average of the year before and 2 per cent below the annual average of the five-year period. The production in 1931 of the leading countries reporting, not including the United States, was as follows: Germany 427,482,000 bushels, Canada 351,946,000 bushels, France 344,222,000 bushels, Poland 164,657,000 bushels, England and Wales 86,800,000 bushels and Czechoslovakia 82,893,000 bushels. For the Soviet Republics an average annual yield of 1,020,185,000 bushels for the five years 1925-29 was recorded. Argentina for the crop year 1931-32 reported an estimate of 65,449,000 bushels as compared with a yield of 49,604,000 bushels for crop year 1930-31, and an average annual yield of 66,493,000 bushels for the five-year period. The Canadian crop of 1931 was 21.7 per cent below that of 1930 and 15.5 per cent below the annual average yield of the five years 1925-29 while the acreage was only 3.3 per cent below that of the preceding year and about equal to the average of the five years.

For the United States the Department of Agriculture reported a considerable increase in plantings throughout the Southern States, where a shortage of feed had resulted from the severe drought of 1930, and a small increase in some of the North Central States. Drought caused a large acreage to be abandoned from North Dakota and South Dakota westward to the Pacific resulting in a marked reduction of the acreage harvested for grain in that region where at least a million acres sown for grain production were cut for hay. Estimates published by the Department of Agriculture placed the total yield of the country at 1,112,142,000 bushels as against 1,277,764,000 bushels in 1930. The area in oats in 1931, 39,722,000 acres, was about the same as of the preceding year. The average yield per acre, 28 bushels was the lowest recorded since 1921. The average farm price on Dec. 1, 1931 was only 23.1 cents per bushel making the total value of the crop \$256,483,000, the lowest since 1900. Studies by the Department of Agriculture indicated that the cost of producing a bushel of oats varied from 50 cents to 54 cents during the six years 1925-30.

Production of oats was reported by all the States, the leading ones and their yields being as follows: Iowa 186,106,000 bushels, Illinois 142,188,000 bushels, Minnesota 123,525,000 bushels, Wisconsin 68,852,000 bushels, Ohio 62,138,000 bushels, and Indiana 61,339,000 bushels.

The exports of oats and oat products of the United States for the fiscal year ended June 30, 1931, amounted to 907,000 bushels of grain, as compared with 4,035,000 bushels the year before, and 39,886,000 pounds of oatmeal of which 16,523,000 pounds was shipped in bulk and 23,363,000 pounds in packages, either cases or cartons. The exports of oatmeal also showed a marked reduction from the quantity sent abroad



the preceding fiscal year. The imports for the year amounted to 638,000 bushels of grain.

**OBERLAENDER TRUST.** See **UNIVERSITIES AND COLLEGES.**

**OBERLIN COLLEGE.** A nonsectarian institution for the higher education of men and women in Oberlin, Ohio, founded in 1833. The registration for the first semester of 1931-32 was 1626, while that for the summer session of 1931 was 164. The faculty had 197 members. The productive funds of the institution as of Aug. 31, 1931, amounted to \$18,179,915, and the income for the year was \$1,657,429. During 1930-31 the theological quadrangle, containing recitation rooms and office quarters as well as dormitory accommodations for the graduate school of theology, was erected at a total cost of \$600,000; the formal dedication of these buildings occurred Oct. 12, 1931. The library contained 332,866 bound and 209,675 unbound volumes. President, Ernest Hatch Wilkins, Ph.D., Litt.D., LL.D.

**OBITUARY RECORD FOR THE YEAR.** See **NECROLOGY.**

**OBSERVATORIES.** See **ASTRONOMY.**

**OCCUPATIONAL DISEASES.** See **WORKMEN'S COMPENSATION.**

**OCEANIA, o'she-an'ia, FRENCH ESTABLISHMENTS IN.** A French colonial possession consisting of groups of small islands scattered throughout a wide area of the eastern Pacific. The total area of the Establishments is estimated at 1520 square miles: population in 1929, 35,782, of whom 29,600 were natives. The principal island is Tahiti, which contains the chief town, Papeete, with a population of 5569, of whom 2126 were French. Tahiti forms a part of the Society Islands. The other groups are the Marquesas Islands, Tuamotu Islands, Leeward Islands, the Gambier, Tubuai, and Rapa groups, and a number of outlying islands. Governor in 1931, Léonce Jorc.

**OCEANOGRAPHY.** See **ZOOLOGY.**

**OCEANS.** See **METEOROLOGY.**

**OFFICERS' RESERVE CORPS.** See **MILITARY PROGRESS.**

**OHIO. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 6,646,697; in 1920 it was 5,759,394. The native whites numbered 5,886,985 (1930), 4,893,196 (1920). Foreign-born whites, 644,161 (1930), 678,697 (1920). Negroes, 309,304 (1930), 186,187 (1920). Among other groups separately listed in 1930 were 4037 Mexicans, 1425 Chinese, and 435 Indians. The urban population, living in communities of at least 2500, numbered 4,507,371 (1930), 3,877,136 (1920). It advanced greatly over the rural, which was 2,139,326 (1930), 2,082,258 (1920). Of 2,615,938 persons reported as in gainful occupation, 312,218 were engaged in agriculture (200,775 being farmers); in manufacturing and mechanical industries, were 1,048,169 (of whom 154,883 in the building industry and 321,923 in iron and steel industries); in trade, 419,575; in transportation, 259,780; in professional service, 182,907; in domestic and personal service, 232,605.

Cleveland, the most populous city, had 900,429 inhabitants (1930), 796,841 (1920); Cincinnati, 451,160 (1930), 401,247 (1920); Dayton, 200,982 (1930), 152,559 (1920); Toledo, 290,718 (1930), 243,164 (1920); Columbus, the capital, 290,564 (1930), 237,031 (1920); Akron, 255,040 (1930), 208,435 (1920); Youngstown, 170,002 (1930), 132,358 (1920); Canton, 104,906 (1930), 87,091 (1920); Lakewood 70,509 (1930), 41,732 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn ....	1931	3,576,000	160,920,000	\$54,718,000
	1930	3,438,000	87,669,000	58,738,000
Hay, tame .	1931	2,519,000	3,196,000*	21,094,000
	1930	2,455,000	1,839,000*	31,999,000
Wheat ...	1931	1,723,000	50,744,000	25,866,000
	1930	1,612,000	28,712,000	21,806,000
Oats ....	1931	1,657,000	62,138,000	14,292,000
	1930	1,726,000	62,136,000	21,748,000
Potatoes ..	1931	110,000	11,220,000	6,171,000
	1930	105,000	9,240,000	10,164,000
Tobacco ..	1931	54,000	53,622,000*	4,665,000
	1930	48,100	45,695,000*	5,072,000
Barley ...	1931	96,000	2,736,000	876,000
	1930	109,000	2,943,000	1,472,000

\* Tons. \* Pounds.

**MINERAL PRODUCTION.** A great part of the mineral industry of the State consisted of the treatment of materials obtained from outside its bounds. In particular, there were produced, from non-native ores, 6,541,212 long tons of pig iron (1930), and 9,446,984 tons (1929); in value, \$111,629,209 for 1930 and \$163,480,003 for 1929. Ferro-alloys were produced to the quantity of 85,237 long tons and the value of \$3,000,184 (1929). In the native mineral industry clay products held first place. Their value for 1929 attained \$81,797,405; for 1928, \$81,848,422. Brick and tile furnished over 60 per cent of the total in each year; pottery the rest. The production of coal in 1930, 23,551,978 short tons, nearly equaled that of 1929, 23,689,477 tons. By value it declined to \$31,643,000 (1930), from \$35,733,000 (1929). The yield of natural gas rose slightly to 57,936,000 M cubic feet for 1929, from 56,341,000 M for 1928; in value, to \$32,890,000 (1929), from \$32,090,000 (1928). Petroleum production, 6,519,000 barrels for 1930, was little changed as to quantity from the total of 6,743,000 barrels for 1929; as to value it fell to \$12,400,000 for 1930 (estimated), from \$15,770,000 for 1929. There was a heavy yield of stone, to the quantity of 14,771,030 short tons for 1930, averaging a little over \$1 a ton, and having a total value of \$14,957,234. Shipments of cement mills fell to 8,185,077 barrels for 1930, from 9,144,085 for 1929; by value, to \$11,956,038 (1930), from \$13,427,778 (1929). The State's lime production, the greatest in the Union, was 742,000 short tons for 1930 and 902,415 for 1929; by value, \$5,614,000 (1930) and \$7,935,656 (1929). There were produced 374,008 short tons of gypsum, in value \$3,301,440 (1929), and 1,311,440 short tons of salt (1930), in value \$3,015,206. The total value of the State's native mineral products was \$220,061,343 for 1929; for 1928, \$211,041,279.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 11,815 (8 per cent higher than the number for 1927). These establishments employed 737,469 wage earners (10.2 per cent more than the number employed in 1927). The manufacturing wages paid amounted to \$1,103,938,912. The cost of materials for manufacture and of fuel and purchased electricity was \$3,127,167,725 (more than 8 per cent of the corresponding cost of 1927). The manufactured product was valued at \$5,999,123,993 (exceeding that of 1927 by 14.7 per cent). Value added by manufacture was reckoned as \$2,871,966,268. In 1929 Cleve-

land, the chief manufacturing centre, had 2557 establishments, 140,679 wage earners there employed, \$230,074,181 of wage payments, and \$1,242,083,844 of products; Cincinnati had 1779 establishments, 63,904 wage earners, a wage total of \$92,429,918, and a product of \$522,096,853; Akron, 275 establishments, 59,977 wage earners, wage payments of \$96,619,360, and a product of \$544,581,694; Toledo, 586 establishments, 48,778 wage earners, \$72,174,242 of wage payments, and \$420,824,352 of product; Dayton, 475 establishments, 40,584 wage earners, \$61,976,432 of wages paid, and \$316,525,931 of product.

**FINANCE.** State expenditures in the year ended Dec. 31, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$55,826,089 (of which \$5,507,883 was for local education); for conducting public-service enterprises, \$94,930; for interest on debt, \$700,284; for permanent improvements, \$31,423,133; total, \$88,045,042 (of which \$43,503,008 was for highways, \$17,258,344 being for maintenance and \$26,244,664 for construction). Revenues were \$83,151,071. Of these, property and special taxes formed 19 per cent; departmental earnings and remuneration to the State for officers' services, 8.9; sale of licenses, 55.1 (including gasoline sale taxes amounting to \$23,064,393). The State's funded debt outstanding on Dec. 31, 1930, was \$10,539,495. Net of sinking-fund assets, debt was \$9,532,510. On a property valuation of \$13,453,208,156 were levied in the year taxes of \$5,381,282.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 8804.5. Additional line put under operation during the year preceding had totaled 3.14 miles, while line abandoned had totaled 8.78 miles. In 1931 were built 6 miles of new first track.

**EDUCATION.** For the academic year ending in 1930, the number of persons of school age in the State was reported as 1,552,573. There were enrolled, in 1931, 1,293,110 public school pupils. Of these, 845,107 were in common schools or elementary grades, and 283,109 were in high school grades. There were also 97,578 junior high school and 3062 miscellaneous high school pupils. For the year ending in 1930, the current expenditures for public-school education totaled \$112,075,860; and the salaries of teachers averaged \$1550 a year. According to a report in the *Journal of the National Education Association*, there was much retrenchment in school expenditures in the State in 1931. Teachers' salaries were reduced in a few localities. More commonly terms were shortened. In others, the pay of teachers was not met and could not be met until 1932. The trouble was ascribed largely to changes made in the law as to school taxation by the legislative session of 1931. It was charged that the changes had produced much uncertainty as to the proceeds that would be forthcoming.

**CHARITIES AND CORRECTIONS.** The Department of Welfare, under the system in operation in 1931, continued to exercise the strongly centralized direction of activities affecting the care and custody of persons. It had as its head a director (John McSweeney). Its functions included the administration of 22 State institutions with an aggregate population, on Dec. 1, 1931, of 34,839; administration of a pay-patient law; through its division of charities, extensive duties relating to the safeguarding of unpro-

tested children, the inspection of county jails, homes, and reformatories, and the hospitalization of crippled children; through a board of parole and a division of probation and parole, the handling of State pardons and paroles, and supervision of adult probation in counties and of paroled men released from State custody; examination and classification of prisoners and work of criminal identification and investigation; the conduct of prison industries supplying public departments and institutions; and duties in the prevention and care of blindness.

**LEGISLATION.** The regular biennial session of the State Legislature met in January and continued, save for a recess of two weeks in April, until July 1. It made important alterations in the tax law. By one of these, intangible personal property was specially classified for taxation in accordance with an amendment of 1929 to the State constitution. The license fees for motor vehicles were heavily increased, but at the same time such vehicles were removed from the general property tax. A tax on cigarettes at the rate of one cent for every ten was imposed; per contra, the license fees for wholesalers and retailers of tobacco were reduced by one-half. The State tax on the intra-state gross earnings of railroads was reduced to 3 per cent, from 4, the reduction to take effect in 1933. Methods for the collection of delinquent taxes and for the forfeiture of delinquent property were amended. A fourth member was added to the State Tax Commission, to provide a head for the administration of the new tax on intangibles. Tax levies made in November of each year were made presentable for collection in the succeeding June, instead of December.

There was submitted to popular vote, by the Legislature, a constitutional amendment to authorize the issuance of \$7,500,000 in State bonds for the purpose of institutional construction. Political subdivisions of the State were allowed by statute to issue bonds up to specified amounts for the purpose of making good any deficits occasioned by delinquencies in tax payments. Municipalities were empowered to issue short term bonds in amount not above 1-20 of 1 per cent of tax duplicate, for the purpose of poor relief, during the current year only.

The session's general appropriation bill carried about \$160,000,000 for the needs of the State's activities during the ensuing two years. Inspired partly by the situation of the dissenting stockholders of the Youngstown Sheet and Tube Company, as affected by merger with the Bethlehem Steel Company, a law was enacted to assure dissenting stockholders in similar cases payments equivalent to dividends that they would have received if not dissenting. The law as to the aged poor was amended to terminate the separation of aged husbands and wives entering county homes. In the Workmen's Compensation Act, certain allowances were increased and the list of occupational diseases was augmented. A State Park Board was created, to consist chiefly of ex-officio members. Measures were taken for the legal abandonment of the disused Miami and Erie Canal between Middleton and Cincinnati and the conversion of its bed into a highway.

The law on the observance of Sunday was modified by an act leaving the permission of Sunday motion picture exhibitions to local option. A five-day interim between the application and the issuance of a marriage license was re-

quired. An effort to repeal the much controverted Criminal Syndicalism law of the State was defeated.

**POLITICAL AND OTHER EVENTS.** The U. S. Supreme Court held in a decision rendered on May 18 that the excise taxes on public utilities, as levied on the East Ohio Gas Company, a native corporation purveying natural gas chiefly from outside the State, was valid with regard to the Constitutional provisions for the protection of interstate commerce. In the Court of Common Pleas at Akron the State's law against "criminal syndicalism" was held unconstitutional on April 28. Disappointment with the course of the legislation on Prohibition led to the formation of a State association for the circulation of petitions to gain the 290,000 signatures required for a special election to repeal the State prohibition laws. Mal S. Daugherty, brother of former U. S. Attorney General Harry M. Daugherty, was convicted on March 4 of having defrauded the Ohio State Bank, which had suspended in May, 1930, and received a term of 10 years of prison. He appealed and obtained a new trial on the ground of evidence against him admitted in error.

As in adjoining States, there occurred labor troubles in the coal mines. After weeks of intermittent disorder and of eviction of striking miners from company dwellings, Governor White undertook mediation, late in July. At Columbus, the cornerstone of a new State office building was laid on May 16. The work on a new union passenger station west of Lincoln Park in Cincinnati was started early in the year. Most of the public employees of Cincinnati were put on a city pension system becoming effective August 1.

At Toledo, on August 17, occurred four bank suspensions involving among them resources of \$136,000,000. All four institutions were of the combined savings-bank and trust-company type permitted under Ohio charter. The Security-Home Trust Company, the first to get into trouble, took advantage of the 60-day clause of the State's banking law on June 17 and closed temporarily, with some \$36,000,000 of resources. It could not reopen at the end of the period and the pressure of withdrawals by depositors caused the closing of the Ohio Savings Bank and Trust Company, with resources of some \$58,000,000, the Commerce-Guardian Trust and Savings Bank (resources about \$27,000,000) and the Commercial Savings Bank and Trust Company (resources about \$15,000,000). The circumstances of thousands of depositors were violently affected and trade and credit throughout the northwestern part of the State were much depressed. The building and loan associations of Toledo, Akron and some other localities were generally obliged to invoke the 60-day suspension. Financial security in Akron was increased in October by a merger of three chief banks with \$75,000,000 of resources and the creation of a \$15,000,000 credit pool by the city's rubber interests.

**ELECTIONS.** The vacant seat of Nicholas Longworth (q.v.) in the House of Representatives was won, on November 3, by a Republican, John B. Hollister, in spite of expectations that David Lorbach, Democratic candidate, would carry this 1st or Cincinnati District. Martin L. Sweeney, Democrat, was elected Representative to fill the vacancy in the 20th (Cleveland) District, defeating Hayden Parry, Republican. Cleveland voted by a majority of about 10,000 to give up the city-manager plan of government. A proposal for

a \$7,500,000 State Welfare bond issue to promote public building was defeated.

**OFFICERS.** Governor, George White; Lieutenant-Governor, William G. Pickeral; Secretary of State, Clarence J. Brown; Treasurer, Harry S. Day; Auditor, Joseph T. Tracy; Attorney-General, Gilbert Bettman; Director of Education, J. L. Clifton.

**JUDICIARY.** Supreme Court: Chief Justice, Carrington, T. Marshall; Associate Justices, Thomas A. Jones, Edward S. Matthias, Robert H. Day, Florence E. Allen, Reynolds R. Kinkade, James E. Robinson.

**OHIO NORTHERN UNIVERSITY.** An institution for the higher education of men and women in Ada, Ohio, founded in 1871, and under the direction of the Methodist Episcopal Church. There were 856 students in 1930-31, and in the summer quarter 417 students. The faculty consisted of 49 members. The productive endowment of the institution amounted to \$506,105, and the income for the year to \$260,629. The library consisted of 169,000 volumes. President, Robert Williams, A.M., D.D., LL.D.

**OHIO STATE UNIVERSITY.** A State institution for the higher education of men and women in Columbus, Ohio, founded in 1870. The enrollment for the autumn term of 1931 totaled 10,798, distributed as follows: Graduate school, 1277; agriculture, 886; applied optics, 62; arts and sciences, 2088; arts-education, 51; commerce and administration, 1893; dentistry, 201; education, 1765; engineering, 1606; law, 277; medicine, 356; nursing, 106; pharmacy, 143; veterinary medicine, 172. There were in addition 4845 students registered in the summer quarter of 1931. The faculty numbered 1000, an increase of 10 over 1930. The endowment amounted to \$1,153,656. The total income for the year was \$8,958,932, while the total expenditures were \$9,177,850. The buildings and equipment were valued at \$21,300,000. The library contained 380,000 volumes. President, George W. Rightmire, LL.D.

**OHIO UNIVERSITY.** A State university for the higher education of men and women, founded in Athens, Ohio, in 1804. The student enrollment for the first semester of 1931 was 2563, of whom 1322 were in the college of liberal arts, and 1236 were in the college of education. The enrollment for the 1931 summer session was 1344, of whom 278 were in the college of liberal arts, and 1066 were in the college of education. The income for 1930 was \$1,570,085. The faculty numbered 227. The library contained more than 75,000 bound volumes. President, Elmer Burritt Bryan, L.H.D., LL.D.

**OHIO WESLEYAN UNIVERSITY.** An institution for the higher education of men and women in Delaware, Ohio, under the control of the Methodist Episcopal Church, founded in 1844. For the autumn semester of 1931 the total enrollment was 1644. The faculty numbered 175. The productive endowment of the university amounted to \$3,300,000 and the income for the year 1930-31 for educational enterprises was \$619,003 and for auxiliary enterprises \$301,094. The library contained 131,843 volumes. President, Edmund D. Soper, D.D., LL.D.

**OIL.** See PETROLEUM.

**OIL ENGINE.** See INTERNAL COMBUSTION ENGINES.

**OKLAHOMA. POPULATION.** According to the Fifteenth Census the population of the State

on Apr. 1, 1930, was 2,396,040; in 1920 it was 2,028,283. Native whites numbered 2,096,671 (1930), 1,781,226 (1920). Foreign-born whites, 26,753 (1930), 39,968 (1920). Negroes, 172,188 (1930), 149,408 (1920). Indians, 92,725 (1930). Mexicans, 7354 (1930). The urban dwellers, those in communities of at least 2500, increased rapidly, to 821,681 (1930), from 539,480 (1920); but they were still outnumbered almost two to one by the rural population, which was 1,574,359 (1930), as against 1,488,803 (1920).

Of 828,029 persons reported as in gainful occupations in 1930, 306,140 were in agriculture (whereof 199,486 were farmers); 115,735 were in trade; 111,953, in manufacturing and mechanical industries, including building (32,377); 62,212 in transportation; 55,800 in professional service; 60,210 in mineral extraction, of whom the oil and gas wells occupied 49,113. Oklahoma City, the capital and most populous city, had 185,389 inhabitants (1930), 91,295 (1920); Tulsa, 141,258 (1930), 72,075 (1920); Muskogee, 32,026 (1930), 30,277 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton .....	1931	3,818,000	1,220,000*	.....
	1930	3,997,000	854,000*	.....
Corn .....	1931	3,321,000	51,808,000	15,542,000
	1930	3,193,000	35,762,000	23,245,000
Wheat ...	1931	4,407,000	74,919,000	28,469,000
	1930	3,935,000	37,382,000	22,055,000
Hay, tame ..	1931	445,000	568,000*	3,806,000
	1930	399,000	490,000*	5,096,000
Grain sorghum	1931	1,443,000	12,987,000	3,896,000
	1930	1,335,000	8,678,000	5,207,000
Oats .....	1931	1,516,000	43,206,000	8,209,000
	1930	1,053,000	25,798,000	9,803,000
Potatoes ....	1931	45,000	3,240,000	1,944,000
	1930	38,000	3,496,000	3,846,000
Sweet potatoes ..	1931	19,000	1,330,000	931,000
	1930	17,000	1,190,000	1,190,000

\* Bales.    ♢ Tons.

**MINERAL PRODUCTION.** The production of petroleum, though much reduced in 1930, remained in excess of the quantity regarded as desirable by many students of the industry. There were produced in 1930, 215,227,000 barrels of petroleum, as against 255,004,000 in 1929; by value \$277,000,000 (estimated, 1930), \$364,650,000 (1929). The production of natural gas rose to 357,893,000 M cubic feet for 1929, from 320,861,000 M for 1928; by value, to \$53,528,000 (1929), from \$47,476,000 (1928). In addition, there was recovered a great quantity of natural-gas gasoline—676,030,000 gallons in 1929 and, in 1930, 578,600,000 gallons; in value \$42,766,000 for 1929 and \$28,810,000 for 1930. The remainder of the State's mineral total was made up largely of its zinc production, 136,153 short tons for 1930 and 192,042 for 1929; by value, \$13,070,688 (1930), \$25,349,544 (1929). Production of lead was 23,052 short tons for 1930, and 46,513 for 1929; by value, \$2,305,200 (1930), \$5,860,638 (1929). Coal production, though restricted by the competing abundance of other mineral fuels, is normally substantial. It declined, however, to 2,546,000 short tons for 1930, from 3,774,080 for 1929, for which year the quantity had a value of \$11,481,000. The total value of the State's mineral production was \$516,685,232 for 1929; for 1928, \$486,634,347.

**MANUFACTURES.** Federal Census data gathered

in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 1651 (more than 20 per cent above the number for 1927). The wage earners employed numbered 31,279 (exceeding the total for 1927 by 12 per cent). Wages paid by manufacturing establishments amounted to \$40,721,920 (somewhat more than 14 per cent above the wage total of 1927). Materials used in manufacture, plus fuel and purchased electricity, cost \$306,990,041 (some 14 per cent more than the corresponding 1927 cost). The manufactured product was valued at \$452,161,249 (an excess of 21.6 per cent over the value of the 1927 product). The value added by manufacture was estimated at \$145,171,208. Oklahoma City, the leading manufacturing community, had 243 establishments, employing 5530 wage earners, who received wages of \$7,645,056, and its product was \$81,002,795.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$22,873,275 (of which \$3,556,799 was for local education); for interest on debt, \$202,616; for permanent improvements, \$18,908,613; total, \$41,984,504 (of which \$17,551,115 was for highways, \$1,632,764 being for maintenance and \$15,918,441 for construction). Revenues were \$39,434,850. Funded debt outstanding on June 30, 1930, totaled \$2,049,500. Net of sinking-fund assets, it was \$1,934,550. On an assessed valuation of \$1,829,674,641 the State levied in the year ad-valorem taxes of \$6,403,861.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 6678.15. There had been added 23.94 miles of line in the year preceding, but 27.46 miles of line had been abandoned. In 1931 were built 52.47 miles of new first track.

**EDUCATION.** Legislative provision was made, according to State Superintendent Vaughan, in the *Journal* of the National Education Association, for \$750,000 to supplement the equalization fund for the public schools; in order to relieve the population from what had been regarded as excessively heavy ad-valorem taxation, it was provided that one-half of the revenue from the State's income tax should be allotted to support of schools.

**CHARITIES AND CORRECTIONS.** A limited degree of central authority over State activities for the care and custody of persons was vested, under the system in force in 1931, in the Department of Charities and Corrections, which had as its head a Commissioner (Mabel Bassett).

**LEGISLATION.** The Legislative session of 1931 failed to carry out an extensive and idealistic programme offered to it by Governor Murray. It passed an act providing for a net-income tax on both corporations and individuals. The rate of this tax ran from 2 per cent on personal incomes within \$10,000 a year, up to 5 per cent on incomes of over \$100,000. An exemption of \$750 a year was allowed for each dependent on the person paying the tax. The first levy was to be made in 1932, on incomes of 1931. The gasoline tax was raised to five cents a gallon, from four cents.

A radical measure against propagation by criminals was taken in the enactment of a law providing for the sexual sterilization, by surgery, of any person in the State penitentiary, reform-

atory or other State institution, who had been convicted of a third criminal offense. As it appeared that many royalty owners escaped payment of the State's gross production tax on petroleum and gasoline, thus causing the State an estimated loss of \$500,000 a year in potential revenue, the obligation to pay this tax was transferred by law to the pipe-line companies, who were to charge payments to persons from whom they purchased.

**POLITICAL AND OTHER EVENTS.** Governor W. H. ("Alfalfa Bill") Murray, inaugurated January 12, played an active and striking part in the State's affairs. In issuing paroles to convicts he required them, in frequent instances, to leave the State. He inaugurated the practice of giving some of the appointments on the Governor's staff to women. With the aid of a State-wide relief association his administration made headway against destitution prevalent in some of the coal and petroleum areas.

The Governor had failed to obtain from the Legislature favorable consideration for some of his most cherished plans; among these a higher income tax on corporations and on large incomes, an escheat measure to forfeit certain corporations' lands to the State, a free distribution of school text books by the State, and a budget system requiring a budget officer and forbidding the Legislature to increase budget appropriations by less than three-fourths of each house. He therefore brought about a popular referendum, by initiative, on all these proposals. It was held December 18 and all were defeated by a vote about in the proportion of 3 to 2.

Governor Murray called a detachment of the National Guard into service in July in an effort to compel the opening of a free bridge that had been built over the Red River by Oklahoma and Texas jointly. A near-by toll bridge between Denison, Texas, and Durant, Oklahoma, failing to obtain from the State of Texas an agreed compensation for the loss of its business through the opening of the free bridge, had sued out a Federal injunction to prevent the opening of the Texas end of the latter. When Murray sought to compel it to open by the use of troops, Texas rangers were posted at the Texas end, which was thus blocked. Murray then retaliated by blocking the Oklahoma end of the old toll bridge. The trouble was finally settled by making arrangements for the payment of the sum due the toll bridge owners from Texas.

Later in July Governor Murray resorted to the use of the National Guard for a more serious purpose. On July 28 he served notice on producers in the petroleum fields of the State that unless the price of petroleum were immediately raised to one dollar a barrel he would summarily shut down operations in these fields. The product had been selling at something like half the price that he set, in consequence of a glut in production. His terms therefore could not be met, but many of the producers favored a shutdown as the alternative to unprofitable operations. The Governor ordered the shutdown on August 1, and called out troops to enforce it. He thus inaugurated the summary way of dealing with overproduction later adopted by Governor Sterling of Texas.

At Ardmore, on June 9, two deputy sheriffs, in seeking to arrest a party of young Mexicans traveling by automobile, shot and killed two of the party; one of those killed was Emilio Cortes

Rubio, a nephew of the President of Mexico. The occurrence led to diplomatic action on the part of Mexico. The men responsible for the killing were tried in Oklahoma and were acquitted, apparently on the theory that they had fired under the impression that the young Mexicans were resisting arrest. See MEXICO under *History*.

**OFFICERS.** Governor, William H. Murray; Lieutenant-Governor, Robert Burns; Secretary of State, R. A. Sneed; State Auditor, Frank C. Carter; Attorney-General, J. Berry King; State Treasurer, Ray O. Weems; Superintendent of Public Instruction, John Vaughan; State Examiner and Inspector, John Rogers.

**JUDICIARY.** Supreme Court: Chief Justice, E. F. Lester; Associate Justices, J. Howard Langley, James B. Cullison, Charles Swindall, Robert A. Hefner, Edwin R. McNeill, Thomas G. Andrews, J. W. Clark, Fletcher Riley.

**OKLAHOMA, UNIVERSITY OF.** A State institution for the higher education of men and women in Norman, Okla., founded in 1890. The enrollment for the autumn of 1931 totaled 5173. For the summer session of 1931, 2388 students were registered. There were 301 faculty members. The productive funds of the university amounted to \$3,200,000, and the income for 1931-32 was \$1,527,641. The library contained 132,000 volumes. President, William Bennett Bizzell, Ph.D., LL.D.

**OLD AGE PENSIONS.** The American Association for Old Age Security, whose president was Bishop Francis J. McConnell and whose executive secretary was Abraham Epstein, whose intelligent work in the cause of the enactment of old age security laws had been an important factor in the achievement of this desirable form of social insurance in the United States, was able to report that the year 1931 saw great advances in the enactment of old age security legislation. Its investigations indicated that in 38 legislatures meeting during the year, 100 bills were presented and that measures were passed by both houses of legislatures in 6 States and were enacted into laws in 5 States. Thus, the total of States possessing old age security laws was 17, covering fully 42,000,000 persons in the American population.

Bills establishing old age pension systems were passed by the legislatures of Delaware, Idaho, Indiana, West Virginia, New Jersey, and New Hampshire. The Governor of Indiana was the only State executive who failed to sign such a law. In addition, the State of Colorado changed its optional law of 1927 to a mandatory law and reduced the pensionable age from 70 to 65. The Wyoming law, too, was converted from an optional to a mandatory statute. The Pennsylvania legislature adopted a constitutional amendment to make possible the payment of pensions by the State and the counties. Maryland also amended its law to permit Baltimore to begin the payment of pensions under the State law of 1927. The States of Oregon, Maryland, Illinois, and Connecticut authorized the establishment of commissions for study and report to the legislatures in 1933. It is important to note that of the 5 new laws enacted in 1931 only West Virginia's contains the optional feature permitting the counties to inaugurate the system if they so desire.

Mr. Epstein, in summarizing the status of old age security in 1931, pointed out that of the



17 laws on the statute books at that time, only those of Kentucky, Nevada, and probably West Virginia were likely to remain inoperative for a time. In 1931, too, probably 75,000 persons were receiving pensions in the State of California, Montana, Utah, Minnesota, Wisconsin, and New York. It is significant to note that in the month of October, New York State alone was pensioning 43,206 of its citizens of whom 21,653 were residents of New York City. The average pension of New York City was \$32.37 a month; in the other cities of the State, it was \$22.56; and for the counties, \$20.90 a month. During September, the total number of pensioned persons in the State of California was 8750. The average pension in this State was \$23 a month. In Massachusetts, 6412 persons were receiving pensions, the average grant being \$24.24 per month.

**DELAWARE.** On Jan. 29, 1931, by sizable majorities in both houses, the Delaware legislature adopted the Old-Age Pension Bill recommended by a commission headed by Alfred I. du Pont. During the 14 months preceding the enactment of the new law, Mr. Du Pont himself had been furnishing pensions for more than 1300 aged persons in the State due to the failure of the 1929 legislature to furnish such relief. Delaware's old age pension law differed from acts already on the statute books of other States in the Union in that it provided that the complete cost for pensions be borne by the State without county contributions. The chief provisions of the new enactment were as follows: There was to be set up a State Old Age Welfare Commission appointed by the Governor and vested with the functions of adopting the necessary rules and regulations for the supervision of the act. Applicants for pensions were required to be 65 years of age; residents of the United States for 15 years and residents of the State for not less than five years; and without children or other means of support. The size of the pension was limited to \$300 annually (which was to include income from property or other sources); no amount in excess of \$25 was to be allowed, but no statutory pension was fixed.

**IDAHO.** On Feb. 12, 1931, the State of Idaho, the fourteenth State to join the company of those carrying old age pension statutes in their laws, enacted a measure for the relief of the aged. This law provided for the creation in each county of an Old Age Pension Commission responsible for the administration of the law. Applicants for pensions were required to have the following qualifications: To be 65 years of age; a citizen of the United States for 15 years; a resident of Idaho for not less than 10 years; and a resident of the county for three years. Persons ineligible for pensions were those who had been imprisoned during 10 years preceding the date of application, had deserted their husbands or wives, who had assigned property prior to the filing of application, who had children or other responsible persons able to support them and who had annual incomes (including the pension) exceeding \$300. The County Commissions were vested with the power of determining the size of the individual allotments, the statutory allotments being fixed, however, at \$25 a month. Pensions under the Idaho law were to be paid from the poor fund or current expense fund of each county.

**WEST VIRGINIA.** On Mar. 11, 1931, an old age pension law was passed by the State legislature to be effective three months after passage. The county courts in the State were authorized to

establish this system subject to the approval of the voters in each individual county. After two years' operation the county courts might, on their own motion, and were required to on the petition of 500 taxpayers, to submit the question again to a popular referendum. Applicants for pensions were required to have the following qualifications: Were 65 years of age or over; had been citizens of the United States for at least 15 years; had resided in the State of West Virginia and the county of application continuously for at least 10 years. Persons ineligible for pensions were the following: Those who at the time of application were inmates of public or private homes for the aged; those in need of institutional care; those who during 10 years preceding application had been imprisoned for felonies; those who had children or other persons responsible for their support and capable of support; those who had property, income or other means of support; those who had disposed or had assigned property preceding the filing of application. The statute fixed the maximum pension grant of one dollar a day. In the discretion of the county court relief might include medical and surgical care, including nursing. County courts maintaining a system of old age relief were required each year to levy a special tax on the property in the county.

**NEW JERSEY.** Without one dissenting vote, the New Jersey legislature on April 24 passed an old age pension bill making it the Sixteenth State with such legislation. The chief provisions of this bill were the following: There was created a Division of Old Age Relief in the State's Department of Institutions and Agencies. A director for old age relief was to be appointed in each county. Applicants to be eligible for pensions were required to be 70 years of age; unable to maintain themselves and having no children responsible for their support; citizens of the United States; a State resident for 15 years; and a resident of the county of application for one year. Persons who had been convicted of felonies or misdemeanors or who possessed property in excess of \$3000 were not eligible. County welfare boards were vested with authority to determine the size of the pension in each instance, a maximum of one dollar a day being set. As a condition of the granting of the pension the law empowered the county welfare boards to require the transference of any property the pensioner might possess to the county. The counties were required to appropriate funds necessary for the administration of the act; however, three-fourths of the amount expended was to be repaid by the State to each county. The State's share of old age relief was to be derived from the revenue produced by an inheritance tax.

**NEW HAMPSHIRE.** On May 6, both houses of the State legislature reenacted an old age pension law following the action of the State Supreme Court declaring a previously proposed old age pension law invalid. The law called for the creation in each county of a Board of Commissioners to administer the act, the counties paying the relief and being subsequently reimbursed by each city or town legally chargeable with the expense. Applicants for pensions were required to possess the following qualifications: Were 70 years of age; citizens of the United States for 15 years; a resident of the State and county of application for 15 years. The following types of persons were ineligible: those able to support themselves or having children or other persons responsible for their support; those possessing property in ex-



cess of \$2000; those who had assigned property immediately before application; inmates of charitable or correctional institutions; those in need of institutional care; those who had been imprisoned for 10 years preceding the date of application. County commissioners were charged with fixing the size of relief based on individual requirements, the maximum however to be \$7.50 a week from all sources. As a condition of the granting of relief, county commissioners might require the transfer of property from the pensioner to the county to be held in trust and on the pensioner's death the county, city, or town was to be reimbursed from this trust fund, moneys expended for relief.

**AMERICAN FEDERATION OF LABOR.** The executive council of the American Federation of Labor, in August, approved a model old age security bill which was to be referred to State federations throughout the United States and which was to act as a basis for a nationwide labor campaign. The model bill called for a pension to indigent citizens 65 years of age whose annual income did not exceed \$468 and who had no property in excess of \$3000. The bill fixed the maximum weekly pension at \$9 and proposed that the funds were to be supplied by the State.

**CANADA.** Previous issues of this YEAR BOOK have pointed out that as a result of a Dominion law in 1927, permitting the Provincial governments to pass old age legislation, there have been written on the statute books of five Canadian provinces laws calling for the granting of relief to aged citizens. On June 30, 1930, in these five provinces, as well as in the Northwest Territories, there

age pension grants were made in this country, bringing the total number of pensioners to 155,196.

**URUGUAY.** This country has had an old age pension law on its books since 1919, under which pensions are paid to all persons reaching 60 years of age or proving total incapacitation to work. The law also makes eligible for pension grants foreigners who have lived in the country for 15 years. See LABOR LEGISLATION; LABOR LEGISLATION, AMERICAN ASSOCIATION FOR.

**OLD CATHOLICS.** A religious communion which owes its origin to the withdrawal from the Roman Catholic Church of certain members who refused to accept the dogma of papal infallibility, passed by the Vatican Council in 1870, and organized a separate ecclesiastical body, founded on the diocesan episcopate, at the first Old Catholic congress held in Munich, Germany, in 1871. It is found principally among the countries of Central Europe, whose churches are in communion with the See of Utrecht. In 1930 there were 33,000 members in Germany, 30,500 in Switzerland, 31,000 in Austria, 20,000 in Czechoslovakia, 12,000 in the Netherlands, 100,000 in Poland, and 41,460 in Yugoslavia. Small congregations also exist in France, Italy, Spain, Portugal, England, and the United States. In the last named country the church has been known, since its organization in 1914, as the Old Catholic Church in America; in 1926, according to the U. S. Census, it had nine parishes with 1888 members. Among some of the churches, especially in Germany, the doctrine of the Immaculate Conception, the obligation of confession, and priestly absolution are re-

TOTAL COST OF OLD AGE PENSIONS IN CANADA AND COST TO DOMINION GOVERNMENT, FOR SPECIFIED PERIODS

Province	April 1, to June 30, 1930		Since adoption of old age pension act	
	Total	Dominion's share	Total	Dominion's share
Alberta .....	\$152,475	\$76,288	\$419,895	\$209,948
British Columbia .....	279,320	139,660	2,328,995	1,164,478
Manitoba .....	321,263	160,631	1,970,559	985,279
Ontario .....	1,735,020	867,510	3,990,708	1,995,354
Saskatchewan .....	274,992	137,496	1,594,935	797,468
Northwest Territories .....	261	261	818	818
Total .....	2,763,331	1,381,796	10,305,910	5,153,345

were 47,291 pensioners who were receiving grants as indicated in the accompanying table.

**RUSSIA.** Under the Russian Five Year Plan provision was made for a complete system of social insurance to cover old age invalidity, sickness, and unemployment. A system of old age pensions was being introduced by stages. In 1927-28, it was applied to workers in the textile industry; in 1928-29, to workers in mines, metal industry, river transport and railways; in 1929-30 to workers in the dyeing industry, glass works, potteries, tobacco factories, and chemical, clothing, wood, and printing industries; in 1930-31 to workers in the mineral and food industries and to non-manual workers in those branches of the industries already covered. The Soviet scheme called for the granting of old age pensions equivalent to 50 per cent of the wage.

**NEW ZEALAND.** In this country a system of old age pensions had existed for 32 years and in 1930 some 27,000 citizens were receiving benefits under it.

**AUSTRALIA.** In 1930 an additional 22,575 old

jected. The mass is said in the vernacular; and priests are allowed to marry. Intercommunion with the Anglican communion was accomplished at a conference in Bonn, Germany, in July, 1931, the concordat being ratified later by the Vienna congress of the Old Catholic Church and by the convocations of Canterbury and York of the Church of England. See ENGLAND, CHURCH OF.

**OLDENBURG,** ol'den-böörk. A State of the German Republic. See GERMANY under Area and Population.

**OLDS, GEORGE DANIEL.** American mathematician and former president of Amherst College, died in Amherst, Mass., May 11, 1931. He was born in Middleport, N. Y., Oct. 14, 1853, and was graduated from the University of Rochester in 1873. After several years of graduate study at the universities of Heidelberg and Berlin, he became in 1884 professor of mathematics at the University of Rochester. In 1891 he was called to Amherst College in the same capacity, becoming dean in 1909 and president in 1924. He retired as president emeritus in the year 1927.

**OLD TESTAMENT ARCHAEOLOGY.** See ARCHAEOLOGY.

**OLEOMARGARINE.** See DAIRYING.

**OLYMPIC GAMES.** There was considerable activity in 1931 concerning the Olympic Games that were to be held in 1932 at Los Angeles, Calif. Preparations were made by all countries to send teams to California, and the Los Angeles authorities had arranged that nothing would be left undone to make these Olympic Games the best in history. The athletes were to be housed in specially-built bungalows and arrangements were completed for their transportation to the stadium, the lagoon, etc.

The winter Olympics were to be held at Lake Placid, N. Y., in February and elaborate arrangements were made for their success. A stadium for the ice hockey games was erected, and a new bobsled-run, as well as a ski jump. The bobsled-run down the side of Mt. Van Hoevenberg and the ski jump ranked with the best in the world.

**OLYTHUS.** See ARCHAEOLOGY.

**OMAN.** See ARABIA.

**ONTARIO,** on-tā'ri-ō. Second in size (after Quebec) among the Canadian Provinces, Ontario lies between Quebec on the east and Manitoba on the west. The area is 407,262 square miles; the population at the census of 1931 was 3,431,683, compared with 2,933,662 in 1921. Toronto, the capital, had 627,582 inhabitants in 1931 (521,893 in 1921). Other leading cities, with the 1931 census population, were: Ottawa, 124,988 (107,843 in 1921); Hamilton, 154,914 (114,151); London, 71,022 (60,959); and Windsor, 62,957 (38,591). Living births in 1929 numbered 68,411; deaths, 38,102; marriages, 27,605. Elementary schools in 1928 enrolled 708,081 pupils, secondary schools 97,833, and the seven universities (1928-29) 17,589.

Besides leading all the Canadian Provinces in manufacturing, Ontario is rich in agricultural, mineral, and forest resources. With 9910 manufacturing establishments, representing a capital investment of \$2,418,340,450, and 339,859 employees, the factories of the Province in 1929 produced goods valued at \$2,103,090,788, of which \$1,022,984,190 represented the value added in process of production. In the same year, the publicly owned Ontario Hydro-electric Power Commission distributed 1,136,689 electric horse power to 552,321 customers in 607 municipalities. In the fiscal year ended Oct. 31, 1930, the Commission earned a net surplus of \$1,163,660, as compared with \$1,575,225 in the previous year. The Commission increased its capital investment by \$37,000,000 during the year and its gross revenue by \$1,363,914. There are about 14,000,000 acres of cultivated land, of which 10,009,200 acres produced field crops valued at \$179,919,000 in 1930. In 1929, 10,020,294 acres yielded crops valued at \$241,778,000. Mineral production (1930) was provisionally reported at \$113,641,468 (\$95,272,332 in 1931). The chief minerals exploited are gold (\$43,117,688 in 1931), silver, copper, nickel, platinum, crude petroleum, and natural gas. From the forested area of about 240,000 square miles, lumber and other sawmill products valued at \$32,743,346, wood pulp valued at \$39,963,767, and paper and newsprint valued at \$66,822,230 were extracted in 1929. Fisheries yielded \$3,933,339 in 1929 (\$4,030,753 in 1928). Steam railways extend over 11,000 miles and highways over 52,000 miles. A railway extension to James Bay was completed in 1931. Construction or improvement of the On-

tario section of the trans-Canada highway was started in 1931 as an emergency unemployment relief project.

Ordinary provincial revenues for the fiscal year ended Oct. 31, 1930, totaled \$57,343,291 and expenditures \$57,989,353, according to preliminary figures. The bonded indebtedness in 1929 was \$350,563,845. The Province is administered by a lieutenant-governor, appointed by the Dominion, a responsible cabinet, and a single legislative chamber of 112 members elected by popular vote. The Legislature constituted in 1929 comprised 90 Conservatives, 2 Liberals, 5 Progressives, 4 Laborites, and 1 United Farmer. Lieutenant-Governor in 1931, W. D. Ross. Premier, President of the Council, and Minister of Education, G. S. Henry (Conservative). In the year ended Oct. 31, 1931, the Ontario Liquor Control Board sold liquor and permits valued at \$45,835,707 and earned a profit of \$8,491,653. See CANADA.

**OPERA.** See MUSIC.

**OPIUM CONVENTION.** See LEAGUE OF NATIONS.

**ORANGE FREE STATE.** A province of the Union of South Africa. Capital, Bloemfontein. See SOUTH AFRICA, UNION OF.

**ORANGES.** See HORTICULTURE.

**ORATORIOS.** See MUSIC.

**ORCHESTRAS.** See MUSIC.

**ORDNANCE.** See MILITARY PROGRESS.

**ORE DEPOSITS.** See GEOLOGY.

**ORE DRESSING.** See METALLURGY.

**OREGON.** POPULATION. According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 953,786; in 1920 it was 783,389. The native whites numbered 831,554 (1930), 666,995 (1920). Foreign-born whites, 105,475 (1930), 102,151 (1920). There were in the State, in 1930, 2234 Negroes, 1565 Mexicans, 4776 Indians, 2083 Chinese, 4958 Japanese, and 1061 Filipinos. The urban population (living in communities of at least 2500) predominated slightly in 1930, when it was 489,746, as against 391,019 in 1920; while the rural population was 464,040 (1930), 392,370 (1920).

Of 409,680 persons reported as in gainful occupations, 82,031 were in agriculture (49,917 being farmers and 26,650 paid farm workers); 99,481 were in the mechanical and manufacturing industries; 67,893 in trade; 44,670 in transportation; 34,175 in professional service; 37,029 in domestic or personal service; 19,277 in forestry. Portland, the most populous city, had 301,815 inhabitants (1930), 258,288 (1920); Salem, the capital, had 26,266 (1930), 17,679 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ..	1931	957,000	1,538,000*	\$13,073,000
	1930	929,000	1,768,000*	16,973,000
Wheat .....	1931	945,000	17,662,000	8,927,000
	1930	1,027,000	23,621,000	18,745,000
Oats .....	1931	223,000	7,186,000	2,355,000
	1930	240,000	8,880,000	3,108,000
Potatoes ...	1931	42,000	5,460,000	2,780,000
	1930	38,000	5,115,000	4,348,000
Apples .....	1931	.....	4,150,000	2,282,000
	1930	.....	8,200,000	4,650,000
Corn .....	1931	62,000	1,860,000	1,209,000
	1930	60,000	1,980,000	1,648,000
Hops .....	1931	15,500	16,480,000*	2,800,000
	1930	14,000	14,850,000*	2,152,000
Barley .....	1931	74,000	2,072,000	932,000
	1930	76,000	2,280,000	1,140,000

\* Tons.    ♢ Pounds.

**MINERAL PRODUCTION.** The only important features of the mineral industry of the State in 1929 were the production of stone and of sand and gravel, which together made up about half of the year's mineral total by value. The State mined gold, silver, copper, lead, and zinc on a minor scale. The value of its combined product of these minerals was \$325,143 for 1930, as against \$486,000 for 1929, when higher prices had promoted greater activity. The chief part of the metal value lay in the yield of gold, 14,401 fine ounces for 1930 and 17,092 for 1929; by value, \$297,600 for 1930 and \$353,323 for 1929. The total value of the mineral products of the State was \$6,876,703 for 1929; for 1928, \$6,686,988.

The total value of the gold, silver, copper, and lead from lode and placer mines in Oregon in 1931 was estimated at \$314,100, compared with \$325,143 in 1930, a decrease of approximately \$11,000, by the U. S. Bureau of Mines. The value of the gold in 1931 was almost 99 per cent of the total value of all metals recorded. Compared with 1930 there were large decreases in the output and value of silver, copper, and lead, but gold increased about 5 per cent. The output in 1931 being estimated at 15,000 fine ounces, valued at about \$310,100, an increase of approximately 600 ounces in quantity and \$12,398 in value, compared with the production reported for the year 1930.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 placed the number of the State's manufacturing establishments at 2466 (about 40 per cent more than their number for 1927). These establishments employed 65,521 wage earners (an excess of 14.6 over 1927). The wages paid amounted to \$86,865,165 (nearly 15 per cent more than had been paid in 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$205,547,630 (more than in 1927 by 9 per cent). The manufactured product was valued at \$412,330,623 (exceeding that of 1927 by 20.3 per cent). Net of material, fuel, and electrical costs, the value added by manufacture was \$206,782,993. Portland provided roughly one-third of the manufacturing activity; its 1042 establishments employed 21,901 wage earners, paid them wages of \$29,047,403, and turned out a manufactured product with a total value of \$172,433,230.

**FINANCE.** State expenditures in the year ended Sept. 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$13,667,161 (of which \$480,008 was for local education); for conducting public-service enterprises, \$57,841; for interest on debt, \$2,771,497; for permanent improvements, \$12,011,288; total, \$28,507,787 (of which \$14,222,367 was for highways, \$3,296,079 being for maintenance and \$10,925,388 for construction). Revenues were \$30,368,961. Funded State debt outstanding on Sept. 30, 1930, totaled \$59,996,901, of which \$28,966,750 was for highways. Net of sinking-fund assets, it was \$29,975,281. On an assessed valuation of \$1,124,988,692 the State levied in the year ad-valorem taxes of \$4,633,068.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 3456.13. Additions to total line under operation had totaled 17.24 miles during the year preceding, but line abandoned had totaled 48.65 miles. In 1931 were built 28.4 miles of new track.

**EDUCATION.** Efforts were made during the year to increase the amount of educational service rendered by the public schools in proportion to the amounts expended. These efforts, according to State Superintendent Rice, took the form of research activities, the issue of standard texts, and revision of curriculum.

For the academic year 1930-31 the number of the State's inhabitants of school age (4 to 19 years) was stated as 260,052. There were enrolled in the public schools 201,732 pupils. Of these, 152,950 were in common schools or elementary grades, and 48,782 were in high schools. The year's expenditures for public-school education totaled \$17,814,445.

**LEGISLATION.** The regular biennial session of the 36th Legislative Assembly, continuing until March 5, produced an exceptionally large output of laws, of which, however, a considerable proportion were vetoed by Governor Meier. The State Public Service Commission of three was abolished and in its place was created a Department of Public Utilities, headed by a single commissioner, who was to hold by the Governor's appointment and to be removable at the Governor's discretion. This official was specifically charged to represent the public in controversies with utilities. At the same time the right was granted to cities and towns to make their own arrangements with utilities serving them, by the issue of franchises or otherwise, subject to the approval of the Commissioner of Public Utilities. If he should in such case disapprove, he might still be reversed by the electorate of the municipality. The old act establishing for utilities the requirement of a certificate of convenience and necessity and thus removing competition from the utility field was repealed.

The Legislature created also a Hydro-electric Commission, to be composed of the State Engineer and two appointees of the Governor. In this body was vested jurisdiction over the development of hydro-electric resources, somewhat after the model of the Federal Water Power Act. The Commission was to issue to developers of such resources licenses to terminate in not more than 50 years; also to require them to set up reserves to retire invested capital during term of license. Reversion to the State was stipulated to take place at the expiry of a license, in controversion of the doctrine of ultimate Federal jurisdiction over waters. Localities obtained power to set up utility districts for public developments.

A State Department of Agriculture was created, in which were merged divers supervisory agencies. A State Police patterned on the forces of Pennsylvania and New Jersey was brought into existence. A reform in the method of judiciary election, patterned on the system of the State of Washington, was adopted. It provided a separate ballot for judicial candidates and from that ballot it banished party labels, with the object of securing a non-partisan bench. The Legislature also submitted to popular vote for ratification three constitutional amendments. These, respectively, were: To restrict voting on bond issues and special tax levies to taxpayers; to offer tax-levying bodies an option of three years from which to choose the base-year in increasing a tax; to permit defendants in other than capital crimes to waive trial by jury.

In addition to the income tax ratified by popular vote in 1930, there was enacted a special income tax on the revenue from such intangibles

as bonds and shares of stock. The rate of this tax was set at 8 per cent, as against a sliding rate of not over 5 per cent on the general State income tax; but income paying the intangible-income tax was exempted from paying the general income tax. A peculiar feature of the measure granted exemptions to small incomes but withdrew them progressively from larger incomes. A uniform traffic code was adopted conforming mainly with those of Washington, California, and several other States. For the benefit of the dairies, a tax of 10 cents a pound was laid on oleomargarine. The one-mill tax for market roads was abolished and a system of secondary roads was created, to remove the burden of such roads from the direct taxpayer. The 2 per cent penalty on delinquent taxes was abolished and interest rates on delinquent taxes were reduced retroactively. The banking law was recodified and made to provide a separate code for building and loan companies. A State Probation Commission, to be appointed by the Governor and to serve without pay, was provided.

**POLITICAL AND OTHER EVENTS.** Governor Meier became involved in a conflict with State Treasurer Kay and Secretary of State Hoss, members of the State Board of Control, over his demand that they vote for the dismissal of the Superintendent of the State Penitentiary. The death of State Treasurer Kay in May gave the Governor the control of the Board and put an end to effective opposition to his plans of reform. He appointed Maj.-Gen. S. D. Butler, Retired, to be chief of the newly created State police force. The City and County of Portland each voted in April a bond issue of \$1,000,000 to give work to the unemployed.

**OFFICERS.** Governor, Julius L. Meier; Secretary of State, and State Auditor, Hal E. Hoss; Treasurer, Rufus C. Holman; Attorney-General, I. H. Van Winkle; Superintendent of Public Instruction, Charles A. Howard.

**JUDICIARY.** Supreme Court: Chief Justice, Henry J. Bean; Associate Justices, Harry H. Bell, George M. Brown, John L. Rand, George Rossman, Percy R. Kelly, J. U. Campbell.

**OREGON, UNIVERSITY OF.** A State institution of higher education in Eugene, Ore., founded in 1872. It consists of a college of literature, science, and the arts, graduate school, and schools of architecture, business, education, journalism, law, music, physical education, medicine, and social work, the latter two being located in Portland. The enrollment for the autumn term of 1931 was 3117. The faculty for the autumn term numbered 226. The total income for the year July 1, 1930, to June 30, 1931, was \$1,663,688. The endowment amounted to \$235,510, with a productive income of \$11,775. The main library contained 230,371 volumes, and the medical school library more than 11,000 volumes.

During 1931 the out-patient clinic building, located on the Portland medical school campus, was completed at a cost of \$400,000, made possible through a gift from the General Education Board. President, Arnold Bennett Hall, J.D., LL.D.

**OREGON STATE AGRICULTURAL COLLEGE.** The Federal land-grant college of Oregon, established under Federal and State support in 1868 in Corvallis. The enrollment for the autumn term of 1931 was 3036, of whom 2076 were men and 960 were women. The 1931 summer session enrollment was 1636. The total resident enrollment for the full year 1930-31 was 5570.

There were 328 members on the teaching faculty.

Beginning with July 1, 1931, all the State institutions of higher learning in Oregon were to be administered by the State Board of Higher Education on the basis of a unified budget. There were 100,530 catalogued volumes in the library. The Charles Lathrop Pack forestry prize, the Lee scholarship in home economics, the E. D. Ressler memorial award in vocational education, and the College Folk Club scholarship were established during the year. The J. G. Crawford collection from prehistoric burial mounds was added to the college museum. President, William Jasper Kerr, Sc.D., LL.D.

**ORGANIC CHEMISTRY.** See CHEMISTRY.  
**ORGANISTS.** See MUSIC.

**ORIENTAL FRUIT MOTH.** See ENTOMOLOGY, ECONOMIC.

**ORIENTAL RESEARCH.** See ARCHÆOLOGY.

**ORPEN, SIR WILLIAM.** An Irish painter, died in London, Sept. 29, 1931. He was born in Stillorgan, County Dublin, Nov. 27, 1878, and attended the Dublin Metropolitan School of Art but owed his chief training to the radical Slade School in London. In 1899 he first exhibited at the New English Art Club, in which a powerful portrait of the painter, Augustus John, brought him membership in 1900. In 1904 he was elected to the Royal Hibernian Academy, and in 1910 became an Associate of the Royal Academy. Orpen was a versatile painter, brilliant in technique and facile in execution. His color was bright and strong, his treatment of light especially successful, his design striking, sometimes bizarre. He was thoroughly Irish in spirit, often whimsical and satiric, and delighted in Irish figure subjects, such as "The Irish Volunteer," "The Irish Wedding," "On the Irish Shore," "Young Ireland," and "In the Wicklow Mountains." One of his specialties was "portrait interiors," in which the sitter was represented in the intimate surroundings of his home. His portraits painted to order were more conventional in style, though vigorously characterized; among the distinguished persons who sat for him were Woodrow Wilson, Viscount Bryce, Marshal Foch, and Field Marshal Sir Henry Wilson.

During the World War Orpen was appointed an official artist by the government and commissioned a major in the British Army. Typical of his war pictures are "The Warwicks Entering Peronne: March, 1917," "Changing Billets," "Bombing at Night," and "The Great Mine, La Boisselle"; but there was about them an artificiality which to critics made them appear too theatrical. His "Signing of Peace in the Hall of Mirrors, Versailles" and "A Peace Conference at the Quai d'Orsay," which were exhibited at the Academy in 1920, were more successful; but he lost the commission he had received from the British Imperial War Museum on account of his unconventional "To the Unknown British Soldier in France," a satire on war. He became a Royal Academician in 1919. In 1929 he was elected a corresponding member of the American Academy of Arts and Letters. He wrote *An Onlooker in France* (1921) and *Stories of Old Ireland and Myself* (1924) and edited *The Outline of Art* (2 vols., 1923-24).

**OSBORN, H. F.** See ZOÖLOGY.

**OULAHAN, RICHARD VICTOR.** An American journalist, died Dec. 30, 1931, in Washington, D. C., where he was born May 23, 1867. He began his newspaper career in 1886 on the Washington

*Critic* and was subsequently news editor and associate editor of the Roanoke (Va.) *Daily Telegram* (later the *Roanoke Times*). Returning to Washington in 1889, he was with the Washington bureau of the United Press until 1897, when he became assistant and then chief Washington correspondent of the *New York Sun*. After 1912 he was chief Washington correspondent of the *New York Times*, and at the time of his death was dean of the capital corps of correspondents. He also served during 1913-17 as chairman of the standing committee of congressional correspondents. He was head of the *Sun* staff which reported the Russian-Japanese Peace Conference at Portsmouth, N. H. (1905) and the *Times* staff which reported the American-Mexican Peace Conference at Niagara Falls, Ont., Canada (1914), the Paris Peace Conference (1918-19), and the Washington Conference on the Limitation of Armament (1921).

**OUSTRIC AFFAIR.** See FRANCE under *History*.

**OUTBOARD RACING.** See MOTORBOATS.

**OUTER MONGOLIA.** See MONGOLIA.

**PACIFIC RELATIONS, INSTITUTE OF.** An organization formed in Honolulu in 1925 to serve as an unofficial body in studying the conditions of the Pacific peoples, with a view to the improvement of their mutual relations. It holds biennial conferences, promotes and coordinates research by other agencies, conducts research through its own secretariat, and endeavors to stimulate the mood of inquiry regarding Pacific problems on the part of the public generally. It is governed by a Pacific council, consisting of one representative from a recognized affiliated body of similar purposes in each country, including Australia, Great Britain, Canada, China, Japan, New Zealand, and the United States.

The 1931 conference, the fourth biennial conference of the institute, was held from October 21 to November 2. The original plan had been to hold the meeting in Hangchow, and elaborate preparations had been made toward that end by the Chinese hosts; but just before the conference convened the international situation was such that the Pacific council moved the seat of the conference to Shanghai. The discussions dealt with questions of trade and economic development of China, labor problems, diplomatic machinery, foreign relations of China, migration and race problems, and education. An important feature of this conference was the admission to full membership, by a vote of the Pacific Council, of two cooperating groups in the Philippine Islands and in the Union of Socialist Soviet Republics. The Philippine group sent a delegation to the China conference, and it was expected that members from the Union of Socialist Soviet Republics would attend the 1933 meeting.

During 1931 the American council of the institute, adhering to its policy of working as far as possible through existing organizations, stimulated a number of studies, in addition to those which it personally conducted through its education and research committees. It made a study of the status of the Chinese and Japanese languages for entrance credit for Occidental students in colleges in the United States, and published a report of its findings. It also made a preliminary investigation of the fellowships that have been granted in the past ten years to American scholars for study and research in the Far East and in the Pacific area generally.

Books published by the American council in preparation for the China conference included: Philip G. Wright, *The American Tariff and Oriental Trade*; Frederick V. Field, *American Participation in the China Consortium*; A. D. A. De Kat Angelino, *Colonial Policy*; and Bruno Lasker, *Filipino Immigration*. Also the following pamphlets: *Foreign Flags in China's Internal Navigation*; W. H. Mallory, *Matrateritoriality in China*; Robert E. Park, *The Problem of Cultural Differences*; E. S. C. Handy, *Cultural Revolution in Hawaii*; P. C. Kuo, *Some Oriental Influences on Western Culture* (Part iii, Canton and Salem); Harold S. Quigley, *A Syllabus on Diplomatic Relations in the Far East*; H. L. Shapiro, *Chinese Population in Hawaii*; A. Goldensweiser, *Race and Race Relations*; Joseph P. Chamberlain, *Aliens in the United States*; and Lewis L. Lorwin, *The Need for World Planning*. Many other studies were published by the other national councils of the institute, such as: Sophia Zen (editor), *A Symposium on Chinese Culture*; Inazo Nitobe, *Japan's Public Economy and Finance*; and R. H. Tawney, *A Memorandum on Agriculture and Industry in China*. The institute continued to publish its monthly magazine, *Pacific Affairs*, under the editorship of Miss Elizabeth Green.

Officers of the Pacific council elected at the China conference in 1931 were: Chairman, Jerome D. Greene of Lee, Higginson & Co., New York City; first vice chairman, Inazo Nitobe of Japan; second vice chairman, Newton Rowell of Toronto, Canada; honorary treasurer, Frank C. Atherton of Honolulu; chairman of the international programme committee, Dr. Hu Shih; chairman of the international research committee, Charles P. Howland of New York City. Charles F. Loomis was the acting general secretary. Headquarters of the institute are in Honolulu, and of the American council at 129 East Fifty-second Street, New York City. Jerome D. Greene was chairman of the American council and Edward C. Carter, secretary and treasurer.

**PACIFIST MOVEMENTS.** See PEACE and PEACE MOVEMENTS.

**PACKING INDUSTRY.** See LIVESTOCK.

**PADEREWSKI, IGNACE JAN.** See MUSIC under *Artists*.

**PAGEANTS.** See CELEBRATIONS.

**PAGE SCHOOL OF INTERNATIONAL RELATIONS.** See INTERNATIONALISM.

**PAHANG.** See FEDERATED MALAY STATES.

**PAINTING.** Two distinct and seemingly contradictory trends marked the year's events in painting. The exhibitions of modern French work have, if possible, increased. From New York, where they have been continuous at various galleries, to the Middle West, the Pacific Coast, and the South these paintings have been carried by loan exhibitions in local museums or by dealers until the larger cities throughout the United States have been able to see concretely both the roots of modern American painting in nineteenth-century French work and the influences now at work upon contemporary American artists. From the mid-nineteenth century when American painters began to discover French masters and to discard for these their earlier British-Flemish tradition, this Franco-American style has been growing in strength, but never has the general public had so great an opportunity to see the models on which it was formed.

The other trend, which may not, at its root,



ALEXANDER BOOTH, 'THE INTRUDER'

Temple Gold Medal Pennsylvania Academy of Fine Arts, 1931



*Courtesy of The Art Institute of Chicago*

MORRIS KANTOR, 'HAUNTED HOUSE'

Mr. & Mrs. Frank G. Logan Medal, The Art Institute of Chicago, 44th American Painting and Sculpture Exhibition

NOTABLE PAINTING OF 1931





**"SUICIDE IN COSTUME"**

By Franklin C. Watkins (American)

Awarded First Prize, Carnegie Institute, and also Lehman Prize for the best purchasable painting in the Exhibition



**"STEEL"**

By Thomas H. Benton

In the Series, "America Today," for the New School for Social Research

**NOTABLE PAINTING OF 1931**

be so contradictory as it seems, has been the awakening interest in so-called "American primitives." The Exhibition of American Primitive Painting at the Newark Museum in 1930-1931 was an early indication as well as a contributing cause. Since then stiff, solemn-eyed paintings of children on their Sunday behavior or portraits of men and women recorded by local men of small American towns and communities have found themselves news overnight, at least in art publications. The Exhibition of American Folk Sculpture at Newark in 1931 cast a retrospective glamour over the paintings of the period and carried the interest into a new field of art. The establishment of the American Folk Art Gallery in New York in the fall of 1931 (although this gallery is not open to the public and includes sculpture and various crafts as well) has emphasized the interest in this field in its more commercial aspects.

Yet the two movements, contradictory as they may seem, have a strong element in common—the direct expression of objects as the painter sees them which is an important principle in one strain of French work represented by the customs-clerk, Henri Rousseau, whose sharp, naïve representations, filled with an almost child-like wealth of entertaining detail, have become more and more popular. This same unsophisticated, direct quality, which has also attracted many in the Exhibition of Modern Hungarian Art assembled by the College Art Association, is, of course, the essential element in the work done by the early American sign-painters and craftsmen who set down literally what they saw, with an equal delight in faces, ruffles, bonnet trimmings, and details of trees and animals.

An outstanding example of modern decorative painting is to be found in the murals of the New School for Social Research in New York, opened early in the year, which presents an interesting application of art to community purposes. The New School forms a cultural centre for the arts as well as for economics, and, with its thronged classes and varied activities, draws within its walls many who would not consciously go to art museums or galleries. The series of "America Today," by Thomas Benton, representing various phases of industrial activity, is, perhaps, a little harsh and over-dramatic, with a distracting emphasis upon the details of machinery and other indications of the age; the series of "Revolutionary Movements Throughout the World," by José Clemente Orozco, represents the more simplified and imaginative "primitive" type of work.

In connection with these decorations of the New School, which have attracted public interest to a large degree, it may be well to consider that a great amount of modern work is, from time to time, being devoted to the decoration of various buildings, industrial and civic, where it attracts little attention unless some change transforms it into news. It is not impossible that, should these buildings by some miracle remain long enough, another generation may discover among them excellent examples of that art-in-the-making which may be recorded as characteristic of the present day.

It is interesting to note that the Guggenheim Fellowships awarded for painting during the year indicate a strong interest in Mexican art. Marsden Hartley and Doris Rosenthal both received fellowships to work in Mexico, and the

award to Ione Robinson was for work with Rivera, who has already been her teacher. Other Guggenheim Fellowships in painting were awarded to Alexander Brook, winner of the Temple Gold Medal at the Pennsylvania Academy show in 1931, Harry Gottlieb, and Emil J. Bistram. The outstanding exhibitions and awards during the year are discussed under the heading ART EXHIBITIONS.

A bequest of interest to American painters was that of Mrs. Mary Gertrude Abbey, widow of Edwin A. Abbey. Mrs. Abbey, who died June 20, 1931, left the sum of \$100,000 and eight-elevenths of the residue of her estate to the National Academy of Design to be used to form the Edwin Austin Abbey Memorial Trust Fund for Mural Painting in the United States, the income to be expended for "the advancement of the fine arts in the United States of America." An indication of the form of such advancement, as stated in the will, directs that "highly gifted, trained artists shall be commissioned to execute mural paintings," while another specification is the "foundation and maintenance of professorships and classes in decorative design and mural painting." Mrs. Abbey's London house and its contents, including a number of paintings, drawings, studies, and sketches by Edwin Abbey, were left to the Royal Academy of Arts in London as "a museum for the people of Great Britain."

**BIBLIOGRAPHY.** Among the publications of the year may be noted the following: *An Outline History of Painting*, by S. C. Kaines Smith; *Greek and Syrian Miniatures in Jerusalem*, by W. H. Hatch; *Men of Art*, by Thomas Craven; *The Russian Icon*, by N. R. Kondakov; *French Painting*, by R. N. Wilenski; *El Greco*, by Frank Rutter; *Whistler the Friend*, by Elizabeth Robbins Pennell; *The Sharples*, by Katharine McCook Knox; *The Life and Art of Dwight William Tryon*, by Henry C. White; *North Italian Painting of the Quattrocento*, by Adolfo Venturi; *Rembrandt Paintings in America*, by Wilhelm R. Valentiner. Attention should be called to the series of publications dealing with contemporary American artists issued by the Whitney Museum of American Art, although not all of them belong to 1931. Those already published include monographs upon John Twachtman, Maurice Prendergast, Arthur B. Davies, Robert Henri, George Bellows, Kenneth Hayes Miller, Guy Pène Du Bois, William Glackens, George Luks, John Sloan, Edward Hopper, Eugene Speicher, Henry Lee McFee, Bernard Karfiol, Charles Demuth, H. E. Schnakenberg, and Alexander Brook.

**NECROLOGY.** Among the painters who died during 1931 were the following: Jean Boldini, French; Axel Callela, Finnish; Fernando Carter, American; John da Costa, British; Maurice Fromkes, American; Thomas Cooper Gotch, British; William Steward MacGeorge, British; Sir Bertram MacKenna, British; Thomas May, British; Sir William Orpen, Irish; Charles Ricketts, British; Edward Simmons, American; Robert Spencer, American; Clementina Tompkins, American; Bayard H. Tyler, American; James Tyler, American; Lesser Ury, German; Harry A. Vincent, American; William L. Wyllie, British. These are discussed under the appropriate biographies.

See ART EXHIBITIONS; ART MUSEUMS; ART SALES; LITERATURE, ENGLISH AND AMERICAN,

under *Fine Arts*; and for bibliography, *PHILOLOGY, MODERN*.

**PALEONTOLOGY.** See *GEOLOGY*; *ZOOLOGY*.

**PALESTINE.** A territory comprising that part of historic Palestine which lies to the west of Trans-Jordan; administered since Sept. 29, 1923, by Great Britain under a mandate of the League of Nations. Capital, Jerusalem.

**AREA AND POPULATION.** The area under British mandate is about 10,000 square miles. The population, according to the census of Oct. 23, 1922, was 757,182, of whom 590,890 were Moslems; 83,794 Jews; 73,024 Christians; 7028 Druses; 163 Samaritans; 265 Bahais; and the remainder Sikhs, Hindus, and Metawilehs. At the census of Nov. 18, 1931, the population was 1,035,154, of whom 526,078 were males and 509,076 females. On racial and religious lines, the population was divided as follows: 759,952 Moslems, including about 100,000 nomad Bedouins; 175,006 Jews; and 90,607 Christians. A total of 6433 immigrants, mostly Jews, entered Palestine in 1930 and 3003 left the country permanently, compared with 6506 and 2835, respectively, in 1929. The leading cities, with their populations at the 1931 and 1922 censuses (1922 in parentheses), are: Jerusalem, 90,526 (62,678); Jaffa, 51,876 (47,709); Tel-Aviv, 46,109 (36,754); and Haifa, 50,869 (24,634).

**EDUCATION.** In 1930, there were 310 Government elementary schools, with 21,636 pupils (mostly Moslem); 328 Jewish schools, with 29,789 pupils; 62 Christian schools, with 15,139 pupils; and 75 private Moslem schools, with about 4710 pupils. The Hebrew University in Jerusalem had 131 students. The Kadoorie Agricultural School for Arabs was opened in 1930.

**PRODUCTION.** Essentially an agricultural country, Palestine in 1929 produced the following chief crops, in tons: Wheat, 85,064; barley, 51,972; durra (millet), 31,000; olives, 224; olive oil, 3178; and lentils, 1397.

The industrial census of 1928 showed 3505 manufacturing establishments (mostly small), with 18,000 employees and a capital investment of £3,500,000. Limestone, sandstone, gypsum, rock salt, sulphur, and potash are the principal minerals found. Active exploitation of the potash, carnallite, bromide, and cooking salt deposits in the Dead Sea was under way in 1931, with over 300 workers employed.

**COMMERCE.** According to preliminary data, exports in 1930 increased 22 per cent in value over the previous year, while imports declined 2.5 per cent. Domestic exports in Palestine pounds (equivalent to the pound sterling, or \$4.86) amounted to 1,896,095 in 1930, 1,554,260 in 1929, and 1,487,200 in 1928. Imports for consumption in 1930 were valued at £P6,985,260, compared with £P7,166,590 in 1929 and £P6,770,820 in 1928.

The increase in exports was due mainly to larger shipments of oranges, which totaled 2,857,041 cases valued at £P857,220, as against 1,722,078 cases valued at £P516,620 in 1929.

**FINANCE.** Revenues in 1930 totaled £P2,389,550, or 2.8 per cent more than the £P2,323,570 collected in 1929, while expenditures increased 13.3 per cent to £P2,423,970 from £P2,140,030 in 1929, according to preliminary returns. The deficit for the year was £P34,420. Notes in circulation at the end of March, 1931, amounted to £P2,085,328 and coins to £P284,336. The public debt at the beginning of 1930 was equivalent to

about \$18,561,000, including \$3,961,000 on account of the Ottoman public debt.

**COMMUNICATIONS.** Palestine in 1930 had 774 miles of railway, providing direct communication with Egypt, 423 miles of macadam highways, and approximately 833 miles of unimproved dirt roads. Vessels in the foreign trade entering the ports in 1930 numbered 2607 of 1,936,000 registered tons, as against 2663 of 1,976,000 tons in 1929. In the coasting trade in 1930, 807 vessels of 864,465 tons entered, compared with 803 of 846,712 tons in the previous year. Construction of a new harbor at Haifa was under way during 1931. Jaffa is the other chief port. From the airdrome at Gaza there is a weekly passenger and mail service to Egypt and Iraq and a weekly service links Haifa with Alexandria and Cyprus.

**GOVERNMENT.** A Constitution promulgated Sept. 1, 1922, provided for the appointment of the High Commissioner and Commander-in-Chief and of an executive council. It provided also for a legislative council, consisting of the High Commissioner, 10 officials, and 12 unofficial members, the latter to be elected and to include not less than two Christians and two Jews. The legislative council had not yet been instituted in 1931. In the meantime its functions were performed by an advisory council appointed by the High Commissioner. The Jewish community enjoys complete autonomy in the management of their internal religious, cultural, and communal affairs, having a Chief Rabbinate, an elected Assembly, and a General Council elected by the Assembly, which represents the community in its dealings with the Government. Moslem religious affairs are controlled by the Moslem Supreme Council. English, Arabic, and Hebrew are the official languages. High Commissioner in 1931, Lieut.-Col. Sir John Robert Chancellor, who was succeeded Nov. 1, 1931, by Lieut.-Gen. Arthur Grenfell Wauchope.

## HISTORY

The year 1931 was marked by a continuance of intense Arab-Jewish hostility and by fruitless efforts on the part of the British Government to placate both sides and to fulfill in some measure the apparently contradictory terms of the mandate. In an attempt to still the world-wide Jewish protests against the Passfield White Paper of October, 1930 (see 1930 YEAR BOOK), Prime Minister MacDonald on Feb. 13, 1931, made public in the House of Commons a letter which he had written to the Zionist leader, Dr. Chaim Weizmann. The letter explicitly reaffirmed the Balfour Declaration, reasserted the principle that the absorptive capacity of the country as a whole, rather than the economic position of individuals, would determine the rate of immigration, and denied that there had been any intention to prohibit the acquisition of land by Jews. He promised an early inquiry as to the state lands available for close settlement by Jews and an increase in the proportion of Jews employed on public works.

The letter satisfied only Dr. Weizmann and a moderate section of the Zionists, who asserted that it reestablished a basis of coöperation with Great Britain. The Revisionist section of the Zionist movement opposed any negotiation with the British Government until their interpretation of the Jewish National Home clauses of the mandate was accepted. The Arabs, on the other hand, were infuriated by what they termed Prime

Minister MacDonald's "black interpretation" of the Passfield White Paper. On March 12, the Executive of the Palestine Arab Congress proclaimed an anti-Jewish boycott in protest and an Arab National Fund was launched to buy up waste land for Arab settlement.

Meanwhile the London Government had dispatched another commission, headed by Sir Samuel O'Donnell, to Palestine to study the financial and administrative organization of the Palestine Government. The British Cabinet also elaborated a scheme for a Palestinian loan of about \$12,500,000 with which to reclaim waste areas and provide land for landless Arabs and Jews. Though it promised to relieve temporarily a basic cause of dispute, the plan was retarded by the refusal of both Arabs and Jews to cooperate. The Arabs held that to do so would imply their acceptance of the Balfour Declaration, while the Jews demanded that half of the loan be used to assist Jewish settlers. A third step proposed by the British was the election of the legislative assembly envisaged in the Constitution of 1922. Despite the opposition of the extreme Nationalists, the moderate majority of the Arab Executive on March 2 voted to participate in the proposed elections. Toward the end of the month, however, Dr. Weizmann stated that the Jews were opposed to a legislative assembly until such time as they had a majority in Palestine. The British authorities undertook a census to determine the number of voters.

**WAILING WALL REPORT.** Another source of Arab-Jewish difference was the report of the Wailing Wall Commission of the League of Nations, published June 8. Failing to reconcile the Moslem and Jewish claims directly, the commission submitted its own recommendations for the control of the Wailing Wall and these were put into effect by the British authorities immediately upon publication of the report. The commissioners found that the Moslems were the rightful owners of the Wailing Wall and the adjoining pavement, but allowed the Jews free access to the Wall, with certain restrictions. Political demonstrations and speeches in the area were prohibited. The Supreme Moslem Council had formally denied the commission's competence and now it rejected the report. The Jews, on the other hand, had admitted the commission's competence and the majority of them reluctantly accepted its findings.

**RENEWAL OF RIOTING.** In August, the Arab agitation against the Jews grew to dangerous proportions, as a result of the provision of sealed armories to outlying Jewish communities by the Palestine Government. The armories were provided for defense purposes in accordance with Inspector-General H. L. Dowbiggin's report on public security. Originally sponsored by youthful extremists and the Grand Mufti's followers, the Arab agitation spread throughout the country, the speakers asserting that the Government was arming the Jews for an offensive against the Arabs. The Government on August 5 banned further utterances of this nature by public speakers or the press. The Arab newspapers protested against the Government's orders by ceasing publication for a week and on August 23, the second anniversary of the beginning of the 1929 outbreaks, the Arab Executive called a one-day general strike. The strike was generally observed and in Nablus, where there had been repeated riots, the police fired on menacing crowds, wound-

ing six Arabs. The British authorities took every precaution to avert a repetition of the 1929 attacks upon the Jewish population and the agitation subsequently died down.

**THE JEWISH ELECTIONS.** The 71 seats in the Jewish National Assembly were distributed principally as follows by the elections of Jan. 5, 1931: Labor, 32; Revisionists, 14; Oriental Jews, 15; United Women, 2. About 40 per cent of the Jewish voters participated. In the Assembly, which convened in Jerusalem February 9, the parties were aligned in two opposing blocs—the Zionists, including the Labor members, with 35 seats, and the Revisionists, with 28 seats. There were eight Independents. Sixteen Revisionists walked out on February 12 in protest against the vote approving the continuance of negotiations with the British Government in connection with the Passfield White Paper. Labor members dominated the Jewish National Council elected by the Assembly. For developments in the Zionist movement, see **JEWS**.

**THE MOSLEM CONGRESS.** The third Moslem congress to convene since the abolition of the Caliphate by the Turkish Republic in 1924 was held in Jerusalem, Dec. 6-16, 1931, with 154 delegates in attendance, 88 of whom were from Palestine and Trans-Jordan. The Congress was called by Haj Amin el Husseini, Grand Mufti of Jerusalem, ostensibly to deal with the purely religious problems of Mohammedanism, but political issues came to the fore. The Opposition Moslem faction in Palestine, headed by Raghib Bey Nashashibi, Mayor of Jerusalem, denounced the congress as a political move to insure the Grand Mufti's supremacy among Palestine Moslems. Suspicion of political motives prevented the attendance of representatives from the Moslem states of Albania, Turkey, Persia, Afghanistan, and the Hejaz. The Egyptian government consented to be represented only after the Grand Mufti promised that neither the Caliphate question, the political situation in Egypt, nor the establishment of a Moslem religious university in Jerusalem would be discussed. Delegates were present on behalf of Moslem groups in India, Iraq, Yemen, Syria, Tripoli, and Morocco.

Interest in the possible restoration of the Caliphate had been aroused by the announcement on Oct. 30, 1931, that the former Caliph, Abdul Medjid Effendi, would establish the Caliphate in Jerusalem, provided the Moslem world and Great Britain approved. Support for Abdul Medjid's restoration by the Nizam of Hyderabad, wealthy Indian Moslem ruler, was insured through the marriage of the latter's two sons to the daughter and niece of the former Caliph at Nice, France, on Nov. 12, 1931.

The congress adjourned without definite accomplishment, after adopting resolutions protesting against the Jewish National Home in Palestine, rejecting the findings of the Wailing Wall Commission, proposing the creation of a \$5,000,000 fund to oppose Zionist activities in Palestine, and recommending a boycott of goods produced in Palestine by Jews. Establishment of a Moslem university at Jerusalem was contemplated. It was agreed that another congress would be convened in two years and a permanent executive committee of 25, with the Grand Mufti as president, was appointed to conserve Moslem interests in the interval. The Grand Mufti was also made head of an administrative bureau of seven members, to be established in Jerusalem.

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**PALESTINE ARCHAEOLOGY.** See ARCHAEOLOGY.

**PANAMA.** A republic of Central America, lying between Costa Rica and Colombia and bisected by the Panama Canal Zone. Capital, Panama.

**AREA AND POPULATION.** Excluding the Canal Zone (q.v.), Panama has an area of 32,388 square miles and a population (census of 1930) of 467,459, as compared with 446,098 in 1920. The natives are for the most part a mixture of Spanish, Indian, and Negro blood. The population of the principal cities in 1930 was: Panama, 74,409 (59,458 in 1920); Colón, 29,765 (31,206). During the five years 1925 to 1929, annual births and deaths averaged 12,536 and 5389, respectively.

**EDUCATION.** Of about 100,000 children of school age in 1929-30, 65,459, or 65 per cent, were attending school. The university (Instituto Nacional) had 626 students in 1929-30.

**PRODUCTION.** Agriculture is the principal support of the population; the main subsidiary industries are cattle raising and the production of mahogany and other hardwoods. The chief agricultural products are bananas, cacao, coconuts, coffee, sugar, rubber, tobacco, and sarsaparilla. Gold and manganese are produced in small quantities. Sugar, liquors, hats, furniture, shoes, soap, etc., are manufactured for domestic consumption.

**COMMERCE.** Imports during 1930 for consumption were valued at \$18,295,000, compared with \$19,278,000 in 1929. Export figures for Panama products were not available, but were estimated to be slightly lower than in 1929, when they were valued at \$4,144,000. Approximately one-half the total imports represented purchases by employees, tourists, and travelers in the Canal Zone. Banana exports in 1929 were 4,678,000 bunches, valued at \$2,941,000, or more than 70 per cent of the total export value. Other exports were cacao, coconuts, ivory nuts, cattle hides, cabinet woods, and mother-of-pearl shells. The United States supplied 60 per cent of the total imports in 1930.

**FINANCE.** According to the Finance Minister's report, Government receipts, exclusive of special funds, for the fiscal year ended June 30, 1930, totaled 8,192,116 balboas, or 786,162 balboas more than budget estimates. Expenditures exceeded estimates by an even greater sum, and a deficit of unannounced proportions resulted (1 balboa equals \$1). The approved budget for the two-year period beginning Mar. 1, 1931 (the fiscal year was changed in 1930), estimated revenues at 19,961,353 balboas and expenditures at 18,500,934 balboas. For the service of the public debt of about \$20,000,000, there was appropriated 3,840,000 balboas, or 20 per cent of the 1931-33 budget.

**COMMUNICATIONS.** Including the Canal Zone, there were 295 miles of railway line in 1930, the principal system being the Panama Railroad, 154 miles long, owned by an American corporation. Highways extended 679 miles in 1930. A national highway from Panama City to David, capital of the Province of Chiriqui, was officially opened

to traffic on Mar. 1, 1931. It was 315 miles long and formed an important link in the projected inter-continental highway.

**GOVERNMENT.** The Constitution of Feb. 13, 1904, as amended in 1918 and 1928, vested executive power in a President elected by a direct vote for four years and ineligible for a succeeding term and legislative power in a national assembly of 46 members, elected for four years. The National Assembly meets biennially on September 1. Three Vice Presidents are chosen by the National Assembly and a cabinet of five is appointed by the President. President at the beginning of 1931, Florencio Harmodio Arosemena, who assumed office Oct. 1, 1928.

## HISTORY

**THE REVOLUTION.** A sudden and dramatic revolution, in which 10 persons were killed and 24 wounded, swept the administration of President Florencio Harmodio Arosemena from power in the early morning of Jan. 2, 1931. Without the slightest warning a band of 100 revolutionaries successfully stormed the headquarters of the National Police in Panama City. At the same time another group attacked the National Palace, capturing President Arosemena and other government officials.

Within seven hours President Arosemena had resigned, after appointing Dr. Harmodio Arias Premier of his Cabinet, and a provisional régime headed by Dr. Arias had been established. On the same day, the Panaman Supreme Court declared illegal the election of the first, second, and third designates to the Presidency held in October, 1930. The Court named Dr. Ricardo J. Alfaro, Panaman Minister to the United States, as legal successor to President Arosemena, Alfaro having been elected first designate for the term ended Oct. 1, 1930. The provisional régime ended with the formal inauguration of Dr. Alfaro in Panama City January 16. The presence of the United States Minister, Roy T. Davis, at the ceremony constituted formal recognition of the new administration by the United States.

The revolution was notable for two reasons. It marked a definite reversal of the policy of the United States toward revolutionary disturbances in the Isthmian republic, and it was the result of a nonpartisan political reform movement rare in Latin American history.

**THE PRESIDENTIAL CAMPAIGN.** While Dr. Alfaro during the remainder of 1931 devoted himself to weeding out useless office holders, eliminating entrenched corruption, and balancing the budget, the political parties commenced a heated campaign in preparation for the election of the new President in June, 1932. Rivalry between Dr. Harmodio Arias, newly appointed Minister to the United States, and Francisco Arias Paredes, Secretary of Government in the Cabinet, for the nomination of the Liberal faction controlling the Government led to the resignation of the Cabinet on October 5. By the end of the month, Dr. Arias, Don Arias Paredes, and Dr. Augusto Boyd had announced their candidacies on the Doctrinal Liberal, Reform Liberal, and National Liberal tickets, respectively. The platforms of both Dr. Harmodio Arias and Don Arias Paredes called for a new treaty with the United States which would restrict the operations of the U. S. Government commissaries operated in the Canal Zone.

**OTHER DEVELOPMENTS.** A clash between U. S. military police and Panama police at Colón on

May 9, 1931, aroused much hostile feeling. Maj. Gen. Preston Brown, commander of the U. S. forces in the Canal Zone, ordered American enlisted personnel to stay out of the city thereafter, but the order was rescinded May 20 following complaints of Colón merchants that their business was being seriously affected. Announcement in July that Costa Ricans had appointed several minor officials in border territory claimed by Panama revived the long standing border dispute between the two countries. To forestall alienation of any of the territory claimed by Panama, President Alfaro in December issued a decree restricting title to lands on the Panama side of the border to natives of the Republic and prohibiting the transfer of such titles to foreign corporations or individuals. The boundary had been fixed several times by arbitration, but the awards had never been accepted by both countries. By a decree issued May 28, 1931, immigration of Hindus into Panama was forbidden except with the consent of the Ministry of Foreign Affairs.

Consult Raymond Leslie Buell, "Panama and the United States," *Foreign Policy Reports*, vol. vii, No. 23, Jan. 20, 1932. See PANAMA CANAL ZONE.

**PANAMA CANAL.** The total number of commercial vessels transiting the Panama Canal during the calendar year ended Dec. 31, 1931, aggregated 4972, and the total tolls collection was \$22,530,820.84. The number of transits declined 913, or 15.51 per cent, in comparison with the calendar year 1930, while tolls collections decreased \$3,615,204.12, or 13.83 per cent. The percentage loss in tolls was less than the percentage decline in transits owing to the greater average tonnage of vessels transiting in 1931. Traffic in 1931 was the lowest for any year since 1925, when transits totaled 4774 and tolls collections \$21,380,759.70. The decrease was attributed to the continued adverse business conditions throughout the world.

The daily average number of commercial transits during the year was 13.62, as compared with 16.12 in the calendar year 1930, and 17.62 for the calendar year 1929. The daily average tolls collection in 1931 was \$61,728.28, as compared with \$71,632.95 in 1930 and \$75,596.48 in 1929.

In the accompanying tabulation the number of commercial transits and the amount of tolls collected are shown for the calendar year 1931, with comparative totals for the calendar years 1930 and 1929, and fiscal year ended June 30, 1931.

PANAMA CANAL TRANSITS AND TOLLS

Month	Transits	Total for month Tolls
January .....	476	\$2,108,140.42
February .....	431	1,915,902.78
March .....	439	1,964,434.22
April .....	453	2,014,349.13
May .....	428	1,923,452.18
June .....	400	1,821,408.73
July .....	408	1,848,638.45
August .....	390	1,770,202.71
September .....	396	1,820,735.75
October .....	390	1,823,650.74
November .....	376	1,762,036.19
December .....	387	1,757,869.54
Total, calendar year, 1931 ..	4,972	22,530,820.84
Total, calendar year, 1930 ..	5,885	26,146,024.96
Total, calendar year, 1929 ..	6,480	27,592,715.84
Total fiscal year, 1931 .....	5,529	24,645,456.57

See CANALS.

**PANAMA CANAL ZONE.** The strip of land 5 miles wide on each side of the Panama Canal ceded to the United States by Panama in the treaty of Nov. 18, 1903. Area, 554 square miles, of which 163½ are taken up by Gatun Lake. The civil population in June, 1931, numbered 30,745, compared with 29,587 at the census of April, 1930. There were 8337 American citizens in the Canal Zone population in 1931, exclusive of the Army and Naval personnel, which numbered 9820 (Army, 9020; Navy, 800). The birth rate in the Canal Zone in 1930 was 13.28 per 1000 inhabitants, or about half what it was in 1921. The death rate was 7.14 per 1000 inhabitants. Of the total 1930 population, 18,783 were whites, 19,492 Negroes, and 1194 mixed or other races. The treaty of 1903 gave the United States control over sanitation and quarantine in the cities and harbors of Panama and Colón, although they remained within the jurisdiction of Panama. The status of the Canal Zone is that of a military reservation under the Governor of the Panama Canal, appointed by the President of the United States. The number of commercial airlines operating in or through the Canal Zone was reduced from four to three on June 15, 1931, when the Scadta Company discontinued its services between the Canal Zone and various points in Colombia. Governor in 1931, Col. H. Burgess, U. S. Army. See PANAMA CANAL.

**PAN AMERICAN UNION.** An official international organization maintained and supported by the 21 American republics for the development among them of good understanding, friendly intercourse, commerce, and peace. It is controlled by a governing board composed of the Secretary of State of the United States and the diplomatic representatives in Washington of the other republics, and is administered by a director general and assistant director chosen by this board.

The services rendered by the union may be broadly summarized under the following heads:

**ECONOMIC.** The office of the trade adviser provides a general commercial information service on all phases of Latin American trade. The division of finance supplies current information on developments in public and private inter-American finance. The division prepares an annual study on Latin American revenues, expenditures, and public debts. The statistical division prepares reports on the trade of the Pan American nations, as well as a general survey of the commerce of all Latin America. These reports are issued annually. The division of agricultural coöperation is active in promoting the exchange of information relating to new and improved agricultural methods throughout the American Continent, the elimination of plant and animal diseases, and so forth.

**CULTURAL AND INTELLECTUAL.** The division of intellectual coöperation offers a valuable contribution to the development of cultural and intellectual relations among the Pan American nations by promoting the exchange of professors and students, the establishment of scholarships, and the fostering of contacts and exchange relations among scientific, literary, professional, and artistic organizations. The Columbus Memorial Library of the Pan American Union offers a wide collection of books and periodicals on Pan American affairs, and its facilities are in constant demand by scholars, research workers, and others.

**PUBLICATIONS.** The Pan American Union publishes monthly *Bulletins* in English, Spanish,



and Portuguese, which are chronicles of all phases of Pan American activities. In addition, it issues a large number of miscellaneous publications on a wide variety of topics. During 1931 four special series in Spanish and Portuguese were issued monthly on agriculture, education, social welfare, and on finance, industry, and commerce.

**CONFERENCES.** One of the important functions of the Pan American Union is that of giving effect to the resolutions and conclusions of the international conferences of American States. These activities consist in conducting investigations and preparing reports on the various subjects entrusted to the union by the conferences, and in arranging for the many special or technical conferences which are the outgrowth of the international conferences. During 1931 committees of the governing board were appointed to prepare the programme and regulations of the Seventh International Conference of American States, which was scheduled to meet at Montevideo, Uruguay, in December, 1932.

Among the special or technical conferences held during 1931 were the following:

The Fourth Pan American Commercial Conference met at the Pan American Union Oct. 5-13, 1931, with delegates in attendance representing the governments, chambers of commerce, and other commercial associations of the 21 republics, members of the union.

The Second Pan American Congress of National Directors of Public Health was held at the Pan American Union under the auspices of the Pan American Sanitary Bureau Apr. 20-28, 1931.

The Third Pan American Postal Conference met at Madrid, Spain, Oct. 10-Nov. 9, 1931, and considered questions affecting the mail and parcel post services between the nations of the continent.

**PAN AMERICAN DAY.** The year 1931 was marked by the first observance of Pan American Day on April 14, the date on which the resolution creating the Pan American Union was adopted at the First International Conference of American States, held at Washington in 1889. The day was observed with appropriate ceremonies in all the countries, members of the Union.

**PAN AMERICAN SANITARY BUREAU.** This is an official organization of the American republics which concerns itself with the collection and dissemination of information on all phases of questions relating to public health and sanitation in the republics. A monthly bulletin is issued. The bureau is headed by Dr. Hugh S. Cumming, Surgeon General of the United States Public Health Service, assisted by a directing council.

**OTHER DEVELOPMENTS.** The Inter-American Highway Commission met at Panama, Mar. 16-21, 1931, to discuss the survey and construction of the Inter-American Highway from Panama to the United States (see PANAMA under *Communications*). Intellectual coöperation among the American states was advanced by the organization of the executive committee of the American Council of Intellectual Coöperation, with Secretary of Interior Wilbur as Chairman and Dr. James Brown Scott as Secretary. The architectural competition in designs for the Columbus Memorial Lighthouse, to be erected at Santo Domingo by the American states, was won by J. L. Gleave of England (see *ARCHITECTURE*).

The director general of the Pan American Union in 1931 was Dr. Leo S. Rowe; the assistant

director, Dr. Esteban Gil Borges. Headquarters are in the Pan American Union Building in Washington.

**PAN-EUROPEAN COMMITTEE.** See LEAGUE OF NATIONS; UNITED STATES OF EUROPE.

**PAN-PACIFIC UNION.** An organization established for the purpose of bettering relations among Pacific peoples, chiefly through the calling of frequent conferences in all lines of thought and action in the Pacific area. The fifth Science Conference was to be held in Canada in 1933.

Local work consists chiefly in the Monday Luncheon Forum in Honolulu, at which men and women of international standing are the speakers as they pass to and from the Orient, Australasia, etc. These meetings are attended by friends of the Pan-Pacific of all races. There is a similar club which meets every Friday in Tokyo which Alexander Hume Ford, founder and director of the Union, helped to organize in 1923.

**PAPER AND PULP.** The production of wood pulp and paper in the United States in 1931 again suffered a decrease from the previous year, and the same was true in Canada. For all of North America, including Newfoundland and Mexico, the production in 1931 of news print was estimated at 3,688,450 tons as against 4,088,064 tons in 1930. The accompanying tabulation from the American Paper and Pulp Association gives the estimate of pulp production in the United States, indicating a total for 1931 of 3,880,000 short tons as against 4,630,308 tons in 1930. Likewise there were reduced imports of pulp. The production was 14.3 per cent in 1931 below that of 1930, while the total shipments of wood pulp to the outside market were 31.4 per cent below the level of 1930. Wood pulp inventories at the end of the year were 9.6 per cent above the level of December, 1930.

U. S. PULP PRODUCTION BY GRADES  
[In tons of 2,000 pounds]

Grade	1931*	1930	1929
Mechanical	1,415,000	1,560,221	1,637,653
Sulphite Total	1,217,000	1,534,295	1,681,511
Bleached	620,000	751,166	839,953
Unbleached	597,000	783,129	841,558
Sulphate Total	805,000	952,282	918,084
Bleached	59,000	69,488	66,993
Unbleached	746,000	882,794	851,091
Soda	378,000	504,229	520,729
Semichemical		30,213	40,481
and Screenings	65,000	49,068	64,427
Total	3,880,000	4,630,308	4,862,885

\* 1931 estimate of the American Paper and Pulp Association.

PULP IMPORTS INTO THE UNITED STATES, 1931\*  
[In tons of 2,000 pounds]

Country of origin	Mechanical	Sulphite unbleached	Sulphite bleached	Sulphate unbleached
Canada	181,038	99,237	207,409	36,080
Finland	12,487	109,163	9,992	60,110
Germany		24,877	55,903	897
Norway	6,596	11,418	20,172	4,883
Sweden	10,276	389,118	54,950	283,242
Others	202	23,844	12,665	1,383
Total	210,599	607,652	361,091	386,595

\* Source: U. S. Bureau of Foreign and Domestic Commerce.

The output of pulp in Canada in 1931 was estimated by the Canadian Pulp and Paper As-

sociation at 3,285,000 tons compared with 3,619,345 tons in 1930, as shown in the accompanying tabulation.

	1930 Tons	1931 Estimated tons
Groundwood .....	2,283,130	2,100,000
Sulphite .....	1,076,804	960,000
Sulphate .....	188,253	165,000
<b>Total .....</b>	<b>3,619,345</b>	<b>3,285,000</b>

The estimates for paper production in the United States during 1931 also were below those of 1930 and 1929 and are indicated in the accompanying tables. The year's total of production was 9.2 per cent below 1930, while shipments were 8.6 per cent smaller than in the previous year. In the case of newsprint the 1931 production, 1,157,497 tons, was 65.5 per cent of capacity, as against 1,282,372 tons or 76 per cent of capacity in 1930. Before the close of the year there was a total of 86 paper and pulp mills in the United States idle. As further evidence of the declining consumption of paper in the United States during 1931, the per capita consumption of 181 pounds may be mentioned, which was 20 pounds less than in 1930 and 40 pounds less than in 1929.

#### U. S. PAPER PRODUCTION BY GRADES [In tons of 2,000 pounds]

Grade	1931 <sup>a</sup>	1930	1929
Newsprint .....	1,157,500	1,226,086	1,409,169
Hanging .....	76,600	106,427	101,002
Catalog .....	102,000	114,588	111,771
Book, uncoated ..	1,145,000	1,389,500	1,497,912
Cover .....	18,000	25,000 <sup>b</sup>	28,072
Writing .....	450,000	545,000 <sup>b</sup>	607,590
Wrapping .....	1,430,000	1,580,489	1,605,783
Boards .....	3,850,000	4,060,716	4,451,187
Tissue .....	360,000	362,355	387,811
Absorbent .....	74,000	81,813	90,800
Building .....	420,000	468,730	659,178
Other .....	78,900	163,696	189,960
<b>Total ..</b>	<b>9,162,000</b>	<b>10,124,400</b>	<b>11,140,235</b>

<sup>a</sup> 1931 estimate of the American Paper and Pulp Association.

<sup>b</sup> Writing Paper Manufacturers Association's estimate.

The following were the largest paper-producing States in the United States in 1930, with 1929 production figures in parentheses: New York, 1,347,764 tons (1,512,855 tons); Maine, 1,029,203 tons (1,061,384 tons); Michigan, 990,820 tons (1,092,111 tons); Ohio, 860,461 tons (936,572 tons); Wisconsin, 835,162 tons (886,146 tons); and Pennsylvania, 665,562 tons (748,960 tons).

The manufacturers of newsprint in the United States and Canada during the year 1931 suffered from low prices, and it was stated that with but few exceptions fixed charges were not being earned in the industry. Accordingly there were proposed during the year various mergers, and one proposed combination in particular was discussed where 85 per cent of the newsprint capacity of Canada and nearly 33 per cent of the newsprint capacity of the world would be combined in a merger of six of the larger Canadian corporations. For the greater part of the year the price of newsprint held at \$57 a ton, but in December a reduction of \$4 per ton in the price of newsprint delivered in New York was announced to become effective in January, 1932.

The year 1931 witnessed a substantial de-

crease in the total world consumption of American paper and paper production, and the exports, which in 1930 totaled \$30,301,750, declined in 1931 to \$22,419,743, with the heaviest decrease in shipments of fancy writing paper and book paper. American exports of paper base stock in 1931 were valued at \$3,714,499, as compared with \$4,728,138 in 1930, there being an increase of 34 per cent in sulphite wood pulp which totaled \$2,251,130, other paper base stocks exported showing marked decline.

The imports of paper and paper products into the United States in 1931 amounted to \$125,623,138 or a 15 per cent decrease as compared with 1930. Newsprint imports amounted to \$112,169,627; imports of paper base stock amounted to \$75,193,286 or a decline of 30 per cent from the previous year, with an increase of 84 per cent over the 1930 record shown in imports of bleached sulphate pulp from Canada which amounted to \$1,891,099.

The output of paper in Canada was considerably below that of 1930, the statistics as compiled by the Canadian Pulp and Paper Association being as follows:

	1930 Tons	1931 Estimated tons
Newsprint .....	2,497,952	2,220,775
Book and writing paper .....	69,468	62,000
Wrapping paper .....	78,320	72,000
Paperboard .....	233,217	200,000
Other grades .....	47,830	44,000

**PAPUA**, pā'pū-ā. A territory of the Australian Commonwealth, comprising the southeastern part of the island of New Guinea and all the groups of small islands between 8° and 12° S. latitude and 141° and 155° E. longitude; formerly known as British New Guinea; transferred to the Australian Government Sept. 1, 1906. Area, 90,540 square miles, of which about 87,786 are on the island of New Guinea. On June 30, 1930, there were 1525 Europeans and about 275,000 natives. Port Moresby is the capital and a port of entry. Lieutenant-Governor and chief judicial officer in 1931, Sir J. H. P. Murray. See **NEW GUINEA**.

**PARAGUAY**, pār'ā-gwā. An inland republic of South America, bounded by Argentina, Bolivia, and Brazil. Capital, Asunción.

**AREA AND POPULATION.** Including that part of the Gran Chaco under dispute with Bolivia, the area is estimated at 176,000 square miles; the estimated population in 1929 was 843,900 (excluding about 30,000 Chaco Indians). Populations of the leading cities, with suburbs, in 1926 were: Asunción, 113,684; Villarrica, 20,000; Luque, 13,000; Carapeguá, 12,000. Excluding suburbs, the population of Asunción in 1930 was 89,571. Births in 1930 numbered 3699, or 41.1 per 1000 inhabitants; registered deaths, 1497, or 10.6 per 1000.

**EDUCATION.** Of 170,350 children of school age in 1930, 108,222 were enrolled in schools and the average attendance was 89,824. The university of Asunción had 432 students in 1929.

**PRODUCTION.** Stock raising, lumbering, and agriculture are the leading industries. Two-thirds of the area is covered with hard- and soft-wood forests, which produce yerba maté (native tea), quebracho extract, and lumber. Production of the chief crops were: Tobacco, 33,000,000 pounds (estimated) in 1930-31; ginned cotton,

9,560,000 pounds (estimated) in 1930-31; sugar, 7617 metric tons in 1929-30. Rice, corn, and beans are other leading crops. Iron, manganese, copper, and other known mineral deposits remain virtually unexploited. Meat packing and the production of animal by-products, flour, quebracho extract, beverages, and shoes are the chief industries.

**COMMERCE.** Imports in 1930 were valued at the equivalent of \$12,643,000 (\$13,176,000 in 1929) and exports at \$11,839,000 (\$12,804,000 in 1929). Argentina was the chief source of 1930 imports, with 28.8 per cent of the total, followed by the United States and Great Britain, with 15.9 and 13.7 per cent, respectively. Exports went chiefly to Argentina. The leading exports in 1930, in order of value, were quebracho extract, meat extract, cattle hides, and yerba maté.

**FINANCE.** According to the President's message of April, 1931, revenues in the fiscal year ended Aug. 31, 1930, totaled 268,656,072 paper pesos and expenditures 286,548,698 paper pesos, leaving a deficit for the year of 17,892,626 paper pesos. It was stated that the surplus from 1928-29 reduced the deficit carried over into 1930-31 to 5,640,860 paper pesos. The external debt decreased from 4,219,388 gold pesos on Nov. 30, 1929, to 3,878,934 gold pesos on Nov. 30, 1930. The internal consolidated and floating debt was placed at 2,798,530 gold pesos and 37,644,328 paper pesos on Nov. 30, 1930. The average exchange value of the paper peso was \$0.0223 in 1929 and \$0.0196 in 1930. The gold peso, with a par value of \$0.9048, exchanged at \$0.8351 in 1930.

**COMMUNICATIONS.** Paraguay had 632 miles of railway line in 1929, 3684 miles of highway (mostly unimproved or graded earth roads) in 1930, and 2220 miles of telegraph and 6006 miles of telephone wire. Ninety per cent of the country's imports passed through the port of Asunción, on the Paraguay River, which was in process of modernization in 1931.

**GOVERNMENT.** Executive power is vested in a president elected for four years, who acts through a ministry of five members; and legislative power in a congress of two houses: a senate of 20 members and a chamber of deputies of 40 members elected directly by the people. President at the beginning of 1931, Dr. José P. Guggiari, who assumed office Aug. 15, 1928.

**HISTORY.** President Guggiari of Paraguay was forced to resign on Oct. 26, 1931, following rioting and a demonstration in the capital by students, workers, and radicals for representation of the Left elements in the government and for a firmer policy toward Bolivia in the Chaco boundary dispute. However, the Liberal party, which had controlled Paraguay since 1912, remained in power. The retiring President was succeeded by Vice President Emiliano González Navero (Liberal), who on October 27 formed a new Liberal Cabinet in which Foreign Minister Jeronimo Zubizarreta and Finance Minister Rodolfo Gonzalez were retained.

Unrest under the Guggiari régime had been continuous for several years, and in 1931 was aggravated by the intensification of the economic depression and by the renewal of the boundary crisis with Bolivia (see *BOLIVIA* under *History*). In the latter controversy, the Guggiari administration had pursued a conciliatory policy, despite student opposition, while taking the precaution to engage an Argentine military mission

to reorganize the army (January, 1931). In the same month, two modern gunboats, built in Italian shipyards, were delivered to the Paraguayan navy (see *NAVAL PROGRESS*).

Labor and radical unrest, however, were attributable primarily to the continuance of the state of siege (martial law) since September, 1929. The state of siege expired on Mar. 31, 1931, but was extended to August 31 by a Presidential decree of April 22. The extension of martial law followed the suppression of two abortive revolts, which broke out at Villa Encarnación on February 2 and at the towns of Luque and San Lorenzo on April 20. On February 23, Labor unions called a general strike in support of their demands for the abolition of the state of siege, the release of political prisoners, and freedom of assembly. The strike was broken the following day when the Government arrested the ringleaders, who were charged with conducting subversive Communist propaganda. During the April revolt, a number of prominent politicians and newspaper editors opposed to President Guggiari were arrested and former President Schearer, who was charged with complicity, was deported. New arrests followed the rioting which accompanied President Guggiari's resignation, and martial law was again proclaimed.

In the elections of March, 1931, in which one-half of the Chamber of Deputies and one-third of the Senate were renewed, the Liberals polled 50,070 votes, against 27,050 for the Colorado (National Republican) party, giving the Liberals a total of 15 seats in the Senate and 31 in the Chamber. A total of 17,924 blank ballots were cast by Liberal and Colorado factions which had broken with their respective parties. Paraguay was one of the few South American republics which did not default on its foreign bond payments during 1931.

**PARAO.** See *CAROLINE ISLANDS*.

**PARASITES.** See *ENTOMOLOGY*, *ECONOMIC*; *VETERINARY MEDICINE*.

**PARIS EXPOSITION OF 1931.** See *EXPOSITIONS*; *ARCHITECTURE*.

**PARK COLLEGE.** A nonsectarian institution for the higher education of men and women in Parkville, Mo., founded in 1875 and coöperating with the Presbyterian Church in the United States of America. The enrollment for 1931-32 totaled 527. The faculty numbered 39. The endowment funds amounted to \$1,710,000, from which the income was \$79,000. Tuition and fees amounted to \$98,000 and donations to \$14,000; \$46,000 was yielded from other sources. The library contained 38,000 volumes. President, Frederick W. Hawley, D.D., LL.D.

**PARKS, NATIONAL.** The Director of the U. S. National Park Service, Horace M. Albright, in his annual report to the Secretary of the Interior for the fiscal year ended June 30, referred particularly to the determined efforts made to relieve local unemployment, and the importance of acquiring the few additional lands needed for national parks and monuments before the next boom period, which in all probability would inflate land values beyond all possibility of governmental acquisition.

While no new national parks were established during the year, boundary adjustments were made at Bryce Canyon (Utah), and Wind Cave (S. Dak.) National Parks, and also at the Petrified Forest (Ariz.), Aztec Ruins (N. Mex.), Pinnacles (Calif.), and Katmai (Alaska) National Monu-

ments. Through the addition of the new monuments and the various boundary changes, the total area of the national park and monument system was increased by 1,750,013.09 acres, making a total of 12,119,579.64 acres. Director Albright stated that important adjustments in the boundaries of several national parks should be made promptly, in order to insure proper development and to preserve important areas. He especially stressed the addition to the Grand Teton National Park, in Wyoming, of important lands held in trust for this purpose by the Snake River Land Co., organized by John D. Rockefeller, Jr. Over 30,000 acres of land were so held for transfer to the United States for park and game-preserve purposes when Congress should enact the necessary legislation.

Two new national monuments were established during the year, one on the eastern seaboard and the other in the Far West. The Colonial National Monument, in Virginia, was established by presidential proclamation on December 30, 1930, in accordance with previous authorization of Congress. Its boundaries as outlined include Jamestown Island, the old town of Williamsburg, portions of the Yorktown battlefield, and a connecting parkway. Upon the establishment of the monument the National Park Service devoted its efforts to obtaining lands in Yorktown and making such developments as were needed in connection with the celebration of the Sesquicentennial anniversary of the surrender of Cornwallis at Yorktown, which was held Oct. 18 to 19, 1931. A total of 1,960.76 acres of land in the monument area was secured, most of it in the Yorktown battlefield area. The National Park Service cooperated with the United States Yorktown Sesquicentennial Commission by handling all of the construction work at Yorktown and taking over the details of purchasing, disbursing, and accounting for funds and certain details of printing.

On Apr. 1, 1931, the Canyon de Chelly National Monument in Arizona was established, with an area of 83,840 acres. In addition to containing important cliff dweller ruins, this monument also is remarkable from a scenic standpoint.

The Great Smoky Mountains area, the newest of the national parks, located in Tennessee and North Carolina, was reported as having an area of 158,876.50 acres, with an additional gift of lands transferred to the United States Government on November 2 which about doubled its size. This left only about 100,000 acres additional to bring the park to a point where its full development could be undertaken in accordance with the organic act of Congress which provided a minimum area of 427,000 acres for full park development. Meanwhile the National Park Service was administering and protecting the area, with special emphasis on the protection of its wild life and other natural features.

Several other eastern park projects under way promised a comprehensive eastern park system in the future. In the case of the Shenandoah project, the State of Virginia, after securing a decision from the courts that the special law for acquiring lands within the proposed park boundaries was constitutional, had about completed the work of mapping and valuing the lands, and it was expected that by the early part of the year 1932 the commission would be in a position accurately to estimate the amount of acreage that could be purchased with available funds.

An interesting highway development was the

designation of the Eastern Park-to-Park Highway, to connect the Great Smoky Mountains National Park, the Shenandoah and Mammoth Cave projects, and the Colonial National Monument. It was hoped that this highway later might be extended to take in the existing Acadia National Park in Maine and the new eastern park projects.

The Mammoth Cave National Park Association reported late in the year that clear title to Mammoth Cave (Kentucky) itself, as part of 20,000 acres of land in the proposed park area, had been acquired, and that anticipated revenues of \$900,000 would, it was believed, be sufficient to purchase the remaining lands necessary for the establishment of the Mammoth Cave National Park.

The newest eastern national park project approved by Congress was the Isle Royale, in Michigan. This project, like the other eastern park projects already mentioned, was dependent upon the lands within the proposed borders being deeded to the United States for park purposes. During the summer Governor Brucker of Michigan appointed a commission to supervise the acquisition of the necessary acreage for transfer to the Federal Government. A bill to establish the Everglades (Florida) project, as a national park passed the U. S. Senate, following favorable report by the Secretary of the Interior. Unfortunately it did not pass the House of Representatives before the termination of the session.

Excellent progress was made in bringing the highway systems within the national parks and in some of the national monuments to a standard commensurate with the importance of these areas as focal points of concentrated travel and with conditions on the main approach roads. Outstanding among the major road projects under construction were the Wawona Road and tunnel in Yosemite National Park and the Generals Highway between Sequoia and General Grant National Parks, all in California; the Trail Ridge Road in Rocky Mountain National Park, Colo.; the Transmountain or Going-to-the-Sun Highway in Glacier National Park, Mont.; the Rim Drive in Crater Lake Park, Oregon; and, in Virginia, the Colonial Parkway between Williamsburg and Yorktown in the Colonial National Monument and the Summit Drive along the crest of the Blue Ridge in the proposed Shenandoah National Park. In connection with the latter project, deeds from the Virginia State Commission on Conservation and Development, covering the conveyance without cost of a right of way 100 feet wide and approximately 35.41 miles long, were accepted by the Secretary of the Interior on behalf of the United States for the construction of the new highway. Work on this project was financed from the emergency relief appropriation.

Travel to the national parks and monuments in 1931 increased greatly, amounting to 3,544,856, as against 3,240,656 for the travel year ended Sept. 30, 1930. This was a net increase of 9.18 per cent. Travel to the national parks alone reached the total of 3,152,845, a gain of 14 per cent over the previous year.

Appropriations for national park and monument work for the 1931 fiscal year amounted to \$12,113,435, including \$2,078,800 allocated to the National Park Service for emergency employment work. For the fiscal year 1932, under which the Service is now operating, the appropriations total \$12,754,250. In addition to the 1932 appropriation of \$7,500,000 for road work, included

in the total appropriations recorded above, authorization was granted to incur contractual obligations for road construction up to an additional sum of \$2,850,000. Cash donations for park and monument development purposes during 1931 amounted to \$65,157.12.

**PARR, SAMUEL WILSON.** An American chemist, died in Urbana, Ill., May 16, 1931. He was born in Granville, Ill., Jan. 21, 1857, and was graduated from the University of Illinois in 1884, later studying at the University of Berlin and at the Polytechnikum in Zurich. After acting as instructor in general science at Illinois College during 1885-86 and as professor from 1886 to 1891, he was made professor of applied chemistry at the University of Illinois in 1891, retiring in 1930. A leading authority on coal chemistry, he devised a valuable *Classification of Coal* and developed a low-temperature coking process. Among his other discoveries are the Parr calorimeter for determining and recording the heat value of coal and other hydrocarbons, and a new type of calorimeter for measuring and recording the heat value of combustible gases. He also made an extensive study of alloys, especially those with acid-resisting properties, and developed one in particular, illium, which may be substituted for platinum in many types of equipment. The Chandler medal was awarded him in 1920 in recognition of his many discoveries, and in 1928 he was elected president of the American Chemical Society. He was the author of *The Chemical Examination of Water, Fuel, Flue-gases, and Lubricants* (2d ed., 1916).

**PARSONS, SIR CHARLES ALGERNON.** A British engineer and inventor, died at sea Feb. 12, 1931. He was born in London, June 13, 1854, and was educated at St. John's College, Cambridge. He was founder and chairman of the engineering and electrical corporation, C. A. Parsons & Co., and of the Parsons Marine Steam Turbine Company at Heaton, Newcastle-upon-Tyne. His principal invention was the compound steam turbine known by his name, which was introduced about 1884, improved by a condenser in 1891, and adapted for ships, being used on the *Turbinia* in 1897. In 1905 it was adopted by the Admiralty in battleships, and in 1907 for such passenger liners as the *Lusitania* and *Mauretania*. He published *The Steam Turbine* (1912).

**PARTHENOGENESIS.** See ZOÖLOGY.

**PASCIN, JULES, PAINTINGS OF.** See ART EXHIBITIONS.

**PATENTS.** See UNITED STATES under *Patents*.

**PAVEMENTS.** See ROADS AND STREETS.

**PAVLOVA, päv'lo-vä, ANNA.** A Russian dancer, died at The Hague, the Netherlands, Jan. 23, 1931. Born in St. Petersburg, Russia, Jan. 31, 1885, she entered the Imperial Ballet School at the age of 10 and was graduated in six years. She then became prima ballerina at the Marianski Theatre, the home of the Imperial Ballet, where her success was immediate. In 1907 she resigned to make a continental tour, visiting Munich, Berlin, Stockholm, and Paris and finally reaching London in 1910, where she was proclaimed the most remarkable dancer since the days of Giulia Grisi and Fanny Elssler. After her London triumph she went to America, making her debut at the Metropolitan Opera House, New York City, Mar. 1, 1910, in Delibes's *Coppelia*. The same season she appeared with Diaghileff's Russian Ballet in Paris, adding to her fame

in *Les Sylphides*, *Pavillon d'Armide*, and *La Nuit Egyptienne*.

During the World War she organized an opera company which toured the United States and achieved a signal success with such presentations as Auber's *La Muette de Portici* in which the principal character, the deaf-and-dumb Fenella, was mimed by the dancer. After the War she resumed her tours in Europe and also visited the Orient and Latin America. Her last appearance in the United States was in 1924-25, at which time she was married to her accompanist, Victor d'André. Pavlova's great contribution was in making the dance a more natural and spiritual interpretation of the music to which it was set; she revived its era of romanticism. Among the best-known and most spectacular of her dances were *Automne Bacchanale*; *Le Cygne*; *Les Papillons*; *Chopiana*; *Valse Caprice*; an interpretation of Liszt's *Les Préludes*.

**PEACE.** The twenty-eighth Universal Peace Congress was held in Brussels from July 5 to the 10th, with M. H. La Fontaine as President and under the patronage of an honorary committee composed of a large number of eminent men belonging to the political world and the University, such as M. Magnette, President of the Senate, M. Poncelet, President of the Chamber of Deputies, M. Paul Hymans, Foreign Minister, Count Carton de Wiart, Minister of State, Senator de Brouckere, Senator Vinck, Director of the International Towns Union, M. Max, Burgomaster of the Town of Brussels. The Congress opened with an impressive ceremony on Sunday, July 5, in the Festivals Hall of the Academy.

From the outset it was apparent that the forthcoming Disarmament Conference was arousing keen interest in pacifist circles. The committee whose task it was to examine the seven reports presented to the International Peace Bureau attracted to its ranks all those who believed that the existing state of affairs constituted a serious threat to all that had been done in the previous ten years to organize peace.

The resolution presented to the Congress by the committee drew attention both to the final aim, total disarmament, and to the immediate possibilities, or rather necessities. The Brussels Congress declared in unequivocal terms that neither the peoples nor those who govern them will consent to a total suppression of armies so long as the security of the nations is not completely assured and before the League of Nations possesses the necessary means of obtaining compensation for countries which, in spite of the strict undertakings in the treaties, might be attacked.

The organization of peace then, it was pointed out, was the work that must be untiringly pursued. It is not enough to define an aim; advance must be made toward it. The Congress recommended both a reduction in the effectives and a reduction of military expenditure. Both are necessities and one should produce the other. The question of reduction by budgetary means gave rise to a rather serious debate. Some, and in particular Herr Dr. Ludwig Quidde, of Germany, wished the Congress to support the resolution passed at Budapest by the Conference of the Federation of League of Nations Unions, which demands a 25 per cent reduction at least, a figure which originated in Lord Cecil's circles, whereas others opposed the suggestion on the ground

that since the figures for military expenditure amount, according to the Secretariat of the League of Nations, to 21 milliards 569 million gold francs (as against 11 milliards in 1914) a 25 per cent reduction would be entirely illusory owing to the fact that the cost of war materials and of maintenance of the effectives have decreased and are still decreasing in a way which would more than compensate for the proposed 25 per cent reduction. The result would be that with the amount left after the 25 per cent reduction the states would be able, not only to maintain their armaments at the same level but even to increase them. The conclusion was that by supporting that figure for reduction the Congress would play into the hands of the war-party.

On the basis of the foregoing arguments the President, M. La Fontaine, wished the Congress to demand, not a 25 per cent but a considerably greater reduction. The Congress, for whom the question of the "fall in prices" where military equipment was concerned was an unfamiliar one, avoided the difficulty by demanding that the reduction should in any case be sufficient to lower effectives, material, and expenditure to a level below that of 1914. The following is the complete text of the resolution:

The XXVIIIth Universal Peace Congress, profoundly convinced that if armaments are not the only cause of war, they are in fact and essential means,

Adjuces the Disarmament Conference solemnly to declare that its ultimate object is total universal simultaneous disarmament, rigorously controlled.

Conscious nevertheless, that in the present state of development of nations, total disarmament will not be accepted by states and peoples without collective mutual guarantees of security supported by an international executive force of public world order, the Congress requests the Conference to invite the League of Nations to organize these guarantees.

But until this great scheme has been organized, the Congress believes that the immediate task of the Disarmament Conference consists,

(1) In reducing military forces and war material, including trained reserves and stocks of war material, together with military budgets, account being taken of the fall in the cost of material and upkeep of the men, in the level lower than that which existed in 1914;

(2) In affirming the principle of equality in disarmament not by increasing the armaments of the Powers disarmed by the Peace Treaties, but by a progressive reduction of the other Powers;

(3) In effecting the limitation of armaments of all the Powers both by direct and indirect, or budgetary means;

(4) In prohibiting for all nations those means of war already forbidden by the Peace Treaties and in effecting the internationalization of all aviation which to-day is national or private, as aeroplanes constitute in time of war the most dangerous instruments for diffusion of gas;

(5) In abolishing immediately private manufacture and trade in war material and in nationalizing its manufacture until the time when in as near a future as possible, the monopoly of the manufacture of means of coercion still allowed shall be solely in the hands of the League of Nations;

(6) In creating an international commission already contemplated in the draft Convention which shall be given special powers to control the carrying out of the obligations which have been undertaken and to adjudicate upon all differences arising from interpretations of the Treaty. For the members of this Commission, guarantees of independence and impartiality are indispensable.

The Congress urged the Conference emphatically, to remember the passionate hope with which the peoples will follow its deliberations and to recognise that it will be criminal to deceive this hope and take responsibility for the violent reactions which failure of the Conference cannot fail to arouse.

The Disarmament Committee also presented two resolutions which were adopted almost without discussion. One asked that states should

introduce into their legislation preventive and repressive measures providing for penalties against any persons who by speeches, by writings, or by any other similar means are guilty of inciting to war. The second resolution asked that the governments should not send to the Disarmament Conference persons directly interested in the maintenance of armaments but that they should include in their delegations persons who, as members of pacifist organizations, had occupied themselves with the problem of disarmament, certain aspects of which appear not to have been sufficiently studied.

The Committee on the European Union had as President M. A. Papanastasiou, former Foreign Minister of Greece.

The resolution adopted by the Congress drew attention, in the first place, to the fact that, although the World War was the chief cause of the present crisis, the latter can also partly be attributed to the lack of balance between production and consumption and to the egoism of certain industrial and financial concerns; it further declares that military nationalism is supplemented and extended by economic nationalism, customs barriers and the tariff war; that, in particular, international cartels have not so much in view the normal organization of economic life in general as a concentration of economic forces with the object of keeping up or raising prices to an unjustifiable extent. In conclusion, the resolution read:

I. Resolved that the establishment of a normal economic order requires equilibrium between consumption, which is the end, and production, which constitutes the means, and that in the economic sphere, as in the political, democratic authority represented, when necessary, by the State, must take the place of autonomous dictatorship of finance; and called for the realisation of a European Tariff Union (pending the establishment of world freedom of trade) on the basis of a common tariff fixed as near as possible to the lowest existing national tariff, the reduction of customs barriers, including the modification and stabilisation of tariffs, in particular the free circulation of raw material, and draws attention to certain consequences resulting from the most-favoured-nation clause in the commercial treaties, which, instead of leading to a generalization of reduced tariffs, ends by paralyzing even the conclusions of agreements.

The Congress adopted a second resolution congratulating the national groups of the six states which took part in the Balkan Conference organized at the instigation of the twenty-seventh Peace Congress on their will to come to an understanding.

In addition to the Congress of the International Peace Bureau at Brussels three other international conferences were held during the summer: the Conference of the War Registers' International at Lyons from August 1 to 4; the Congress of the International Fellowship of Reconciliation at Lunteren (Holland) from August 22 to 29; the International Democratic Congress for Peace at Constance from August 7 to 9, afterward out on a "Crusade of Youth" in the valley of the Rhine.

A School of Peace was opened in Paris, organized under the directorate of *l'Europe Nouvelle*, sponsored by M. Briand, dedicated by M. Painlevé. The course covers two years; the first, a general study of current international problems; the second more detailed study of policies and institutions.

For many years the Federal Council of Churches' (q.v.) Commission on International Justice and Goodwill had been bending its ener-



gies toward the development of definite educational understanding and world peace. The fruition of such efforts was beginning to be seen. An important evidence of this new interest was the incorporation of the peace ideal into the regular programme of Christian education in the Sunday school and allied agencies. In connection with the annual meeting of the International Council of Religious Education there was an all-day conference, attended in the main by religious educators and specialists in the field of curriculum-making, who concerned themselves with concrete questions as to how education for peace most effectively can be carried out in each of the three great age-groups, children, young people, and adults.

The Catholic Association for International Peace (1312 Massachusetts Avenue N. W., Washington, D. C.) is made up of about four hundred Roman Catholic men and women familiar with and interested in international problems. The various committees reported with supplementary study outlines that were widely used in Roman Catholic colleges and among men's and women's clubs. Annual meetings and regional conferences were being held throughout the United States where the committee reports were presented and discussed before they were published.

The *Peace Year Book* is a recognized handbook of information on peace and international affairs. The 1931 edition contains special articles by Wickham Steed on the "Contribution of 1930 to Peace," and by W. Arnold-Foster on the Amendments to the Covenant of the League of Nations, as well as articles on the Draft Disarmament Convention, the London Naval Conference, and sections dealing with the League of Nations, the International Labor Office, and Reparations. In the appendices are to be found an exhaustive directory of peace organizations in all parts of the world, and a mass of important statistics relating to armaments.

A spectacular "Peace Caravan" which, under the auspices of the pacifist organization, the Women's International League for Peace and Freedom, crossed the United States from the Pacific to the Atlantic and visited the capitals of 25 States as well as 125 other cities, and presented to President Hoover a petition for disarmament "to the limit," said to bear the names of 150,000 men and women including most of the governors and mayors visited. In responding, however, the President spoke not of disarmament but of limitation.

The executive committee of the World Conference for International Peace through Religion met at Geneva from August 12 to 14, with 60 members present and Dr. Shailer Mathews of Chicago presiding.

Dr. Atkinson, the Secretary, reported that the coöperation of all the eleven great religions of the world has been assured and that six joint presidents have been appointed, each representing a religious constituency. The Moslem group was the only important group thus far unrepresented, and it was expected that a Moslem president would be named very shortly. Dr. S. Parkes Cadman, of New York, represented the American Protestant Churches; Dr. Albert Einstein, of Berlin, the Jewish group; Mgr. Ignaz Seipel, Minister of Foreign Affairs and formerly Chancellor of Austria, the Roman Catholic group; the Lord Bishop of Liverpool, the Anglicans; Dr. Rabindranath Tagore was president for India; and

Baron Y. Sakatani, member of the Japanese House of Peers, president for Japan. The world conference was tentatively scheduled for November, 1932, in Washington.

The International Peace Bureau was believed by its supporters to have paved the way for the League of Nations. It challenges any one who might doubt the exactitude of this statement to glance through the collection of resolutions of the Universal Peace Congress, where he will see that it was in these congresses and later in the Inter-Parliamentary Conferences that the foundations of the League were laid. The year 1930 was epoch-making in the annals of the organization of which the International Peace Bureau is the centre, as a result of two events which, in different directions, will certainly bear fruit. The first was the Balkan Conference, the second, the General Conference of Peace Societies. For the first Balkan Conference, see *GREECE under History* (1930 YEAR BOOK); for the second in 1931, see *TURKEY under History*.

The second question which received the attention of the International Peace Bureau during the year 1930, the coördination of pacific forces, had been the object of attention for a long time. The idea of creating an organism capable of establishing contact between the different peace societies was discussed for the first time at a meeting held for this purpose in Basel on June 2, 1923, in which delegates from five or six important associations took part. The committee then formed met several times between 1923 and 1930 in Paris at the headquarters of the European Centre of the Carnegie Endowment. At one of these meetings, when M. Nicolas Politis and Professor Gidel were present, draft statutes were prepared, on the basis of which was formed on June 7, 1927, the International Committee for the Coördination of Pacific Forces. This committee, composed of delegates (three at the most) sent by the different international associations, arranged to commemorate the Tenth anniversary of the League of Nations by organizing a manifestation at Geneva. In this all the associations whose aim is to make known over the whole world the ideas which are at the basis of the Geneva institution might coöperate. This was most successful, 15 international associations taking part in the manifestation.

On December 9, the Nobel Peace Award was made to President Nicholas Murray Butler of Columbia and Miss Jane Addams, of Hull House, Chicago. See NOBEL PRIZES.

THE UNIVERSAL CHRISTIAN COUNCIL FOR LIFE AND WORK: AMERICAN SECTION. Consisting of the Commission on Relations and Churches Abroad of the Federal Council of the Churches of Christ in America, this Council during the year sought to advance the cause of world peace by directing particular attention to the Disarmament Conference, to the study of unemployment, and to the strengthening of the underlying spiritual ties between the nations. A council executive committee meeting in Paris in February received suggestions from several of the sections that led to the adoption of a joint programme with the World Alliance for Friendship through the Churches. Each country was encouraged to circulate petitions, to seek the expression of conviction on the part of official church bodies, and to coöperate in plans for a universal day of prayer and a joint Christian delegation to wait upon the Disarmament Conference when it met.

The educational aspects of the programme were particularly stressed; likewise the need of showing Christian people that their wishes in the matter of world peace should find practical expression and should result in strengthening the hands of the statesmen committed to progressive multilateral disarmament.

At Cambridge in August and September the Executive Committee met again and there were reports from the different countries with respect to the degree of success attained in following up this programme. A renewed stress was placed upon the so-called Eisenach Resolution which was initiated by the Life and Work Council and which formed the basis for the action of the Lambeth Conference and other important world Christian bodies acting in the matter of war. This policy had been outlined by the Bishop of Chichester, Dr. Bell.

There were a great many meetings in the different lands under the auspices of the Council, and the various interdenominational church movement in its wide constituency carried on an educational campaign which was more or less definitely related to the recommendations of the Council.

The most elusive part of the programme, and yet perhaps the most important of all, relates to the process of bringing to birth a new state of mind. The personal confidence which had been established as between the most influential leaders of the churches in the different lands had increased as a result of the meetings held under the auspices of the movement and to a degree at least this confidence is communicated to the church groups influenced by these leaders. Further than that the press service of the movement had been supplying to the papers on the Continent the sort of facts which aid the development of understanding and good will. The bulletins and other publications of the central office were a help in the same direction. See ARBITRATION, INTERNATIONAL; DISARMAMENT.

**PEACHES.** See HORTICULTURE.

**PEARS.** See HORTICULTURE.

**PEAT.** See SOILS.

**PEDAGOGY.** See EDUCATION IN THE UNITED STATES; UNIVERSITIES AND COLLEGES.

**PEIPING.** See CHINA; EXPOSITIONS.

**PEMBA.** See ZANZIBAR PROTECTORATE.

**PENAL INSTITUTIONS.** See CRIME.

**PENANG, pē-nang'.** One of the Straits Settlements. See STRAITS SETTLEMENTS.

**PENFIELD, WALTER SCOTT.** An American lawyer and expert on Latin-American affairs, died in Washington, D. C., Apr. 11, 1931. He was born in Auburn, Ind., Feb. 13, 1879, and was graduated from the University of Michigan in 1900 and with the LL.B. degree from George Washington University in 1903. During 1901-04 he was an attorney with the Department of State at Washington. He was later counsel for Mexico in the Sanchez Azcona case (1911), for the Panama Legation in arbitration as to the boundary dispute between Costa Rica and Panama (1912), and for Germany in the *Appam* case (1918).

During 1909-12 he was professor of international law at the Washington College of Law. In 1919 he was delegate and technical adviser in international law to the Paris Peace Conference. He retired in 1929.

**PENNSYLVANIA.** POPULATION. According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 9,631,350, in 1920 it

was 8,720,017. The native whites numbered 7,959,551 (1930), 7,044,876 (1920). The foreign-born whites, 1,233,051 (1930), 1,387,850 (1920). The Negroes, 431,257 (1930), 284,568 (1920). There was, in 1930, a small population of other races, chiefly Mexicans, 3405; Chinese, 2557; Filipinos, 614; Indians, 523.

Of 3,722,428 persons reported in 1930 as in gainful employments, 1,469,468 were in manufacturing industries, these including 213,743 in the building industry and 406,884 in iron and steel industries; 562,040 were in trade; 359,095, in transportation; 322,245, in domestic or personal service; 251,443, in agriculture; 327,476, in mineral extraction, of whom 296,094 were in coal mining; 247,293, in professional service.

Philadelphia, the most populous city, had 1,950,961 inhabitants (1930), 1,823,779 (1920); Pittsburgh, 669,817 (1930), 588,343 (1920); Scranton, 143,433 (1930), 137,783 (1920); Erie, 115,967 (1930), 93,372 (1920); Reading, 111,171 (1930), 107,784 (1920); Harrisburg, the capital, 80,339 (1930), 75,917 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ..	1931	2,455,000	3,154,000*	\$38,163,000
	1930	2,496,000	3,001,000*	59,120,000
Corn .....	1931	1,268,000	62,766,000	28,872,000
	1930	1,219,000	26,818,000	25,477,000
Potatoes ...	1931	191,000	26,549,000	11,947,000
	1930	189,000	17,955,000	20,648,000
Wheat .....	1931	909,000	19,987,000	11,202,000
	1930	986,000	21,682,000	17,367,000
Oats .....	1931	954,000	28,143,000	9,006,000
	1930	945,000	32,602,000	15,649,000
Apples .....	1931	.....	14,000,000	7,700,000
	1930	.....	9,936,000	9,439,000
Tobacco ...	1931	40,900	58,487,000*	5,849,000
	1930	41,300	39,854,000*	2,551,000
Buckwheat .	1931	162,000	3,488,000	1,393,000
	1930	167,000	1,754,000	1,561,000
Rye .....	1931	135,000	2,025,000	1,033,000
	1930	127,000	1,842,000	1,455,000

\* Tons.    † Pounds.

**MINERAL PRODUCTION.** The value of the State's coal production, the chief part of its mineral total, declined for 1930 to \$568,158,000, from \$644,250,000 for 1929, or by about 12 per cent. Lower prices were averaged to the ton, and less coal was shipped from mines. This held true both of the bituminous and of the anthracite fields. The total quantity of anthracite produced was 69,384,837 net tons for 1930, as against 73,828,195 for 1929; its value, \$354,574,000 for 1930 and \$385,643,000 for 1929. The quantity of bituminous coal mined fell to 124,462,787 net tons for 1930, from 143,516,241 for 1929; the value, to \$213,584,000 (1930), from \$258,607,000 (1929). The production of coke was more sharply reduced, to 14,540,579 short tons for 1930, from 19,856,968 for 1929; and in value, to \$54,098,236 (1930), from \$72,913,229 (1929). Though the State continued to import iron ore much in excess of its own production, its own mines produced less ore, 894,039 long tons for 1930, as against 1,151,130 for 1929; in value, \$1,850,661 (1930) and \$2,382,839 (1929). The production of pig iron, chiefly from imported ore, fell more sharply, to 9,734,591 long tons for 1930, from 14,058,194 for 1929; in value, to \$176,521,843 (1930), from \$257,154,608 (1929). There was a heavy production of ferro-alloys, attaining \$42,361,076 for 1929.

For the State's important industries in nat-

ural gas and in clay products, the latest totals of the U. S. Bureau of Mines dealt with 1929. The clay products of 1929 attained the value of \$49,674,492; for 1928, their total was \$47,928,803. There were produced in 1929, 101,951,000 M cubic feet of natural gas; in 1928, 99,466,000 M cubic feet. In value, the totals were \$48,821,000 for 1929, and \$48,432,000 for 1928.

The quantity of petroleum obtained in the State rose to 12,797,000 barrels for 1930, from 11,820,000 for 1929, but the yearly value of the product fell to \$33,500,000 (1930, estimated), from \$44,800,000 (1929). The Portland cement industry was somewhat less active in 1930, the mills shipping 37,968,647 barrels (1930), as against 39,309,662 (1929); in value, \$52,712,176 (1930) and \$55,600,953 (1929). Stone production attained 18,169,270 short tons for 1929 and 16,546,850 for 1928; in value, \$19,956,410 (1929) and \$18,871,736 (1928). Sand and gravel were dug in 1929 to the value of \$13,658,328. Slate, of which the State was the Union's leading producer, was quarried to the value of \$3,634,258 in 1930; in 1929, of \$4,798,200. The output of lime was 617,000 short tons for 1930 and 782,915 for 1929; in value, \$4,468,000 (1930) and \$5,896,752 (1929). The total value of the native mineral products of the State, exclusive of duplications, was \$892,913,833 for 1929; for 1928, \$881,490,033. For both years the totals were the largest attained by any State of the Union.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 showed the number of the State's manufacturing establishments as 16,870 (slightly below their number for 1927). These establishments employed 1,006,946 wage earners (more by 2 per cent than the number that had been employed in 1927). The wages paid them amounted to \$1,390,782,260 (exceeding the wage total of 1927 by 5.6 per cent). Materials for manufacture, plus fuel and purchased electricity, cost \$4,000,673,484 (more than 7 per cent in excess of this cost for 1927). The manufactured product was valued at \$7,387,856,808 (exceeding the value of the product of 1927 by 10 per cent). Value added by manufacture was estimated at \$3,387,183,324. Philadelphia, the chief manufacturing centre, accounted for about one-fourth of the State's manufacturing industry. It had 5565 establishments, which employed 244,655 wage earners, paying them wages of \$335,231,822, and attaining an aggregate production of the value of \$1,984,760,404. Pittsburgh had 1374 establishments, which employed 61,525 wage earners, paid them wages of \$91,171,773, and produced manufactured goods to the value of \$545,318,655. Reading's 323 establishments employed 25,978 wage earners, paid them \$31,766,291, and produced \$120,939,332. Johnstown, Allentown, Chester and Erie each produced manufactures in excess of \$100,000,000.

**FINANCE.** State expenditures in the year ended May 31, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$111,183,938 (of which \$30,411,743 was for local education); for interest on debt, \$4,046,154; for permanent improvements, \$41,223,573; total, \$156,578,815 (of which \$55,075,044 was for highways, \$27,167,459 being for maintenance and \$27,907,585 for construction). Revenues were \$169,097,295. Of these special property and other special taxes formed 35.9 per cent; departmental earnings and remuneration of the State for its offi-

cers' services, 7.1; sales of licenses, 40.5 (including taxes of \$29,304,075 on sales of gasoline). The State's funded debt outstanding on May 31, 1930, was \$89,646,070; of this, \$89,221,000 was for highways. Net of sinking-fund assets, it was \$81,575,342. On property there were levied in the year no general State taxes.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 11,141.01. Additional line totaling 17.82 miles had been put under operation in the course of the year preceding, while 30.58 miles had been abandoned. In 1931 were built 53.57 additional miles of first and 11.5 of second track.

**EDUCATION.** For the academic year 1929-30 the number of persons of school age in the State was reported as 2,002,201. There were enrolled in the public schools 1,913,456 pupils. Of these, 1,507,002 were in common schools or elementary grades, and 406,454 were in high schools. The expenditures for public school education totaled \$212,113,813. Teachers' salaries, by the year, averaged \$1258 for elementary and \$1900 for high-school positions.

A State commission was organized in 1931 to study the State's problems of school education. It was the intention to submit to a subsequent Legislature a 10-year programme to be based on the result of such study. The Legislature of 1931 rendered it necessary to give notice to teachers 60 days in advance of the end of a school term if their services were not to continue.

**CHARITIES AND CORRECTIONS.** The function of supervising the penal, reformatory and charitable institutions of the State resided in 1931 with the Department of Welfare, created by an act of 1921. This department has as its head a Secretary of Welfare (Mrs. I. Albert Liveright), holding by appointment for a term of four years.

The State institutions of care and custody, with their populations in December, 1931, included: Eastern State Penitentiary, Philadelphia and Graterford, 2734; Western State Penitentiary, Pittsburgh, 1076; Western State Penitentiary, Rockview, 982; Pennsylvania Industrial School, Huntingdon, 1323; State Industrial Home for Women, Muncy, 120; Pennsylvania Training School, Morgantown, 818; eight State hospitals (mental), at Allentown (1420), Danville (1829), Waymart (618), Harrisburg (1689), Norris-town (3033), Torrance (881), Warren (1790), and Wernersville (1190); for the feeble-minded and epileptics, Pennhurst State School at Pennhurst (1332), Polk State School at Polk (2702), Laurelton State Village (654), and State Colony for Epileptics at Selinsgrove (154).

**LEGISLATION.** The regular session of the General Assembly was protracted by a struggle between Governor Pinchot and his supporters on the one side and the opposing Republican faction on the other, as to the Governor's programme of legislation. As a feature of his campaign against the State Bank Service Commission he recommended the passage of a bill to abolish the Commission and to erect in its place a so-called Fair Rate Board, of members from seven districts of the Commonwealth, having power to confiscate utilities' earnings in excess of the rate of 8 per cent. The members of the Board were to be removable by the Governor. Concurrently an investigating committee of the House inquired into the record of the Public Service Commission and later recommended the abolition of this body. A

separate investigating committee of the Senate on the contrary reported in favor of the Commission. The House voted the Pinchot utility programme with amendments, but the Senate let the measure die in committee. Neither would the House in its turn agree upon substitute measures from the Senate. Consequently the Public Service Commission remained in power.

Two important tax measures were enacted. One subjected motorbus and truck operators to a tax at the rate of eight mills, and the other revised the method for collecting the capital-stock tax in a manner designed to increase the yield. The resulting increase in revenue was to be devoted to higher appropriations for hospitals, to the Mothers' Assistance Fund and to having the State assume the care of county-owned bridges on State highway routes. The Governor's adherents were unable to put through a measure to carry out his undertaking to abolish the Coal and Iron Police, a body of privately maintained guardians in the industrial and mining areas which had become unpopular among the masses. The Legislature voted the submission to popular vote of a proposal to amend the State constitution so as to permit old age pensions; it was necessary, however, that this measure be repassed by the next succeeding Legislature before it could be ratified at the polls. The election law, against the abuses of which there had been much agitation, was altered, but only in minor respects, while a more sweeping election code was defeated in the House.

The proposed State constitutional amendment to allow an issue of \$50,000,000 of bonds for a bonus to former soldiers and sailors was voted for the second and conclusive time, and was submitted to the people for approval. There was enacted a statute redistricting the State into 34 districts, in place of the previous 36, for the election of Federal Representatives. The City Council of Philadelphia was authorized to borrow \$3,000,000 for the relief of the unemployed. The banking law was amended to simplify the efforts of the Secretary of Banking to reopen closed banks. The right was granted to Philadelphia to build hospitals beyond the city limits. The carrying of firearms was prohibited, save by license, and those convicted of committing crimes of violence while carrying firearms without license were subjected to heavy additional penalty.

*Special Session.* Governor Pinchot called the Legislature to convene in special session on November 9, primarily to deal with the need of public relief for the unemployed. His proposals were introduced by his supporters in the form of a group of 19 bills, which required the State and its localities to raise a total of \$136,700,000. The central agency for relief of the unemployed, according to the administration's plan, was to be a State Commission on Unemployment Relief. A wide variety of public activities were to be undertaken. An emergency tax of 2 cents a gallon on gasoline was to produce an estimated \$40,000,000; a tax on cigarettes, \$10,000,000; billboards and advertising agencies were to be subjected to taxes to yield \$2,000,000; a "prosperity bond" issue, reportedly "designed to reimburse contributors to a general relief fund to be raised by the Commission on Unemployment Relief," was to produce \$35,000,000; and communities were to be allowed to borrow some \$40,000,000 against unpaid delinquent taxes. The opponents of the administration prevented the early passage of

any of the major measures embodying the Pinchot plan.

**POLITICAL AND OTHER EVENTS.** Economic depression during the year was severely felt in the western coal and steel area, in the anthracite region and in the manufacturing industries and banking world of Philadelphia. Several banks having deposits running from \$20,000,000 to upward of \$50,000,000 failed in the Philadelphia district. The City of Philadelphia borrowed \$1,500,000 in July, with which to build up its fund for the assistance of the needy unemployed among the population. Judge Harry S. McDevitt in the Court of Common Pleas ordered a receivership of the Philadelphia Rapid Transit Company on April 11. After a delay accorded them, the attorneys for Mitten Management, Inc., operators of the rapid transit system, proposed a reorganization under which the control should pass into the hands of the court, which was to choose six directors, while certain large financial charges made against the transit company and questioned by the court were to be canceled. This offer, made on May 13, was accepted and put into force. Dr. A. A. Mitten, son of the late Thomas E. Mitten of Mitten Management, Inc., offered \$1,000,000 of his father's estate to the new board of directors by way of aiding the reorganization.

A severe let-down in its revenues, due largely to slow payment of taxes, caused financial embarrassment to the city of Philadelphia in December. It was necessary to meet the city's pay disbursements of December 15 with warrants on the city treasury, for lack of cash, and money received by the city had to be set apart to meet interest charges of some \$11,700,000 due on the first of the ensuing year. Several previous payrolls had been met by the expedient of temporary loans, but bankers had refused to continue the process. Failing to place its bonds by the usual means, the city resorted in October to sale of an issue of \$15,000,000 of its bonds directly to investors. About one-half of the issue had been sold, according to a report of mid-December.

Under the administration of Mayor Mackey of Philadelphia, Director of Public Safety Schofield conducted in the spring a series of raids upon alleged vendors of liquor, and thereby became involved in conflict with the regular Republican organization of the city, which asserted that raids were conducted without proper authority of law. The Regional Planning Federation, a body formed to consider plans for the development of Philadelphia and its environs, reported in January, expressing anticipation that the area, inclusive of territory in New Jersey and Delaware, would attain a population of 7,000,000 within six years.

Extensive strikes in the coal fields of western Pennsylvania occurred early in the summer. Their settlement was made more difficult by a rivalry of union organizations, the district organization of the United Mine Workers of America and the National Miners' Union both claiming to represent the strikers. Some of the companies signed agreements with the United organization in June, while the strike at the plants of other companies continued into August, accompanied with evictions of strikers, bombing of non-union miners and reports of much suffering among strikers' families. The American Red Cross was asked to furnish assistance to these people, but Chairman John Barton Payne denied that such work was within the scope of the society. In Pitts-

burgh the city's tallest building, the Gulf Building, 680 feet high, was virtually completed during the year.

**ELECTIONS.** In the 2nd (Philadelphia) District Edward L. Stokes, Republican, was elected on November 3 to fill a vacancy in the House of Representatives. Ex-Mayor J. Hampton Moore, Republican, was elected Mayor of Philadelphia. Charles C. McGovern and C. M. Barr, Pinchot Independents, were elected county commissioners in Allegheny County, against Republican opposition. In Reading the Socialist candidate for Mayor, J. Henry Stump, was defeated by Heber Ermentrout, Fusion candidate.

**OFFICERS.** Governor, Gifford Pinchot; Lieutenant-Governor, Edward C. Shannon; Secretary of the Commonwealth, Richard J. Beamish; Treasurer, Edward Martin; Auditor-General, Charles A. Waters; Attorney-General, William A. Schnader; Superintendent of Public Instruction, James N. Rule.

**JUDICIARY.** Supreme Court: Chief Justice, Robert S. Frazer; Judges, Emory A. Walling, Alexander Simpson, Jr., John W. Kephart, William I. Schaffer, George W. Maxey, James B. Drew.

**PENNSYLVANIA, UNIVERSITY OF.** A non-sectarian institution of higher education in Philadelphia, primarily for men but with certain courses open for women, founded in 1740. It is composed of the college of arts and sciences, the Towne Scientific School (engineering and chemistry), the Moore School of Electrical Engineering, the Wharton School of Finance and Commerce, the school of fine arts (architecture, fine arts, music), the school of education, the graduate school, and the professional schools of medicine, graduate medicine, law, dentistry, veterinary medicine, hygiene, and public health. The 1931 autumn enrollment was 14,051, including all schools and departments. Of those enrolled, 8230 were candidates for degrees; 2711 were candidates for certificates; and 3100 were partial students and auditors. The enrollment for the 1931 summer session was 2162. The faculty numbered 1448. The productive funds amounted to \$19,486,378. The income for the year from all sources, exclusive of hospitals and museums, was \$5,701,849.

The important gifts and subscriptions received during the year included \$1,180,000 from Cyrus H. K. Curtis for the special endowment campaign. The library contained 740,294 bound volumes and 70,000 pamphlets. President, Thomas S. Gates, LL.D. Provost, Josiah H. Penniman, Ph.D., Litt.D., LL.D., L.H.D. See **UNIVERSITIES AND COLLEGES**.

**PENNSYLVANIA ACADEMY OF FINE ARTS.** See **ART EXHIBITIONS**.

**PENNSYLVANIA STATE COLLEGE.** A nonsectarian institution for the higher education of men and women at State College, Pa., founded in 1855. On Nov. 1, 1931, the undergraduate enrollment totaled 4320, distributed in seven schools. The resident faculty numbered 641, including agriculture and home economics extension staff. The productive funds of the college amounted to approximately \$517,000, and the income for operation for the year to \$4,294,311. The library contained 126,784 volumes. A home economics building, at an estimated cost, equipped, of \$400,000, and a dairy building, at an estimated cost of \$500,000, were under construction during 1931. The school of mineral industries also established

an experiment station with Dr. A. W. Gauger as director, an extension division, and an option in fuel technology. President, Ralph D. Hetzel, L.D.

**PENROSE, RICHARD ALEXANDER FULLERTON, JR.** An American geologist, died July 31, 1931, in Philadelphia, Pa., where he was born Dec. 17, 1863. He was graduated from Harvard University with the A.B. degree in 1884 and took the Ph.D. degree in 1886. In 1888 he was geologist in charge of the survey of eastern Texas for the Texas Geological Survey, and the following year was appointed by the Geological Survey of Arkansas to report on the manganese and iron ore regions of that State. In 1894 he was special geologist for the U. S. Geological Survey to examine and report on the gold districts of Cripple Creek, Colo.

He held the chair of economic geology at the University of Chicago from 1895 to 1911. He was a member of the National Research Council. His publications include *The Nature and Origin of Deposits of Phosphate of Lime* (1888); *Geology of the Gulf Tertiary of Texas* (1890); *What a Geologist Can Do in War* (1917); and *The Last Stand of the Old Siberia* (1922). See **GEOLOGY**.

**PENROSE MEDAL.** See **GEOLOGY**.

**PENSIONS.** See **MATERNITY PROTECTION**; **OLD AGE PENSIONS**; **UNITED STATES under Veterans' Administration**.

**PERAK, pa'rik'.** The most northern of the Federated Malay States. See **FEDERATED MALAY STATES**.

**PERITONITIS.** See **SURGERY, PROGRESS OF**.

**PERKIN MEDAL.** See **CHEMISTRY, INDUSTRIAL**.

**PERLIS.** See **NON-FEDERATED MALAY STATES**.

**PERMANENT COURT OF INTERNATIONAL JUSTICE.** See **ARBITRATION, INTERNATIONAL**; **LEAGUE OF NATIONS**; **WORLD COURT**.

**PERSIA.** A monarchy of southwestern Asia, extending north from the Persian Gulf and the Gulf of Oman to the Caspian Sea. Capital, Tehran (Teheran); reigning Shah in 1931, Riza Khan Pahlevi.

**AREA AND POPULATION.** The area is estimated at about 628,000 square miles; the population at from 8,000,000 to 10,000,000, about 2,000,000 of whom are nomads. Europeans in the country were estimated at from 1000 to 6000. The chief cities, with their approximate populations, are: Tehran, 250,000; Tabriz, 200,000; Isfahan, 80,000; Meshed, 70,000; Kermān, Shirāz, and Kermānshāh, with 45,000 each; and Resht and Yezd, 40,000 each. The bulk of the population are Moslems of the Shiite sect.

**EDUCATION.** About 90 per cent of the population can neither read nor write. In 1930, the number of pupils enrolled in the schools was about 146,870; more than 750 students were studying in Europe, about half of them on Government pensions. There were a number of foreign missionary schools.

**PRODUCTION.** Persia is a predominantly agricultural country, producing chiefly wheat, barley, rice, tobacco, fruits, wool, opium, gums, cotton, and silk. Government estimates of 1930 crop yields, in pounds, were: Cotton, 65,464,000; tobacco, 32,732,000; tea, 196,000. Wool production (in grease) was 39,278,000 pounds. Petroleum is the chief mineral product, the output in 1930 totaling 45,420,000 barrels (42,145,000 barrels in 1929). The Anglo-Persian Oil Company controls the bulk of the Persian production. Iron, coal, copper, lead, manganese, marble, cobalt, and nickel are also found, but there is



little production. Rug making is the only important manufacturing enterprise. Construction was started on a modern spinning mill at Aliabad.

**COMMERCE.** In the fiscal year ended Mar. 20, 1930, imports were valued at 919,854,000 krans (\$77,176,000) and exports at 1,574,838,000 krans (\$132,129,000), compared with imports of 819,865,000 krans (\$82,560,000) and exports of 1,517,601,000 krans (\$152,822,000) in the previous fiscal year. The Union of Soviet Socialist Republics furnished 31.3 per cent of the total imports; the United Kingdom, 20.8 per cent; British India, 16.2; and the United States, 7.6. Of the total exports (excluding mineral oils, bullion, and coins sent chiefly to the United Kingdom), the U. S. S. R. took 30.8 per cent; the United States, 17.9; the United Kingdom, 12.9; and British India, 7.6. The leading exports in 1929-30 were: Mineral oils, \$91,250,000; wool rugs, \$12,316,000; and opium, \$5,891,000.

**FINANCE.** The budget as voted for the fiscal year ended Mar. 20, 1931, estimated revenues at 353,374,827 krans and expenditures at 352,987,776 krans. Actual results were not available at the end of 1931, but revenues were believed to be lower than the estimate. The budget for 1931-32, as presented to Parliament, estimated receipts (excluding royalties from the Anglo-Persian Oil Company) at 320,610,399 krans and 822,611 pahlavis, and expenditures at 321,925,258 krans and 800,684 pahlavis. The figures in pahlavis (the new currency unit intended to equal the pound sterling in value) covered the last two months of the fiscal year, during which the pahlavi was expected to be placed in circulation. The kran exchanged at \$0.0839 in 1930 and at \$0.1007 in 1929.

On Mar. 20, 1929, the funded debt was £1,626,480 (\$7,915,260) and the floating debt amounted to 11,676,660 krans (\$1,144,000).

**COMMUNICATIONS.** In 1930, Persia had 230 miles of railway line in operation and 7953 miles of highways (including 186 miles of macadam and 5903 miles of graded dirt roads). Air lines, operated by the Junkers Company of Germany, extended 2050 miles and linked Tehran with Meshed, Bagdad, Bushire, and Baku. The Indo-European Telegraph Company, which for 60 years had operated a telegraph line between Tehran and London, turned over its control of all lines in Persia to the Persian government on Feb. 28, 1931. In 1929-30, Persian Gulf ports were entered by 10,259 vessels, of 7,829,000 net registered tons; Caspian Sea ports were entered by 4952 vessels, of 697,000 tons.

**GOVERNMENT.** Executive power is vested in the Shah, an absolute ruler down to 1906, when he consented to a constitutional form of government with a parliament or Mejlis. The actual running of the government is in the hands of a cabinet. Prime Minister in 1931, Mehdi Quli Kahn Hedayat, appointed March, 1929.

**HISTORY.** Unrest continued among the Kurdish tribes of northwestern Persia, as well as among the Kurds of northern Iraq and eastern Turkey (see KURDISTAN). A correspondent of the London *Times* reported that in April, 1931, he witnessed a seven-mile column of Kurds, with their livestock and belongings, being deported by Persian government forces to new lands south of Tabriz from their haunts near Mount Ararat. Evidences of recent fighting abounded in the Kurdish districts near Mount Ararat, the correspondent stated, confirming earlier news reports.

Shah Riza Khan Pahlevi proceeded with his nationalistic programme of modernization on Western lines. Foreign trade became a government monopoly on Feb. 25, 1931. In June, Lord Parmoor of the British Cabinet stated in the House of Commons that the Persian government had restricted the importation of certain articles and that foreign, and particularly British, merchants had suffered severely. Lord Parmoor's statement provoked a nationalistic outburst in Persia, where it was regarded as an intrusion into the country's internal affairs. To end child marriages, a law which became effective Sept. 24, 1931, fixed the marriageable age at 16 years for women and 18 years for men; the law also permitted women to divorce their husbands under certain conditions. The main buildings of the Persian Parliament House at Tehran were destroyed by fire on Dec. 10, 1931. See IRAQ under *History*.

**PERSIAN ARCHAEOLOGY.** See ARCHAEOLOGY.

**PERSIAN ART EXHIBITIONS.** See ART EXHIBITIONS.

**PERSIAN LITERATURE.** See PHILOLOGY, MODERN.

**PERU, pè-rōō.** A republic on the Pacific coast of South America; bounded on the north by Ecuador and Colombia; on the east by Brazil and Bolivia; and on the south by Chile. Capital, Lima.

**AREA AND POPULATION.** The area of Peru is about 524,800 square miles. The population in 1930 was estimated at 6,237,000, as compared with 4,574,000 in 1896. Over one half of the population were native Indians. For the period 1925 to 1929 annual births and deaths averaged 143,605 and 60,637, respectively. The estimated population of the principal cities in 1930 was: Lima, 300,000 (205,000, including suburbs, in 1920); Callao, 75,000 (52,843 in 1920); Arequipa, 70,000; Cusco (Cuzco), 40,000; Chiclayo, 35,000; Trujillo, 30,000; Iquitos, 25,000.

**EDUCATION.** For the school year 1929-30, there were 318,735 pupils enrolled in 3567 primary schools, with an average attendance of 65 per cent; 11,078 pupils were in public high schools, 1397 in normal schools (1928), and 2138 in the four universities (1928).

**PRODUCTION.** Agriculture is the principal industry and cotton is the basic crop, upon which the prosperity of the country largely depends. For the crop year April, 1931-March, 1932, cotton production was estimated at 185,000 bales, compared with the normal crop of 210,000 to 220,000 bales. Production of other leading crops in 1929-30 was: Sugar, 428,000 metric tons; wheat, 4,453,000 bushels; rice, 5,103,000 bushels. Coffee and cacao also are important. Wool production (1930) was about 10,300,000 pounds.

Low prices, labor difficulties, and restrictive legislation curtailed mineral production to a point 60 per cent below normal by the end of 1931. The value of mineral output in 1929 was \$147,321,000 (\$121,604,000 in 1928). Petroleum production in 1930 was 12,773,000 barrels (13,034,000 in 1929); copper, 58,276 metric tons; silver, 15,501,000 troy ounces; gold, 90,054 troy ounces; lead, 19,586 metric tons; zinc, 11,276 metric tons; coal, 200,000 metric tons; and vanadium, 479 metric tons. Manufacturing is confined chiefly to the production of smelted ores, petroleum products, cotton and wool textiles, flour, beer, leather, shoes, etc., for local consumption.



**COMMERCE.** Foreign trade declined drastically in 1930, according to preliminary returns. Imports and exports were valued at 13,327,000 Peruvian pounds (\$48,749,000), and £24,113,000 (\$88,207,000), respectively, compared with £18,985,000 (\$75,937,000) and £33,508,000 (\$134,026,000) for 1929. The United States supplied 38.2 per cent of all Peru's imports in 1930 and purchased 39.3 per cent of her exports. Great Britain and Germany supplied 16.9 and 11.5 per cent of the imports, respectively, and took 18.5 and 7.6 per cent of the exports. The chief imports, in order of value in 1929, were foodstuffs, machinery and tools, and cotton manufactures. The principal exports (1929) were metals and ores, gasoline, raw cotton, crude petroleum, and sugar. During 1931, imports were estimated to have declined about 32 per cent below 1930 levels and exports about 39 per cent below.

**FINANCE.** The budget for 1930 estimated revenues and expenditures at £14,098,719 (140,987,190 soles). In December, 1930, the Minister of Finance estimated that closed accounts would show a deficit of at least 20,000,000 soles. The 1930 budget was carried over to 1931 and another heavy deficit resulted. On June 30, 1930, the external debt of the National Government totaled \$89,215,141 and £3,551,900 and the internal funded debt was £426,400 and 49,639,235 soles, while the internal floating debt totaled 32,478,215 soles. Under a new monetary law passed Apr. 18, 1931, the par value of the gold sol was reduced from the equivalent of \$0.40 United States currency to \$0.28. Exchange was effectively stabilized on this basis during the remainder of the year.

**COMMUNICATIONS.** Railway lines in 1929 extended 2810 miles, of which 642 miles were state owned. There were 12,002 miles of highways in 1930, including 1140 miles of macadam and 4805 miles of graded and drained earth or gravel roads. A government air line was operated between San Ramon and Iquitos in 1930, while American and French international lines connected the principal cities with leading points in North and South America. Capacity of vessels entering Peruvian ports, including Lake Titicaca and the Amazon River, in 1929 aggregated 17,728,000 net registered tons.

**GOVERNMENT.** The Constitution of Jan. 18, 1920, vested executive power in a president, elected for five years, and legislative power in a congress, consisting of a senate of 35 members and a house of representatives of 110 members, all elected by direct vote for five years. Following the overthrow of President Leguia (see 1930 YEAR BOOK) Congress was dissolved in August, 1930. By a decree of Sept. 2, 1930, a temporary junta assumed all functions conferred on the executive and legislative powers by the Constitution. Constitutional government was restored on Dec. 8, 1931 (see *History*).

### HISTORY

**THE GENERAL SITUATION.** Peru in 1931 experienced one of the most trying and discouraging periods in its political, industrial, and economic history. The economic depression, which commenced in the latter part of 1929, steadily increased in intensity. As a result of low prices received for their products, many farmers ended the year with a net loss and mining companies were forced to close down completely or operate at greatly reduced levels. A succession of tempo-

rary juntas governed the country throughout most of the year. The influence of the laboring classes continued to increase after the August, 1930, revolution. Despite increasing unemployment, hundreds of trade unions were formed and strikes were frequent. These factors combined to further the demoralizing effect of the economic depression upon business and industry. The financial condition of the Provisional government became steadily worse and on Mar. 1, 1931, it was announced that the Government could no longer meet interest and sinking fund payments on the external debt.

**POLITICAL DEVELOPMENTS.** The state of political instability inaugurated by the fall of President Leguia in August, 1930, continued throughout 1931. The beginning of the year found Provisional President Luis M. Sánchez Cerro's prestige seriously impaired. Hero of the anti-Leguia revolution, he had promised that a constitutional assembly would be called in November, 1930. When the assembly was postponed and Sánchez Cerro on Feb. 12, 1931, announced his candidacy for the office of Constitutional President, the conviction spread that he was planning to continue in power indefinitely. Moreover, the military junta which Sánchez Cerro headed was at odds over the distribution of Cabinet posts. His support among the laboring masses was weakened by the suppression of workers' unions and deportation of their leaders, following the strikes of November, 1930, at Cerro de Pasco and Talara. In the middle of February, troops of the Provisional government occupied the University of San Marcos at Lima, as a result of student unrest.

The Government put down a military revolt at Lima on Feb. 20, 1931, after considerable fighting. The following day the garrison at Arequipa revolted against Sánchez Cerro and the Cusco (Cuzco) garrison followed suit. Troops from Iquitos, and a warship, sent to Mollendo to stamp out the Arequipa revolt, joined the rebels. Another revolt broke out at Piura in the north and on March 1 Sánchez Cerro accepted an ultimatum from naval officers and resigned. He surrendered the government to a civilian junta headed by Dr. Ricardo Leoncio Elías, Chief Justice of the Supreme Court. Five days later troops loyal to Sánchez Cerro ousted the civil government and established another military junta headed by Lieut. Col. Gustavo Jimenez. Colonel Sánchez Cerro immediately left the country for a trip to Europe and Colonel Jimenez induced Lieut. Col. David Samanez Ocampo, leader of the Arequipa rebels, to accept the Provisional Presidency. This the latter did on March 10, establishing a civilian cabinet, except for the Ministers of War and the Navy. Another military revolt against the Ocampo government by troops in Lima and Callao on March 23 was put down with considerable loss of life. Despite repeated minor outbreaks, and serious labor disorders, the Ocampo régime remained in control until the resumption of constitutional government in December.

**THE PRESIDENTIAL ELECTION.** Colonel Ocampo announced at the end of May that Presidential, congressional, departmental, and municipal elections would be held September 13; on August 15 the date was postponed to October 11. The electoral decree made voting compulsory for all literate males between the ages of 21 and 60, prohibited clergymen and persons bearing arms from voting, and removed control of the voting

machinery from the municipal political factions to insure authentic secret balloting. However, only 373,000 electors were inscribed on the voting register when it was closed August 31.

With the permission of the Provisional government, Colonel Sánchez Cerro returned to Peru July 1 to begin his campaign for the Presidency. Popular among the rank and file of the army and supported for political reasons by the land-owning classes, he also had a strong following among the mestizos and other groups forming the laboring classes. The other leading candidates were Victor Haya de la Torre, leader of the "Apra" (American Popular Revolutionary Alliance), Dr. José de la Jara y Ureta, Minister to Brazil and candidate of so-called National Alliance, and Dr. Arturo Osóres, a leader supported by a "personalista" organization. Colonel Sánchez Cerro's platform called for a moral and economic regeneration of the country and a constitutional government along lines followed in the United States. Haya de la Torre ran on a radical platform, including progressive nationalization of mines and railways, prohibition of trusts and monopolies, a protective tariff for national industries, the division of large estates, and "internationalization" of the Panama Canal. All the candidates professed to be in sympathy with Peru's growing nationalism.

Considering widespread evidences of economic and political disintegration, the campaign and the election of October 11 were fairly orderly. The National Election Board on November 28 announced that Colonel Sánchez Cerro had won the election, with a majority over the three opposing candidates. Official results gave the total vote as follows: Sánchez Cerro, 155,378; Haya de la Torre, 106,551; Jara y Ureta, 21,756; and Dr. Osóres, 12,082. Sánchez Cerro's supporters also secured a plurality in the Assembly. The Constituent Assembly convened November 28 to commence the task of revising the Constitution and on December 8 Colonel Sánchez Cerro was inaugurated as Constitutional President. Rioting and street fighting in Lima immediately afterward and an Opposition conspiracy to prevent his inauguration indicated that his régime as regularly elected President was to be no less trying than his term as Provisional President.

The year ended with the Constituent Assembly engaged in partisan and largely sterile debate upon the proposed constitutional changes. On December 20, the Assembly unanimously approved a resolution calling for the trial of former President Leguía for treason. Meanwhile Leguía, an aged and stricken man after 16 months' imprisonment, was moved from the penitentiary at Lima to the naval hospital near Callao on November 16 for treatment for bronchial pneumonia.

**OTHER DEVELOPMENTS.** Important legislation was placed in effect by the Provisional government during the year. A decree of March 18 authorized the revision of the import tariff to facilitate entry of vital products not produced locally, to protect local industries, and to restrict importation of superfluous and luxury articles. A decree-law of May 18 created a Central Reserve Bank, which was formally opened on September 3. Banking reforms, including the establishment of the office of Superintendent of Banks, were decreed on May 23. To aid the agricultural and cattle industries, the Government in August created the Agricultural Bank, with a capital of 20,000,000 soles, of which 8,500,000

soles were immediately available in cash. These laws followed in the main the recommendations of an American financial commission, headed by Prof. Edwin W. Kemmerer, which was engaged early in the year to reorganize the financial structure of the government.

Representatives of the central banks of Peru, Chile, Bolivia, Ecuador, and Colombia met in Lima December 2 to discuss mutual financial problems arising from the economic depression. Professor Kemmerer and several observers from the Federal Reserve Bank of the United States were present. The questions of central bank credits and of securing foreign credits of intermediate length to finance trade were considered of primary importance, according to the resolutions adopted. The central bankers affirmed their faith in the gold standard.

Consult Ernest Galarza, "Debts, Dictatorship and Revolution in Bolivia and Peru," *Foreign Policy Reports*, vol. vii, No. 5, May 13, 1931.

**PETROLEUM.** The world's production of crude petroleum during 1931 amounted to 1,370,299,000 barrels, a decrease of nearly 40,000,000 barrels, or 2.8 per cent, from the total of 1,410,037,000 barrels recorded for 1930, according to estimates of E. B. Swanson, chief petroleum economist of the U. S. Bureau of Mines. United States production dropped from 898,011,000 barrels in 1930 to 850,275,000 barrels in 1931, a decline of nearly 48,000,000 barrels, or 5.3 per cent. Production in other countries, however, increased from 512,026,000 barrels in 1930 to 520,024,000 barrels in 1931, a gain of approximately 8,000,000 barrels, or 1.5 per cent. United States production, consequently, accounted for 62 per cent of the 1931 world total. In 20 of the previous 21 years, United States production had exceeded the 1931 ratio. The production of crude petroleum in the Dominion of Canada in 1931 was

WORLD CRUDE OIL PRODUCTION, 1930-1931  
[Figures in thousands of barrels of 42 U. S. gallons]

	1931 <sup>a</sup>		1930	
	Quantity	Per cent of total	Quantity	Per cent of total
United States . . . . .	850,275	62.1	898,011	63.7
Russia (U. S. S. R.) <sup>b</sup>	161,900	11.8	125,555	8.9
Venezuela . . . . .	118,770	8.7	136,669	9.7
Rumania . . . . .	47,600	3.5	41,624	3.0
Persia . . . . .	44,300	3.2	45,828	3.3
Netherlands East Indies	35,500	2.6	41,729	3.0
Mexico . . . . .	33,039	2.4	39,530	2.8
Colombia . . . . .	18,237	1.3	20,346	1.4
Argentina . . . . .	11,608	.8	9,002	.6
Peru . . . . .	10,106	.7	12,449	1.0
Trinidad . . . . .	9,769	.7	9,419	.7
India, British . . . . .	8,190	.6	8,292	.6
Poland . . . . .	4,340	.3	4,904	.3
British Borneo (Sarawak) . . . . .	3,689	.3	4,907	.3
Sakhalin, Russian . . . . .	2,240	.2	1,805	.1
Japan (including Taiwan) . . . . .	1,990	.2	1,950	.1
Egypt . . . . .	1,946	.1	1,996	.1
Ecuador . . . . .	1,751	.1	1,553	.1
Germany . . . . .	1,643		1,182	
Canada . . . . .	1,584		1,522	
Iraq . . . . .	900		913	
France . . . . .	517	.4	538	.3
Czechoslovakia . . . . .	185		157	
Italy . . . . .	145		59	
Bolivia . . . . .	25		56	
Other countries . . . . .	50		56	
Total . . . . .	1,370,299	100.0	1,410,037	100.0

<sup>a</sup> 1931 figures subject to slight revision.

<sup>b</sup> 1931 figures represent calendar year; preceding year on basis fiscal year ended September 30. Calendar year estimate, 1930, 135,165,000 barrels.

1,584,000 barrels, making a record. This was due to the development of the Alberta field, which had an output in 1930 of 1,522,220 barrels.

According to preliminary estimates of the U. S. Bureau of Mines, the output of natural gasoline and benzol in the United States also declined in 1930, imports of crude and refined products fell off, and the total new supply of all oils fell to below 1,000,000,000 barrels for the first time since 1926. The downward trend in stocks of all oils, which began in the first half of 1930, was continued up to November, 1931. The net withdrawal from stocks of all oils in 1931 amounted to 44,245,000 barrels, the largest annual decrease ever made. Exports of crude oil increased in 1931 to 25,546,000 barrels from 23,705,000 barrels in 1930, but exports of refined products declined from 132,794,000 barrels in 1930 to 98,969,000 barrels in 1931. The indicated domestic demand for all oils in 1931 amounted to 900,982,000 barrels, a decline of 25,478,000 barrels from the previous year. This decrease reflected principally the reduced consumption of fuel oil.

The daily average output of crude petroleum increased steadily during the first seven months of the year but fell off drastically in August and September, due to enforced shut-downs in Texas and Oklahoma (see these articles). Upon the removal of these restrictions, daily average production increased in October and November but never reached the levels of the period April-July. Drilling activity in 1931 was at the lowest point in more than thirty years. Completions in 1931 totaled 12,432, compared with 21,240 in 1930. The number of oil wells completed amounted to 6788, a decrease of 42 per cent from 11,640 in 1930. The percentage of dry holes fell from 32 in 1930 to 29 in 1931, a reflection of the drilling of "inside" wells in the East Texas field.

Texas and New Mexico alone showed a gain in output in 1931. Production in Texas, the leading State, amounted to 331,544,000 barrels, an increase of 41,087,000 barrels over 1930. Production in both California and Oklahoma, which ranked second and third, respectively, fell off materially. The output in California in 1931 amounted to 188,830,000 barrels, a decline of about 40,000,000 barrels and the lowest output since the ascendancy of the Los Angeles Basin fields in 1923. The total production in Oklahoma totaled 180,809,000 barrels, or more than 35,000,000 barrels below the total in 1930. This brought the output in Oklahoma down to the levels of the years just prior to the discovery of the prolific Seminole pools. The output in New Mexico increased approximately 50 per cent over 1930 and that State became the sixth-ranking producing State, ahead of both Arkansas and Wyoming.

The development of the East Texas field, discovered in October, 1930, overshadowed all other field activities in 1931. It became evident early in 1931 that the East Texas field was to be one of exceptional size—the proven acreage as of the close of 1930 aggregated approximately 175 square miles. The total wells drilled in the field during 1931 amounted to about 3500, of which about 95 per cent were producers. The majority of the wells were of the gusher type and production rose rapidly after February. The peak production—about 1,000,000 barrels daily—and the low point in prices—5 to 15 cents per barrel—

were reached in August and were instrumental in causing the field to be shut-in under military order on August 17. It was reopened September 5, when the wells were restricted to 225 barrels daily. As more wells were completed, the allowable per well was gradually reduced. The total output for the year amounted to 107,990,000 barrels, which, despite the restrictions imposed during the last five months of the year, constituted one of the very few occasions in which any district has yielded more than 100,000,000 barrels in a year.

The Oklahoma City field, despite the fact that it was almost completely shut in from about August 3 to October 10, and was materially curtailed, showed a gain in output from 34,603,000 barrels in 1930 to 47,306,000 barrels in 1931. Practically all of the fields in California declined in output in 1931, a notable exception being the Kettleman Hills field which produced 17,544,000 barrels, compared with 6,209,000 barrels in 1930. Several important discoveries were made in Kansas in 1931, but the output of the State declined to 36,885,000 barrels from 41,638,000 barrels in 1930.

Imports of crude petroleum again declined; the total brought in during 1931 amounted to 47,250,000 barrels, 24 per cent below 1930. The major portion of this decrease was recorded in receipts of Venezuelan crude, as the following table indicates:

[Thousands of barrels of 42 U. S. gallons]

Source	1930	1931
Venezuela .....	35,080	25,222
Mexico .....	10,093	8,208
Colombia .....	14,204	12,329
Other countries .....	2,752	1,491
<b>Total imports .....</b>	<b>62,129</b>	<b>47,250</b>

REFINED PRODUCTS. Runs to stills of crude petroleum amounted to 894,608,000 barrels, a decline of 32,839,000 barrels, or 4 per cent, from 1930. Quantitatively, the decline in runs of domestic crude exceeded the decrease in the amount of foreign oil processed, but on a percentage basis the latter was the more important. Practically the only district that showed a substantial decline in runs of domestic crude was California; on the other hand, practically all of the decline in foreign crude runs occurred in the East coast area. The production of motor fuel showed little change for the second successive year; the total produced in 1931 amounted to 437,888,000 barrels, compared with 440,728,000 barrels in 1930 and 439,393,000 barrels in 1929. The percentage yield of gasoline at refineries continued to increase, the result largely of increased cracking. Imports of gasoline, which had been increasing rapidly, fell off 20 per cent—from 16,927,000 barrels in 1930 to 13,621,000 barrels in 1931. On the other hand, exports of motor fuel suffered their first decline since 1921; the total exported in 1931 was 45,832,000 barrels, compared with 65,575,000 barrels in 1930. The indicated domestic demand for motor fuel exceeded the expectation of many in 1931 by showing a gain of 2 per cent over 1930. Stocks of motor fuel increased from 40,098,000 barrels on January 1 to 42,320,000 barrels on December 31, an increase of 2,222,000 barrels. This was largely due to material additions to the oil in storage in December.

The trade in kerosene in 1931 was generally below the standards of 1930. Production and consumption both declined, but stocks decreased—about the only encouraging feature. The trend of the statistics of lubricating oils and wax in 1931 resembled closely that for kerosene. The output of lubricating oils in 1931 was 22 per cent below 1930, a reflection of declining use. The output of gas oil and fuel oil again declined and indications pointed to a substantial decrease in use by most agencies.

**NATURAL GASOLINE.** The output of natural gasoline declined for the second successive year; the total in 1931 was 1,804,800,000 gallons, compared with 2,210,500,000 gallons in 1930, a decrease of 18 per cent. This material decline resulted mainly from the curb placed on drilling. The trend in stocks of natural gasoline held at plants in 1931 was quite similar to that in 1930; the total on hand Dec. 31, 1931, amounted to 27,100,000 gallons, compared with 24,300,000 gallons on hand January 1. The practice of blending natural gasoline to produce finished motor fuel at the plants continued to decline.

See COLOMBIA and IRAQ under *History*; also OKLAHOMA and TEXAS.

**PEYTON, GEN. SIR WILLIAM ELIOT.** A British soldier, died in London, Nov. 14, 1931. Born May 7, 1866, he attended Brighton College and in 1885 joined the 7th Dragoon Guards. Becoming a captain in the 15th Hussars in 1896, he was advanced through the grades to major general in 1914, lieutenant general in 1921, and general in 1927. His early service was in the Sudan (1897-98), South Africa (1899-1900), and India (1908-12). In the World War he led the 2nd Mounted Division at Gallipoli, and was then sent to Egypt as commander of the Western Frontier Force in the expedition against the Senussi. He commanded the 40th Division during operations in France and Flanders from June, 1918, to March, 1919, after which he returned to India. He was military secretary to the Secretary of State for War during 1922-26, and commander-in-chief of the Scottish Command from 1926 until his retirement in 1930.

**PHENOMENOLOGY.** See PHILOSOPHY.

**PHILADELPHIA.** See MUNICIPAL GOVERNMENT.

**PHILADELPHIA MUSEUM.** See ART MUSEUMS.

**PHILADELPHIA TRI-STATE DISTRICT.** See CITY AND REGIONAL PLANNING.

**PHILHARMONIC-SYMPHONY ORCHESTRA.** See MUSIC.

**PHILIPPINES,** fil'p-ins, -pens -pins. The largest island group of the Malay Archipelago; a possession of the United States, ceded by Spain in the treaty of Apr. 11, 1899. Capital, Manila.

**AREA AND POPULATION.** Only 466 of the 7000 islands which make up the group have an area of one square mile or more. The most important islands with their area in square miles are as follows: Luzon, 40,814; Mindanao, 36,906; Samar, 5123; Negroses, 4902; Palawan, 4500; Panay, 4448; Mindoro, 3794; Leyte, 2799; Cebu, 1695; Bohol, 1534; and Masbate, 1255. Total area, 114,400 square miles; population, according to the census of 1918, 10,314,310. In 1931, the population was estimated at 12,420,927. The population of Manila was 285,306 in 1918; estimated at 370,160 in 1929. Other cities, with the population in 1918, were Cebu, 65,502; Legaspi, 52,756; Iloilo, 49,114. For the years 1924-28,

annual births averaged 395,499 and deaths 217,034, the rates per 1000 of population being 33.2 and 17.9, respectively. From 1926 to 1930, an average of 12,608 immigrants entered annually, compared with 1232 emigrants. More than 80 per cent of the retail business of the islands was in the hands of Chinese. About 1,000,000 of the population in 1930 spoke English. The three principal native dialects are Tagalog, Ilocano, and Visayan.

**EDUCATION.** Education is free, secular, and co-educational, and schools are conducted in English. The insular government in 1930 appropriated nearly \$10,500,000 for educational purposes, or over 25 per cent of the total revenues. Of the 3,224,104 children of school age in 1930, 37.64 per cent, or 1,213,711, were enrolled in public schools. There were 7642 students attending the University of the Philippines at Manila in 1929.

**PRODUCTION.** Agriculture is the main support of the population. In 1930, about 9,900,000 acres, or 13.5 per cent of the total area, was under cultivation; there were 13,100,000 acres of grass and open land, and 46,500,000 acres of forests. Crops produced in 1929 were valued at \$248,926,000 (\$238,991,000 in 1928). Production of the chief crops in 1930 was: Rice (rough), 113,267,000 bushels; corn, 14,024,000 bushels in 1929; maguay, 39,416,000 pounds; Manila hemp (abaca), 430,858,000 pounds; tobacco, 101,634,000 pounds; coconuts, 2,042,943,000 coconuts; coffee, 3,013,000 pounds; cacao, 2,683,000 pounds; sugar, 1,962,207,000 pounds. In 1931, there were 45 sugar centrals, with a total grinding capacity of about 43,000 tons daily, and representing an investment of about \$82,500,000.

Production of other leading products (1930) was: Cigarettes, 4,744,000,000; cigars, 286,000,000; copra, 1,014,000,000 pounds (year ended June 30, 1930); coconut oil, 358,000,000 pounds; gold, 161,000 troy ounces in 1929; timber (cut), 619,290,000 board feet; split rattan, 3,137,000 pounds. Locally caught fish to the value of about \$50,000,000 are consumed annually.

**COMMERCE.** According to preliminary figures, exports in 1931 were valued at 205,000,000 pesos, compared with 266,334,000 pesos in 1930 and 328,893,000 in 1929 (1 peso equals \$0.50). Imports were valued at 193,000,000 pesos, as against 246,186,000 pesos in 1930 and 294,321,000 in 1929. The 1931 exports and imports represented decreases of 15 and 22 per cent, respectively, from the 1930 levels, while the 1930 figures were 19 and 16 per cent, respectively, lower than in 1929. Exports to the United States accounted for 80 per cent of the 1931 total and in value were 14 per cent below those of the previous year. Imports into the Philippines from the United States in 1931 declined 23 per cent and amounted to 63 per cent of the total, compared with 64 per cent in 1930.

The leading exports, in order of value, in 1930 were, Sugar, \$52,240,000; coconut oil, \$19,159,000; abaca, \$18,426,500; and copra, \$13,433,500.

**FINANCE.** The annual report of the Governor General for the calendar year 1930 showed ordinary revenues of \$40,819,405 and ordinary expenditures of \$39,939,396. The revenues represented a decrease of \$2,815,883 from the 1929 figure and the expenditures an increase of \$1,022,477. The unappropriated cash surplus at the end of 1930 was \$6,366,010. The 1931 budget estimates, as approved by the Governor General,

balanced at 77,347,000 pesos (\$38,673,000). Government financial collections in 1931 were about 20 per cent below normal, but through strict economy and the use of previous surpluses the closed budget was made to balance at approximately 76,000,000 pesos (\$38,000,000). Preliminary budget estimates for 1932 were reduced to 50,000,000 pesos (\$25,000,000). The outstanding bonded indebtedness of the insular government on June 30, 1931, totaled \$68,400,500 and that of the Provinces and municipalities \$9,456,500.

**COMMUNICATIONS.** The addition of about 15 miles of line to the railways during 1930 brought the total mileage to over 800, of which the government-owned Manila Railroad, operating in Luzon, had about 675 miles. The first regular commercial air service in the islands was opened between Manila and Baguio (the summer capital) on Dec. 24, 1931. Highways open to traffic in June, 1930, comprised 4366 miles of first-class roads, 2310 miles of second-class, and 1395 miles of third-class. Inter-island shipping was improved in 1930 by the addition of a new steamship on a weekly service from Manila to Cebu, Zamboanga, and Iloilo. In 1930, 1548 vessels, of 5,949,000 net tons, entered Philippine ports and 1565, of 6,052,000 tons, cleared.

**GOVERNMENT.** Executive power rests in a governor general, appointed by the President of the United States; and in six departmental secretaries, all Filipinos except the vice governor, who is also secretary of public instruction. A senate of 24 members and a house of 93 members are elected by popular vote (except for nine representatives and two senators appointed by the Governor General). A council of state, headed by the Governor General, serves as a link between the executive and legislative branches. Governor General in 1931, Dwight Filley Davis, who assumed office July 8, 1929.

### HISTORY

**INDEPENDENCE MOVEMENT.** With independence for the Philippines apparently almost within their grasp, the native political leaders during 1931 modified their demand for immediate and complete sovereignty over Philippine affairs. Throughout 1930 and 1931 public opinion in the United States appeared to be swinging in the direction of an immediate grant of independence. Reinforcing this sentiment was the demand of farming and dairying interest for a tariff on competitive products from the Philippines and the agitation on the Pacific coast for the curtailment of Filipino immigration. Apprehensive of the economic consequences of the early severance of the free trade relationship with the United States, the majority (Nacionalista) party in November, 1931, abandoned its programme of "complete, immediate, and absolute independence," which had proved a winning slogan in Philippine politics for 19 years. Instead the party adopted the proposal of its leader, Manuel Quezon, President of the Philippine Senate, for a period of 10 years or more of advanced autonomy, to be followed by a plebiscite.

Senator Quezon's autonomy proposal was approved by the lower house of the Philippine Legislature on November 9, the closing day of the session. The Senate indirectly approved the project by voting full confidence in its author. When a new independence mission sailed for the United States Dec. 5, 1931, indications were that it

would oppose a too precipitous severance of the ties with America.

A similar policy had been advocated in important native newspapers earlier in the year, particularly after Senator Arthur H. Vandenberg of Michigan declared during a visit to the islands (May 13) that the foreclosure of the American market "would be nothing short of a calamity, impairing the livelihood of every person on the island." Governor General Davis, in his annual report, emphasized that free trade with the United States had saved the islands from "a major economic disaster" during the world-wide financial depression. However, the "immediate independence" agitation was revived during a visit to the islands in June and July of Senator Harry B. Hawes of Missouri, co-author of the Hawes-Cutting bill for the gradual relinquishment of American control (see 1930 YEAR BOOK). Senator Hawes announced that he was visiting the Philippines to determine whether the people really desired independence. This and the Senator's speeches attacking those who advised caution in the extension of independence were reported to have aroused a ferment of nationalism. The ferment found expression in a huge parade held in Manila July 12 in honor of Mr. Hawes, which turned into the greatest independence demonstration in the history of the islands. Of the 40,000 marchers, some 200 turned aside to invade the premises of the Army and Navy Club, where they stoned American Army officers and their families, before being driven off.

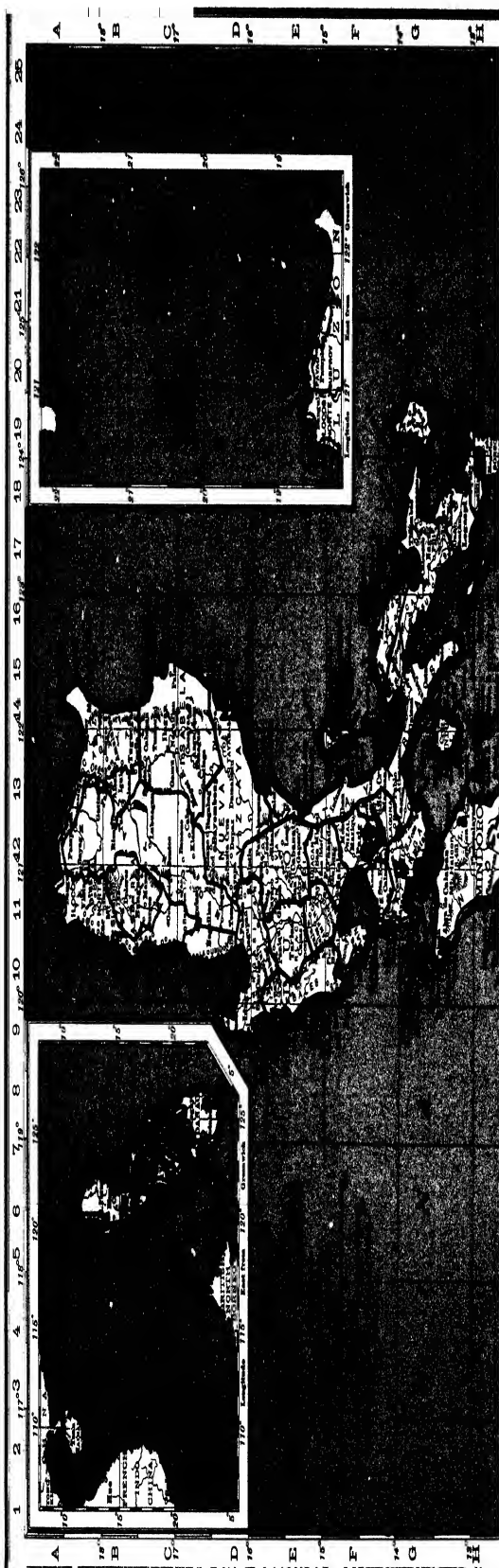
Toward the end of August, Secretary of War Hurlley arrived in Manila to study the situation on behalf of President Hoover. He remained until September 26 and following his return to Washington he announced (December 21) that his forthcoming report would not recommend immediate independence. Meanwhile President Hoover, in a statement issued October 27, made it clear that his administration was opposed to immediate independence for the islands. The President declared that the stability of the insular government must be assured and economic freedom attained before political independence could be successful. Despite the administration's stand, a bill extending complete independence to the Philippines on July 4, 1933, was introduced at Washington December 11. However, the prospect for favorable action by Congress was diminished by the development of the Sino-Japanese conflict in Manchuria and at Shanghai.

**OTHER DEVELOPMENTS.** Governor General Davis sailed from Manila on an indefinite leave of absence Nov. 21, 1931, amid the acclamation of thousands and requests for his return. There had been frequent rumors of his impending resignation. Vice Governor George C. Butte, assumed the direction of the Government in his absence.

Evidence of widespread unrest among the poorer classes of the population was seen in a number of outbreaks during the year, which appeared to be partly religious, partly nationalistic, and partly communistic in origin. Discontent was furthered by the economic depression, grave abuses by landlords, usury, political terrorism by the ruling political parties, and the agitation of Communists and others. In his annual report of July 12, 1931, Governor General Davis said that Communist agitators, financed by Moscow, were active in the islands, and that the situation in the rural districts "required careful watch-











ing." According to the American Civil Liberties Union, local Filipino authorities had outlawed the Communist movement.

A band of about 200 Colorums, or religious fanatics, captured the town of Tayug in January, but were driven out by the constabulary January 12. On March 1, U. S. Army officials in the Philippines reported the discovery of a Colorum plot for the capture of Corregidor Island, the fortress in Manila Bay. Forty-one participants in the January rising received long prison sentences on April 25. In connection with the electoral campaign of May, over 300 alleged Communists were arrested in Manila May 31 on charges of unlawful assemblage and sedition. Of numerous other plots reported during the year, the most important was an alleged Colorum-Communist conspiracy of December to capture Manila and overthrow the government. Numerous arrests were made and on December 17 formal charges of sedition and incitement to insurrection were filed against 154 members of the Tugulan Society.

The Moro outbreak of 1930 in Lanao was brought to an end Oct. 17, 1931, with the surrender of Sultan Mamur, leader of the revolt.

The Philippine elections of June 2 resulted in the extension of the Nacionalistas' control over all branches of the government. The voting was marked by numerous brawls, the killing of two persons, and widespread charges of fraud. The newly formed Radical party made little headway. The Governor General during the year suspended a number of officials on charges of graft and bribery.

**BIBLIOGRAPHY.** Bruno Lasker, *Filipino Immigration to Continental United States and to Hawaii* (Chicago University Press, 1931); Maximo M. Kalaw, "Why the Filipinos Expect Independence," *Foreign Affairs*, January, 1932.

**PHILLIPS UNIVERSITY.** A coeducational institution of higher learning at University Station, Enid, Okla., founded in 1907. The enrollment for 1930-31 in all departments was 901. The faculty numbered 39. The productive endowment amounted to \$648,830. The library contained 20,321 volumes, exclusive of public documents. President, Isaac Newton McCash, D.D., LL.D.

**PHILOLOGY, CLASSICAL.** The best way to gain a fair conception of the more important contributions to classical philology is to examine lists of articles and books, or abstracts of them, or both, given in certain periodicals—*The American Historical Review*, *The American Journal of Philology*, *Antiquity*, *The Classical Journal*, *The Classical Quarterly*, *The Classical Review*, *The Classical Weekly*, *Historical Outlook*, *History*, *Athenaeum* (published at Pavia, Italy), *Bulletin Bibliographique et Pédagogique du Musée Belge* (a companion to *Le Musée Belge*, *Revue de Philologie Classique*), *Philologische Wochenschrift*, *Gnomon*, and *Revue de Philologie*. The reviews, too, in these periodicals are very helpful. Especially valuable is *Bibliotheca Philologica Classica*, *Beiblatt zum Jahresbericht über die Fortschritte der Klassischen Altertumswissenschaft*, whose aim is to cover all publications, both articles and books (except such as are definitely pedagogical in character), in the whole field of classical philology. No attempt is made, however, to indicate the relative importance of items listed. A very valuable feature of this work is the "Namenverzeichnis," which gives in alphabetical order the names of the

scholars whose articles or books are named in the body of the work, with references back to the numbered items which describe articles or books. For a notice, by C. Knapp, of vols. liii-lv, covering the years 1928, 1927, 1928, see *The Classical Weekly*, xxiii, pp. 158-159.

*The Year's Work in Classical Studies*, published in England, lists material that appears between July 1 and June 30, under such captions as "Greek Literature," "Latin Literature," "Greek History," "Roman History," "Greek and Roman Religion," "Ancient Philosophy," "Greek Archaeology and Excavation," "Italian Archaeology and Excavation," "Papyri," and "Roman Britain."

To *The Loeb Classical Library* (see *YEAR BOOKS*, 1911-1930) additions were made, on the Greek side, of versions of Demosthenes, *Olynthiacs*, *Philippics*, *Minor Public Speeches*, *Speech Against Leptines*, J. H. Vince; Hippocrates, and Heracleitus, *On the Universe* (in one volume: the translation of Hippocrates is now complete), W. H. S. Jones; Lysias, W. R. M. Lamb; Philo, F. H. Colson and G. H. Whitaker (the third of ten volumes); Plutarch, *Moralia*, F. C. Babbitt (the third of fourteen volumes); Saint Basil, *The Letters*, R. J. Deferrari (the third of four volumes). On the Latin side there were added versions of Bede, *Opera Historica* (complete, in two volumes), J. E. King; Cicero, *Pro Milone*, *In Pisonem*, *Pro Scauro*, *Pro Fonteio*, *Pro Rabirio*, *Pro Marcello*, *Pro Ligario*, *Pro Deiotaro*, N. H. Watts; St. Augustine, *Select Letters*, J. H. Baxter; Tacitus, *The Histories*, Books iv-v, C. H. Moore, and *The Annals*, Books i-iii, T. Jackson (in one volume); Tertullian, *Apology*, and *De Spectaculis*, T. R. Glover, and Minucius Felix, G. H. Rendall (in one volume); Vitruvius, *On Architecture*, F. Granger (the first of two volumes).

The great *Lexicon Plautinum*, by G. Lodge, was very greatly advanced by the publication of vol. ii, parts viii and ix, pages 673-864. These parts contain the articles "Sto (completed) . . . Video (to be completed)." Nearly 1800 pages of this monumental work have appeared; it is highly gratifying to know that the work by the close of 1931 was all in type. This work, the fruit of over 40 years of devoted labor, is the most extensive undertaking that any American classical scholar has thus far, single-handed, essayed and accomplished. By this work Professor Lodge has made the facts concerning Plautus's vocabulary and syntax accessible to all, in convenient form; in so doing he has rendered a service of the highest importance not only to students of Plautus but also to all students of early Latin. Since Plautus is the first Latin author whose writings have come down to us in anything like complete form, the facts about his usage of words and his syntax bulk large in any view of the vocabulary and the syntax of early Latin.

During the last year or so progress was made on two other lexicographical projects of the very highest importance. Of the tenth edition of Liddell and Scott, *A Greek-English Lexicon*, five parts (out of ten) have appeared (1020 pages). The *Lexicon* has been carried through the letter Kappa. Of the *Thesaurus Linguae Latinae* three parts have appeared recently: volume v, fascicle ix (*dolor . . . doneo*), in 1930, volume v, 2, fascicle 1 (*e . . . efficaa*), in 1931, and

volume vi, fascicle 10 (*germen . . . gloria*), also in 1931.

Progress has been made also with *Paulys Realencyklopädie der Klassischen Altertumswissenschaft*. To speed the completion of the work the publication of a second series of volumes ("Zweite Reihe") was begun in 1914. By September, 1931, of the first series fourteen and a half volumes (*Aal . . . Mesyros*) had been published; of the Zweite Reihe three and a half volumes (*Ra . . . Symposion*) had appeared. There have been published also five supplementary volumes (*Aba . . . Demokratia*, *Herodes and Herodotos*, *Aachen . . . ad Iuglanden*, *Abacus . . . Ledon*, *Agamemnon . . . Statilius*).

In 1931 another important dictionary was completed, Dr. F. Preisigke's *Wörterbuch der Griechischen Papyrusurkunden mit Einschluss der Griechischen Inschriften, Aufschriften, Ostraka, Mumienbilder usw. aus Ägypten*. The third volume, in three parts (1929, 1929, 1931) was done by E. Reissling. For a review of vols. i-ii of this work see *The Classical Weekly*, xxiv, pp. 149-151, 175-176.

In 1930-1931 four parts (320 pages, covering *ā, ah to cynus*) were issued of the third edition of A. Walde, *Lateinisches Etymologisches Wörterbuch der Lateinischen Sprache*. The revision is most thorough; the work has been highly praised by competent reviewers. Two other works in this field appeared in 1931: *Dictionnaire Étymologique de la Langue Latine: Histoire des Mots* (1108 large pages), by E. Ernout and A. Meillet, and *A Concise Etymological Dictionary of Latin*, by T. G. Tucker.

In *The American Journal of Philology*, lii, appeared "Gratitude to Parents in Greek and Roman Literature," J. W. Hewitt; "Notes on Lucan," H. C. Nutting; "On the Authenticity of the Letters Attributed to Saint Basil in the So-Called Basil-Apollinarius Correspondence," Sister Agnes Clare Way (on the basis of unfamiliar usages in the language of both letters and of statements by Saint Basil in his authentic letters the author holds that the letters she discusses were not written by Saint Basil, but were clever forgeries done by some of his enemies); "On Seneca's Apocolocyntosis," K. S. Scott; "Prothetic Vowels in Sanskrit, Greek, Latin and Germanic," F. A. Wood; "Was the Capitoline Triad Etruscan or Italic?," Inez Scott Ryberg (the author maintains that the Capitoline Triad—Jupiter, Juno, and Minerva—was in the strictest sense an Etruscan invention); "The Date of Manilius," R. B. Steele (the author assigns Manilius to the last years of Augustus); "Spenser's Hesiod," Josephine W. Bennett (the author maintains that Spenser, in his account of the Nereids in the *Faerie Queene*, depended on a Latin verse translation of Hesiod, *Theogony*, which was made by Boninus Mombricitus, and was published in 1474); "Hapax Legomena in Plato," A. Fossum (by the study of words that occur once only the author seeks to determine the order in which Plato's dialogues were composed); "Latin Words in the Greek Inscriptions of Asia Minor," A. Cameron; "Syntaximon and Laographia in the Arsinoite Nome," C. W. Keyes (a study of certain taxes levied in Egypt); "Euripides' Alceastis," D. L. Drew; "ἸΠΟΛΙΠΟΦΩΝΗΣΙΣ in the Scholia to Homer," G. W. Duckworth (a discussion of the passages in the scholia to Homer in which statements are made to the effect that Homer uses foreshadow-

ing or forecasting to give his hearers an anticipation of a fulfillment pleasing to them); "Euripides' Artistic Development," H. E. Mierow; "Digressio in the Orations of Cicero," H. V. Canter; "Problems in Aristophanes' 'Vespae' 818-823," H. Comfort.

From *Classical Philology*, xxvi, may be mentioned "The First Publication of Horace's Odes," G. L. Hendrickson (an attempt to fix the possibilities in the way of the publication by Horace of various collections of his Odes prior to the publication of Books i-iii together, which, scholars in general believe, took place in 23 B.C.); "The Status of Actors in Rome," T. Frank; "Valerius Flaccus in the Mediaeval Florilegia," B. L. Ullman; "Lucius Arruntius," R. S. Rogers; "The Historical Tenses and their Functions in Latin," J. J. Schlicher; "The Lupercalia in the Fifth Century <A.D.>," W. M. Green; "The Spartan Gymnopaedia," B. D. Meritt (a study of the calendar at Sparta); "The Place of the Final Defeat of the Helvetians," J. E. Dunlap; "Materials for the History of a Popular Classical Theme," J. G. Fucilla (the theme is that of the First Idyl of Moschus); "The Place and Date of the First Performance of the Persians of Timotheus," S. E. Bassett (the author thinks that the Persians was composed for presentation at Athens between 412 and 408 B.C. Wilamowitz had assigned the first performance to Miletus); "The Removal of Bonds from Prisoners and Slaves in Times of Stress," E. S. McCartney; "Studies in Greek Noun-Formation: Dental Terminations iv.i," C. H. Carruthers; "Lucan and his Roman Critics," Eva M. Sanford; "Horace and Octavian," J. Elmore (a study of Horace, *Carmina* 1.2); "The Character Treatment of Inorganic Roles in Roman Comedy," Ortha L. Wilner; "Two Unreported Persius Manuscripts," Dorothy M. Robathan; "The Cleitophon of Plato," G. M. A. Grube; "Arithmetic in Philo Judaeus," F. E. Robbins; "Octavianus Puer," J. H. McCarthy (the author argues that the contempt shown to Octavian on his first appearance in Italy, contempt based on his youth, "changed his allegiance and with it the course of history . . ."); "The Vatican Terence," C. R. Morey; "The Evidence of Early Latin on the Subjunctive in *Cum*-Clauses," W. Petersen (the author takes issue sharply with the theories of the late Professor W. G. Hale. He holds that "there is no truth in the distinction <made by Professor Hale> between descriptive *cum*-clauses with the subjunctive and temporal clauses with the indicative. . . . The subjunctive with *cum* temporal was due to a mechanical extension of its use <i.e. extension of the use of *cum* with the subjunctive> in causal (perhaps also adversative) clauses, and never had any tangible meaning whatsoever"); "Was the Commentary on Virgil by Aelius Donatus Extant in the Ninth Century?," J. J. Savage (the author answers his question in the affirmative; he thinks the commentary was to be found at Liège); "Epilogomena to 'The Wooden Horse,'" W. F. J. Knight.

In *The Classical Journal*, xxv, xxvi, appeared "Obdura—A Dramatic Monologue," H. F. Rebert (a discussion of Catullus's eighth poem); "Venusia and the Native Country of Horace," H. V. Canter; "Cicero the Poet," J. W. Spaeth, Jr.; "Caesar's Clemency," Cornelia C. Coulter (the author argues that Caesar's magnanimity was genuine); "Literary Criticism in Ovid," R. E. K.

Pemberton (in two cases, at least, the author thinks, "Ovid's views are of permanent value, in addition to being definite advances beyond the thought of his age"); "Cicero's Poetic Interests," J. W. Spaeth, Jr.; "Dramatic Technique and the Originality of Terence," Helen R. Clifford (the author thinks that Terence's "technical ability is weak in comparison with that of his Greek prototypes. . . . The parts which he himself has created reveal weakness in characterization and aimlessness of movement. . . . The author disputes Norwood's view that Terence's plays, if studied in chronological order, "exhibit a steady advance in technical excellence"); "Vergil—His Philosophic Background and his Relation to Christianity," C. N. Smiley; "Terence and Menander," R. C. Flickinger (this author, too, holds that Terence has little "architectonic power . . ." and believes that Terence's "command of the minutiae of dramatic technique" is slight); "Julius Caesar's Luck," Elizabeth Tappan; "Roman Beauty Culture," Orthla L. Wilner; "Texture in Vergil's Rhythms," W. F. J. Knight.

*The Classical Weekly*, xxiv, xxv, contained the following articles; "Vergil and the Roman Forum," H. E. Robert; "Human Elements in Vitruvius, De Architectura," E. LeV. Crum; "Dr. Walter Leaf's Homer and History and the Catalogue of the Ships in Iliad 2," A. Shewan; "Five Campaigns of Excavation at Corinth: Summary of the Results," T. L. Shear; "Cicero, In Catilinam 3.14," C. Knapp; "The Treatment of Catiline in the Latin Literature of the Early Empire," E. T. Sage; "Ancient Greece as Depicted in a Medieval Outline of History," C. C. Mierow (the outline the author had in mind is the work by Otto, Bishop of Freising, entitled 'The Two Cities,' or 'The Chronicle'); "Ancient Jeux D'Esprit and Poetical Eccentricities," W. B. Sedgwick; "A Note on Gaius Memmius," J. B. Stearns (an attempt to clear up the difficult problem of the relation of the Roman poet Lucretius to Memmius, to whom he dedicated his great poem, *De Rerum Natura*). "Self-Revelation in Vergil: The Heart of a Poet," W. C. Greene; "Reflections on Rereading Vergil," Emily H. Dutton; "The Effect of Foreign Language Study Upon Habits of Thinking," B. W. Bradley; "Pietas Versus Violentia in the Aeneid," E. Adelaide Hahn; "Gadarenes in Pagan Literature," M. Hadas (a discussion of the influence exercised on Roman thought and culture by three men of Semitic extraction, or at any rate born in a Semitic town, Gadara; the men are Menippus, Meleager, and Philodemus); "Merlin and Macaroni," B. W. Mitchell (a study of the macaronies written by Teofilo Folengo, 1491-1544, who wrote under the name Merlinus); "Caesar, De Bello Gallico 1.10: The Effects of Climate on Roman History," T. W. Valentine; "The Younger Pliny Discloses the Social Life of his Day," Sister M. Aloysius Blakely; "The Medieval Church and Vergil," T. W. Valentine (the author holds that "the Aeneid, to an extraordinary extent, lends itself to a Christian interpretation and would seem like home territory to a medieval Christian . . . this fact goes a long way toward explaining the esteem in which Vergil was held by the medieval Church").

In *Transactions and Proceedings of the American Philological Association*, lxi, which contains the papers read before the Association at

its meeting of December, 1930, the following articles appeared: "Sacer Esto," H. Bennett (a study of the infliction by the Romans of the death penalty); "Martial and Vergil," J. W. Spaeth, Jr. (the author seeks to show that in numerous instances Martial "has skilfully and artistically employed Vergilian diction and rhythm, one or both, in his own verses. Oftentimes he reproduces Vergil's words in the same metrical position as they occupy in the original, showing that both language and music have lingered in his memory . . ."); "Some Emendations of Plato's Laws," L. A. Post; "Emperor Worship in Ovid," K. Scott; "Perses versus Hesiod," J. F. Latimer (a fresh study of Hesiod's poem, *Works and Days*); "The Theater of Aeschylus," R. C. Flickinger; "The Location of the Palace of the Atridae in Greek Tragedy," C. P. Bill; "The Pursuit of Hector," S. E. Bassett (a discussion of Iliad, v, 131-207); "The Venerable Bede and the Colosseum," H. V. Canter (a discussion of Bede's famous words, "Quamdiu stat Colisaeus, stat et Roma," etc.; Professor Canter holds that Bede is referring to the Colosseum, not, as some scholars have thought, to the Colossus, a statue of Nero; he maintains also that the name Colosseum, which has nothing directly to do with Colossus, but denotes rather a giant structure, was first used about 975 A.D.); "The Dates of the Megalesia," G. D. Hadzsits; "Lavinia; An Interpretation," Dorothea C. Woodworth, a study of Vergil's portrayal of Lavinia, the Latin woman whom Aeneas was to marry after his arrival in Italy. The author's conclusion may be quoted in full:

As Lavinia then represents the ideal Roman woman, and as Aeneas is universally recognized to be Vergil's portrait of the ideal Roman man, their marriage, not in spite of but because of its unromantic quality, forms the inevitable and satisfying conclusion to the plot. At the same time, it represents, I believe, not symbolically but as a precedent having a general though incomplete parallelism, Vergil's view that Augustus' act in taking Livia from her husband, like that of Aeneas in taking Lavinia from Turnus, was justified by the fact that he, like Aeneas, had for his sole motive no personal passion or infatuation, but a lofty and worthy dynastic purpose.

In this volume appeared also "The Authorship of the Moretum," R. B. Steele (the author inclines to regard Vergil as the author of this poem, which forms part of the Appendix Vergiliana); "Cleon's Assessment and the Athenian Budget," A. B. West (the assessment in question is that of 425-424 B.C., made by Cleon during the Peloponnesian War).

From the *Philological Quarterly*, x, we mention "Some Renaissance References to *Sic vos non vobis*," Emma M. Denkinger (a discussion of references in Renaissance writings to the four famous verses, ascribed by ancient biographers to Vergil, each of which began with *Sic vos non vobis*. The story goes that Vergil published these verses at first anonymously, with a challenge to any one who could do so to complete the verses); "Repeated Verses in Classical Poetry With Particular Reference to the Theognidea," E. L. Highbarger.

In England the more accessible depositories of the results of classical study are *The Year's Work in Classical Studies* (see the second paragraph of this article), *The Classical Quarterly*, and *The Classical Review*. The articles in *The Classical Review* are very numerous, and are in consequence very short. Their combined value,



however, is great. From *The Classical Quarterly*, xxiv, we mention "Eupatridae, Archons, and Areopagus," H. T. Wade-Gery; "Prose-Rhythm and the Comparative Method," W. H. Shewring; "Anaxagoras: Predication as a Problem in Physics," A. L. Peck; "Livy and the *Lexica*," W. B. Anderson; "Studies in the Structure of Attic Society: Demotionidae," H. T. Wade-Gery; "Further Considerations on the Site of Vergil's Farm," R. S. Conway; "The Boy, The Grapes, and the Foxes," A. Y. Campbell; "The Plotinian Logos and its Stoic Basis," R. S. Witt; "Terence Quotations in Servius Auctus," J. D. Craig; "The Geography of the Orphic Argonautica," J. R. Bacon; "The Fox and the Grapes," A. D. Knox (this paper was called forth by that of A. Y. Campbell, mentioned above); "Homodyne in the Fourth Foot of the Vergilian Hexameter," W. F. J. Knight (by *homodyne* the author means coincidence of stress, or word-accent, and ictus, or metrical accent); "The Hellenism of Clement of Alexandria," R. E. Witt.

There remains only space enough to mention a few of the books that have come to the writer's attention. Since it is, in general, clear from its title to which field of classical philology each book belongs, the books are listed in the alphabetical order of their author's names:

Allen, P. S., *Medieval Latin Lyrics*; Baker, G. P., *Justinian*; Bérard, V., *Did Homer Live?* (translated by Brian Rhys); Buckland, M. W., *The Main Institutions of Roman Private Law*; Burris, E. E., *Taboo, Magic, Spirits, A Study of Primitive Elements in Roman Religion*; Cambridge *Ancient History*, volume viii, and volume iii of Plates; Conway, R. S., *The Makers of Europe*; D'Alton, J. F., *Roman Literary Theory and Criticism: A Study in Tendencies*; Dinsmoor, W. B., *The Archons of Athens in the Hellenistic Age*; Duckett, Eleanor S., *Latin Writers of the Fifth Century*;

Edgar, C. C., *Zenon Papyri in the University of Michigan Collection*; Field, G. C., *Plato and his Contemporaries*; Franke, O., *Euripides bei den Deutschen Dramatikern des Achtzehnten Jahrhunderts*; Fraser, H. M., *Beekeeping in Antiquity*; Haerhoff, T. J., *Vergil in the Experience of South Africa*; Hack, R. K., *God in Greek Philosophy to the Time of Socrates*; Hadzsitz, G. D. (Editor), *Classical Studies in Honor of John C. Rolfe*; Harmon, A. M. (Editor), *Yale Classical Studies*, Volume Two; Havers, W., *Ein Versuch zur Erforschung der Bedingungen und Triebkräfte in Syntax und Stilistik*; Herzog, R., *Die Wunderheilungen von Epidauros, Ein Beitrag zur Geschichte der Medizin und der Religion*; Holmes, T. Rice, *The Architect of the Roman Empire*, 27 B.C.-14 A.D.; Hubeaux, J., *Les Thèmes Bucoliques dans la Poésie Latine*;

Jachmann, G., *Plautinisches und Attisches*; Johnson, A. C., and Van Hoesen, H. B., *Papyri in the Princeton University Collections*; Kieckers, E., *Die Sprachstämme der Erde*; Laing, G. J., *Survivals of Roman Religion*; Laistner, M. L. W., *Thought and Letters in Western Europe*, A.D. 500-900; Leifer, F., *Studien zum Antiken Aemterwesen. I. Zur Vorgeschichte des Römischen Führeramts*; Marsh, F. B., *The Reign of Tiberius*; Milne, J. G., *Greek Coinage*; Mooney, G. W., *C. Suetoni Tranquilli De Vita Caesarum Libri VII-VIII: Galba, Otho, Vitellius, Divus Vespasianus, Domitianus*, with Introduction, Translation, and Commentary; Moore, O. H., *Ancient Beliefs in the Immortality of the Soul*;

Naylor, L. H., *Chateaubriand and Virgil*; Pedersen, H., *Linguistic Science in the Nineteenth Century* (translated from the Danish by J. W. Spargo); Pike, J. G., *Classical Sketches and Studies*; Rand, E. K., *The Magical Art of Virgil*; Randall-MacIver, D., *Greek Cities in Italy and Sicily*; Rick, H., *Neue Untersuchungen zu Platonischen Dialogen*; Showerman, G., *Rome and the Romans, A Survey and Interpretation*; Smith, Nellie A., *The Latin Element in Shakespeare and the Bible*; Sparrow, J., *Half-lines and Repetitions in Virgil*; Suhr, E. G., *Sculptured Portraits of Greek Statesmen*;

Wells, J., and Barrow, R. H., *A Short History of the Roman Empire to the Death of Marcus Aurelius*; Whibley, L. (Editor), *A Companion to Greek Studies*, fourth edition; Willamowitz-Moellendorf, U. von, *Der Glaube der Hellenen*, vol. i; Witte, K., *Horazens Sermonendichtung*; Wright, F. W., *Cicero and the Theater*.

**PHILOLOGY, MODERN.** In the survey of Philology for the YEAR BOOK in 1930, the growth of the nationalistic spirit in countries the world over and its possible effects on the future of languages and their growth was considered. During 1931 the discussion regarding precedence of languages continued in all parts of the world. Thus, as recorded in the *Romanic Review* (New York), it was reported from Manila on April 23 that "the Spanish language is definitely disappearing from the Philippine Islands." In support of this assertion it was pointed out that two Spanish daily papers of Manila had ceased publication and the three still published had declined in circulation, whereas the English newspapers of the same city reported a steady growth in numbers of readers. The *New York Times* concluded that "within a very few years it is believed that the use of Spanish will be either the mark of mixed Spanish blood, or an affectation of culture."

It was reported from Brussels on May 17 that legislation was passed by the Belgian Parliament compelling all State officials to be bilingual. Previous thereto Flemish officials were obliged to speak French, but Walloon officials were not forced to speak Flemish (see BELGIUM under History).

The Provisional government of the Spanish Republic was also struggling with the language problem, with the Catalans, Basques, and Majorquese (inhabitants of the Balearic Islands) demanding the right of compelling their schools to give instruction in their respective languages. Provision was made in the new Spanish Constitution for instruction in Castilian in all primary and secondary schools, but permitting autonomous regions to teach the regional language in addition to the official tongue (see SPAIN under History). What was taking place in the above-mentioned countries was characteristic of many other nations.

Another question perplexing educators, especially in countries little troubled by the problem of linguistic minorities, was: What foreign language shall take precedence in the educational programmes of their schools and colleges? Germany, above all, appeared to be torn asunder by the problem since the Prussian Minister of Education made French the chief non-classical language in the upper school curriculum, basing his action "on the belief that French was of greater cultural significance." To this the German teachers replied that it was impossible to make French a universal major language requirement in the

face of popular opposition which was evident from the fact that more than one-half of the Prussian schools affected had gone over to English.

In the United States the action taken in 1930 by the Columbia College Faculty when it decided that the French and German languages "stood by themselves as the most important of the modern languages" and that, therefore, Spanish and Italian rank with other modern languages as of inferior cultural significance, wrought havoc with the registration in the courses of the latter two languages. Indeed colleges all over the United States adopted the stand taken by Columbia with the result that, unless there should be a decided change in the trend of educational requirements, Spanish and Italian henceforth were to be doomed to the rank of languages of minor cultural importance.

The progress of English toward becoming the world's language has been steady and sure. Efforts of enthusiasts toward substituting an artificial language in its stead appear not only vain but almost absurd. The results of the 23rd International Esperanto Congress, held in Cracow, Poland, in August, 1931, revealed that, notwithstanding the vigorous propaganda carried on by its adherents, it had made little or no progress. On the other hand, it was announced from Bonn, Germany, on October 25, that the distinguished German scientist, Prof. Erich Hoffmann, of Bonn University, was engaged in an active propaganda for the adoption of English as the international language on the ground, says the *New York Times*, of "facilitating communication and promoting the cause of international peace." He held that English is most suitable for such use "because of its brevity and relative simplicity, facilitating the learning process, especially for students of Germanic or Romance speech."

The Committee of Experts for the Coördination of Linguistic Bibliography, organized under the auspices of the International Institute of Intellectual Coöperation—to which attention was called in the 1929 YEAR BOOK made satisfactory progress during the year under the direction of the philologist, Antoine Meillet, Professor in the Collège de France. National centres were established in Italy, Spain, Belgium, Switzerland, Holland, and Portugal.

The fourth session of the Linguistic Institute, created and directed by the Linguistic Society, of America, was held at the College of the City of New York from June 29 to August 7. Of the 29 courses offered only three failed to draw any registrants. Discouraged by the generally low registration in all courses, the Executive Committee of the Society decided that no session of the Institute be held in 1932 and that "decision about holding a session in 1933 had better be postponed."

Since the Linguistic Institute was projecting a Linguistic Atlas of the United States and Canada, emphasis in the 1931 session was placed on courses designed especially for workers on the Atlas.

On August 17 a group of scholars, under the direction of Hans Kurath, Professor of German and Linguistics in Ohio State University, began the preliminary work on the Atlas in the New England area. The investigation was started by Dr. Kurath and Prof. Miles L. Hanley, of the University of Wisconsin, in Connecticut. Their

co-workers included Dr. Guy Lowman of Yale, who gathered material in Vermont; Cassil Reynard, formerly of the Case School of Applied Science, Cleveland, and Martin Joos, of the University of Wisconsin, who worked respectively in eastern and western Massachusetts. The survey, which ultimately was to spread from New England to all parts of the United States, received financial support from the American Council of Learned Societies.

While the field work in New England was to require only about 15 months, it was not expected that the Atlas for the entire country would be completed before the end of ten years. One thousand tentative questions, which had been prepared with a view to determine the habits and forms of speech of persons in every stratum of society, were to be tried out on 1000 New Englanders during 1932. Thus, to the question: "What would you call a deep, narrow valley?" the answer might be a "ravine, glen, valley, gulch, gorge, hollow, gully, dingle, dale, vale, or dell," depending on local usage.

Other parts of the questionnaire were to deal with pronunciation, special or set phrases and expressions, the use of singular and plural verbs, the peculiarities of sentence structure, etc. In American English there are in some words from 1500 to 2000 variable features which may be shown in inflection, vocabulary, spelling, or a common use in a set phrasing. By comparing American dialects with one another as well as with foreign ones in sections of England, Ireland, France and other nations, the editors of the Atlas hoped to be able to present a panorama of the genesis and growth of American speech.

What the Committee of Experts for the Coördination of Linguistic Bibliography and the Linguistic Society of America were trying to do for philology and linguistics, the International Commission of Modern Literary History was seeking to do for the history of literature.

The Commission, which has its headquarters at 47 Boulevard Garibaldi, Paris, engaged upon three important undertakings during 1931. The first had for its aim a survey of the international literary relations of the countries where the Slavic, Finno-Ugrian or Baltic languages were spoken. The second related to the preparation of manuals and reference works containing data, theories and opinions relating to the history of national literatures. This material was to be supplied in the form of biographies, bibliographies, analyses, and general judgments concerning an author and his work. The third undertaking related to the preparation of a *Répertoire littéraire chronologique international*, which will include the following categories of data: (1) historical facts dealing with patrons of letters and literary events; (2) literary facts, such as founding of Academies and literary societies, reviews, theatres and salons; (3) biographical data of authors; (4) publications, with prefaces, important revisions, principal translations; (5) dramatic presentations, including dates, places and number of times the play was acted; and, (6) oral manifestations: addresses, sermons, lectures, courses, etc., which have exercised a profound influence. The meeting of the commission held at Budapest, May 20-24, 1931, was devoted to the methodology of historians of literature.

ANTHROPOLOGY AND ARCHÆOLOGY. A few works on the subject of anthropology, which is discussed in full elsewhere (see ANTHROPOLOGY) in this

volume, should be mentioned here as of importance to students of linguistics. Thus, Sir Arthur Keith's *New Discoveries Relating to the Antiquity of Man* (New York) is a popular account of the most recent researches and theories, while George S. Duncan's *Prehistoric Man* (Boston) supplies a useful introduction to the subject. Other works include *Early Man: His Origin, Development and Culture* (London), containing contributions by Sir Arthur Keith, Prof. Elliott Smith and Prof. J. L. Myres; W. Cosby Bell's *The Making of Man* (*ib.*), being the Bishop Paddock Lectures for 1929-30; James G. Leyburn's *Handbook of Ethnography* (New Haven, Conn.), a reference work supplying the names and locations of more than 12,000 primitive tribes and peoples, designed to aid the serious reader of such works as Frazer's *The Golden Bough* or Sumner and Keller's *The Science of Society*.

Contributions to the history and study of archaeology in Europe and Asia include the following: Firth Scott, *This Reeling World* (London), in which the author maintains that such vestiges of the past as Stonehenge are many thousand years older than generally believed; Sir Flinders Petrie, *Decorative Patterns of the Ancient World* (London), a study drawn from his archaeological lore; and V. Gordon Childe, *The Bronze Age* (London), a study of prehistoric industrial development in Northwestern Europe in the period subsequent to the new Stone Age.

American archaeology, now most enthusiastically studied, is represented by Emily C. Davis, *Ancient Americans: The Archaeological Story of Two Continents* (New York), an illustrated account of the ancient peoples that inhabited North and South America; Thomas Gann and Eric Thompson, *The History of the Maya* (*ib.*), a brief study of the Maya people from the earliest times to the present day; Wm. Gates, *An Outline Dictionary of the Maya Glyphs* (Baltimore), containing a concordance and analysis of the glyphs; Lewis Spence, *The Magic and Mysteries of Mexico* (Philadelphia), being an account of the Arcane secrets and occult lore of the ancient Mexicans and Mayas; Philip A. Means, *Ancient Civilizations of the Andes* (New York), a reconstruction not only of the Incas and their empire, but also of the still earlier civilizations of the Andes; Mr. and Mrs. G. A. Gardner, *Rock-Paintings of Northwest Cordoba* (Oxford), a beautifully and carefully prepared monograph; J. Eric Thompson, *Archaeological Investigations in the Southern Cayo District of British Honduras* (Chicago), a report of the first and second expeditions to British Honduras, conducted by the Field Museum of Natural History; and Irving Crump, *Mog, the Mound Builder* (New York), a history of the prehistoric Indians of the Mississippi Valley, containing illustrations by Remington Schuyler (see ARCHÆOLOGY).

FOLKLORE. In folklore and kindred subjects there is Sir James G. Frazer, *Garnered Sheaves* (London), a volume of essays, addresses and reviews; Stanley D. Porteus, *The Psychology of a Primitive People* (New York), a study of some Australian aborigines; and Rodney Gallop, *A Book of the Basques* (*ib.*), an illustrated account of the people and a study of their character and folklore.

Superstitions, magic, witchcraft, etc., are studied in Arturo Graf, *The Story of the Devil* (New York), a collection of unusual material, translated from the Italian, dealing with the

idea of the devil, its origin, growth and manifestations from the beginning of the Christian era to the present; Grillet de Givry, *Witchcraft, Magic and Alchemy* (Boston), an account of different branches of magic, translated from the French by J. Courtenay Locke; M. Oldfield Howey, *The Cat in the Mysteries of Religion and Magic* (London), a study of the rôle and symbolism of the cat in mythology and magic; Sir E. A. Wallis Budge, *Amulets and Superstitions* (Oxford), containing a list of ancient and modern amulets together with their meaning; C. J. S. Thompson, *The Mystery and Lore of Monsters* (London), dealing with the monstrous beasts and men of Babylon, Greece, Rome and the Middle Ages and giants, dwarfs and prodigies in mythology and tradition, and containing a foreword by Sir D'Arcy Power; and Wm. M. Auld, *Christmas Traditions* (New York), a history of Christmas and the customs associated with it.

HISTORY. Contributions to ancient and medieval history that are of importance to the philologist include the following: Eugen Georg, *The Adventure of Mankind* (New York), a general account of the human race from the paleological period to the possible man of the future; Prof. L. W. Lyde, *Peninsular Europe* (London), supplying an original interpretation of the influence of geographical factors on human activities and movements; Dr. Muller-Lyer, *The Family* (New York), a study of the evolution of the human family, translated from the German; René Grousset, *The Civilizations of the East* (New York), a general history, containing 313 illustrations, of the arts of Near and Middle Asia, translated from the French by Catherine A. Phillips; Julius Lippert, *The Evolution of Culture* (*ib.*), a history of culture, translated from the German by George P. Murdock; *The Cambridge Ancient History, Volume of Plates III* (Cambridge), edited by S. A. Cook, and containing the illustrations for volumes 7 and 8; Hermann Schneider, *The History of World Civilization: From Prehistoric Times to the Middle Ages* (New York, 2 vols.), a study of the great cultures of the world and their permanent achievements, translated from the German by Margaret M. Green; Ferdinand Lot, *The End of the Ancient World and the Beginnings of the Middle Ages* (*ib.*), a volume in the History of Civilization Series, translated from the French by Philip and Mariette Leon; James W. Thompson, *History of the Middle Ages, 300-1500* (*ib.*), a one-volume edition, condensed from the author's *The Middle Ages*, but containing certain new chapters; Egon Friedell, *A Cultural History of the Modern Age* (*ib.*, Volumes II and III), a survey of the intellectual and social foundations of European civilization from the Black Death (1348) to the World War; M. L. W. Laistner, *Thoughts and Letters in Western Europe, A.D. 500-900* (*ib.*), a study of monastic education, literature and thought, with special emphasis on the Carolingian period; Louis J. Paetow, *A Guide to the Study of Medieval History* (*ib.*), a revised edition prepared under the auspices of the Medieval Academy of America; and Wm. W. Lawrence, *Mediaeval Story* (*ib.*), a second edition of a series of lectures on medieval literature.

RELIGION. The origin and development of religious beliefs are treated in the following works: W. Schmidt, *The Origin and Growth of Religion* (New York), a translation from the German; Clifford H. Moore, *Ancient Beliefs in the Im-*

*mortality of the Soul* (ib.), a discussion of such early beliefs and their influence on later thought; Carl Clemen and others, *Religions of the World* (ib.), a study of their nature and their history, translated from the German; *Gods; A Dictionary of the Deities of All Lands* (ib.), compiled and edited by Bessie G. Redfield, and including supernatural beings, mythical heroes and kings, sacred books of principal religions, etc.; Margaret Smith, *Studies in Early Mysticism in the Near and Middle East* (ib.), a history of early Christian mysticism up to the seventh century and its subsequent development in Islam; Norman T. Boggs, *The Christian Saga* (ib., 2 vols.), a history of Christianity as a phase of European civilization; A. Hyatt Verrill, *The Inquisition* (ib.), an account of its rise and spread in Europe and the Americas; Fernand Hayward, *A History of the Popes* (ib.), the first general history of the pontiffs from St. Peter to Pius XI; Donald Attwater, *The Catholic Encyclopaedic Dictionary* (ib.), containing the meaning of the words, names and phrases in common use in the philosophy and liturgy of the Catholic Church; Rose Macaulay, *The Religious Element in Literature* (London), a survey extending from the eighth century to the present day; St. Augustine, *Select Letters* (New York), translated by J. H. Baxter for the Loeb Classical Library; as well as Bede, *Opera Historica* (ib., 2 vols.), translated by J. E. King, and St. Basil, *The Letters* (ib.), translated by Roy J. Deferrari, both for the same series.

EDUCATION. Important additions to this field of research include Percival R. Cole, *A History of Educational Thought* (Oxford), a survey extending from ancient Athens to modern England and America; Valentine Davis, *The School Idea, Ancient and Modern* (London), beginning with the clay tablets containing schoolboys' grammar exercises, discovered recently at Ur; Prof. W. J. McCallister, *The Growth of Freedom in Education* (London), a history of this phase of educational development from the time of the Greeks; *Teaching in Practice* (ib.), the initial installment of a six-volume encyclopedia, edited by E. J. S. Lay; Prof. Frank Smith, *A History of Elementary Education, 1760-1902* (ib.), a standard work of reference issued by the University of London; and Ernest Caulfield, *The Infant Welfare Movement in the Eighteenth Century* (New York).

LITERATURE AND DRAMA. Among the few select general works that deserve to be mentioned here are: Edwin Greenlaw, *The Province of Literary History* (Baltimore), an introduction to this study; Paul Van Tighem, *Outline of the Literary History of Europe Since the Renaissance* (New York), translated from the French by Aimee L. McKenzie; *Studies in European Literature, Being the Taylorian Lectures* (Oxford, 2d series, 1920-1930), by J. G. Robertson, Edmund Gosse, Emile Legouis, Abraham Flexner, H. A. L. Fisher, and others; Humbert Wolfe, *Gradus ad Parnasum* (London), an introduction to the study of poetry; Jean Stewart, *Poetry in France and England* (New York), a survey of its history; Henry Lanz, *The Physical Basis of Rime* (Stanford, Calif.), an essay on the æsthetics of sound; Archer Taylor, *The Proverb* (Cambridge, Mass.), a study of its origin and dissemination; Philo M. Buck, *The Golden Thread* (New York), a study of the romance of tradition in literature; Professor Alardyce Nicoll, *The Theory of Drama* (ib.), an historical survey, containing a study of its various forms; the same author's *Masks, Mimes and*

*Miracles* (London), a history of the popular theatre from its beginning to the *commedia dell'arte* in the seventeenth century.

LINGUISTICS. Holger Pedersen, *Linguistic Science in the Nineteenth Century* (Cambridge, Mass.), a study of its methods and results, translated from the Danish; and *A Summary of Reports on the Modern Foreign Languages* (New York), compiled by Prof. R. H. Fife and issued by the Modern Foreign Language Study and the Canadian Committee on Modern Languages, with an index to the reports.

ART, ARCHITECTURE, MUSIC, ETC. A few important works dealing with art include Robert Byron and David T. Rice, *The Birth of Western Painting* (London), a monograph on Byzantine art; S. C. Kaines Smith, *An Outline History of Painting in Europe to the End of the Nineteenth Century* (ib.), an important work by the director of the Birmingham Gallery; *Art Studies: Medieval, Renaissance and Modern* (Cambridge, Mass., 2 vols.), edited by members of the Departments of Fine Arts at Harvard and Princeton Universities; R. H. Wilenski, *French Painting* (Boston), beginning with the primitives of the fourteenth century and extending to the present day; Dr. Maximilian Toch, *Paint, Paintings and Restoration* (New York), a study of methods used in identifying works of old masters; Kineton Parkes, *The Art of Carved Sculpture* (ib., 2 vols.) of which Vol. I deals with Western Europe, America and Japan, and Vol. II with Central and Northern Europe; Sir Charles Holmes, *A Grammar of the Arts* (London), intended as a guide to the appreciation of beauty; John Glog's *Men and Buildings* (ib.), which traces the effects of wars, religion, commerce and science upon the character of architecture from the earliest days; Arthur Stratton, *The Orders of Architecture* (Philadelphia), containing a detailed study of Greek, Roman and Renaissance orders and their derivatives, illustrated with 80 plates; Banister Fletcher, *A History of Architecture on the Comparative Method* (New York), ninth edition, revised and enlarged; Sir Henry Wood, *The Gentle Art of Singing* (Oxford), an abridgment of the author's great four-volume work.

MISCELLANEOUS. Special works include S. G. B. Stubbs and E. W. Bligh, *Sixty Centuries of Health and Physick* (London), tracing the progress of ideas from primitive magic to modern medicine; Anna Montgomery, *The Black Death and Men of Learning* (New York), a study of the influence of the Black Death in the field of intellectual history; W. A. Robson, *The Development of Local Government* (London), a survey based on original research; *International Adjudications, Ancient and Modern* (New York, Vol. 3 of the Modern Series), containing both history and documents, together with mediatorial reports and decisions of domestic commissions on international claims, edited by John Bassett Moore; Walter Simons, *The Evolution of International Public Law in Europe since Grotius* (New Haven, Conn.), a translation of a study by the former Chief Justice of the Supreme Federal Court of Germany; and Dr. Paschal Larkin, *Property in the Eighteenth Century* (London), dealing with the economic rather than the legal aspects of the subject.

CHINESE AND JAPANESE. Among the works of a general nature we may note the following: Thos. F. Carter, *The Invention of Printing in China* (New York), a new and revised edition of

this important history; Richard Wilhelm, *Confucius and Confucianism* (ib.), a brief account of the Chinese philosopher's life and a study of his teachings; *The Secret of the Golden Flower* (ib.), a translation, with explanations, of an ancient Chinese philosophical treatise by Richard Wilhelm, with a foreword by C. G. Jung; Georges S. Coulie de Morant, *A History of Chinese Art* (ib.), translated from the French by G. C. Wheeler; and George H. Danton, *The Culture Contacts of the United States and China* (ib.), a study of these relations from 1784 to 1844.

As Japan and Korea are now attracting much attention, the following works should be of interest to the student: Tosoburo Takekoshi, *The Economic Aspects of the History of the Civilization of Japan* (New York, 3 vols.), a history beginning a thousand years before the arrival of Commodore Perry; Elie Faure, *The Soul of Japan* (Berkeley Heights, N. J.), translated from the original French manuscript by Rose Freeman Ishill; Ralph Adams Cram, *Impressions of Japanese Architecture* (Boston), a revised edition of a work first published in 1905; *The Sandman: His Japanese Stories* (ib.), collected and arranged by Mae V. Le Bert.

AFRICAN. As a consequence of the wealth of archaeological discoveries still being made there, Egypt and her mysteries continue to hold the interest of the reading public. Among the works of importance devoted to this country the following deserve mention: Sir E. Denison Ross, *The Art of Egypt Through the Ages* (New York), consisting of a survey of Egyptian art from the beginning to the conquest of Egypt by the Turks in the sixteenth century, illustrated with numerous plates; T. Eric Peet, *A Comparative Study of the Literatures of Egypt, Palestine, and Mesopotamia* (Oxford), the Schweich lectures of the British Academy, 1929, containing emphasis on Egypt's contribution to the literature of the ancient world; Cyril P. Bryan, *The Papyrus Ebers* (New York), a first translation into English of an ancient Egyptian encyclopedia of medieval knowledge; Auguste Couat, *Alexandrian Poetry Under the First Three Ptolemies* (ib.), translated from the French by James Loeb, with a supplementary chapter by Emile Cahen; Wilfrid D. Hamby, *Serpent Worship in Africa* (Chicago), a study of the nature, distribution, origin and migration of serpent worship in Africa, published by the Field Museum of Natural History; Wm. F. Edgerton, *Notes on Egyptian Marriage, Chiefly in the Ptolemaic Period* (ib.), forming Vol. I, Part L, in a series of monographs dealing with phases of ancient Oriental civilization, published by the University of Chicago; C. G. Seligman, *Races of Africa* (New York), a new volume in the Home University Library of Modern Knowledge; M. Delafosse, *The Negroes of Africa* (Washington, D. C.), a study of their history and culture, translated from the French; A. W. Cardinall, *Tales Told in Togoland* (Oxford), containing folk-lore of the African Gold Coast.

INDO-IRANIAN. Attention was called in the 1930 YEAR BOOK to the founding of the India Academy of America, Inc., the purpose of which is to encourage intellectual and cultural relations between India and the United States. Besides conducting lectures and courses on Sanskrit and Hindu philosophy, art, psychology, etc., the Academy has published the following studies: J. C. Chatterji, *India's Outlook on Life*, with an

introduction by John Dewey; *India and America, East and West in Cultural Cooperation*, by officers of the Academy; K. F. Leidecker, *Josiah Royce and Indian Thought*; and *Religious Liberty in India and the West*, by Prof. Carlo Formicchi of the University of Rome, member of the Italian Academy.

Studies on Indian literature and philosophy, issued during 1931, include: Prof. H. H. Gowen, *A History of Indian Literature* (New York), a splendid survey extending from Vedic times to the present day; René Grousset, *The Civilizations of the East: India* (ib.), a history of Hindu and Indo-Chinese art, translated from the French by Catharine A. Phillips; Dhan Gopal Mukerji, *The Song of God: Translation of the Bhagavadgita* (ib.), a new rendering of the Hindu epic which has been the foundation of the spiritual life of India for many centuries; Prof. Robert E. Hume, *The Thirteen Principal Upanishads* (Oxford), a revised edition of a translation from the Sanskrit, with an outline of the philosophy of the Upanishads and an annotated bibliography; J. M. MacFie, *The Ramayan of Tulsidas* (Edinburgh), a study of the Bible of Northern India; D. C. Muthu, *The Antiquity of Hindu Medicine and Civilization* (New York), a third edition, enlarged; *The Elephant-Lore of the Hindus* (New Haven, Conn.), translated by Prof. Franklin Edgerton from the original Sanskrit of "The Elephant Sport of Nilakantha," with introduction, notes and glossary; Rudolf Otto, *India's Religion of Grace and Christianity Compared and Contrasted* (New York), a study of Indian religion, translated from the German.

As the political situation, with its roots extending far back into the life and customs of India, still continues to hold the attention of the world, a few works, presenting both British and Hindu reactions to this vexing question, deserve mention here: G. T. Garratt, *An Indian Commentary* (London), a study urging Britain to place the responsibility for the defense of India primarily on Indian shoulders; *The First Englishmen in India* (ib.), which consists of autobiographical accounts of these pioneers; L. S. S. O'Malley, *The Indian Civil Service, 1601-1930* (ib.), a history of British administration in India; Lord Meston, *India and Nationalism* (New Haven, Conn.); Edward H. James, *I Tell Everything: The Brown Man's Burden* (Geneva, Switzerland), a study of India; John Dellbridge, *Revolution in India?* (Boston), a discussion of the present situation; Katharine Mayo, *Volume Two* (New York), in which the author supplements her attacks on Indian child marriages; Miss M. L. Christlieb, *Uphill Steps in India* (Boston), a protest by a lover of India against the two supreme forces in that land, caste and custom; Dr. R. K. Das, *The Industrial Efficiency of India* (London), in which the author claims that two-thirds of the land, labor and capital resources of India are wasted; Margaret Read, *The Indian Peasant Uprooted* (New York), a study based on the Report of the Royal Commission of Labor.

Persia, its literature, art and culture, is studied in the following: Sir E. Denison Ross, *The Persians* (Oxford), a short comprehensive work on Persia's history and culture; *The Rubaiyat of Omar Khayyam* (Chicago), a new verse-translation by George Roe; *The Shah-Namah of Firdausi* (Oxford), edited by J. V. S. Wilkinson; Miles M. Dawson, *The Ethical Religion of Zoroaster* (New York), a study of the Persian reli-



gion, stressing its application to the social order; Dr. Arthur U. Pope, *A Survey of Persian Art from Prehistoric Times to the Present* (Oxford, 3 vols.), containing contributions of forty specialists; two studies on *Persian Painting* (London), one by Basil Gray and the other by Mulk Raj Anand; *Persian Art* (ib.), a manual containing contributions of Roger Fry, Laurence Binyon, Bernard Rackham and others; *Tales of Mystic Meaning* (New York), fifty-one selections from the Persian mystic poem, "The Mathnawi of Jalalu'ddin Rumi," translated by R. A. Nicholson, Professor of Arabic at Cambridge; and Wm. M. Miller, *Baha'ism* (ib.), containing the origin, history, and teachings of the Persian cult.

ENGLISH. That the current business depression, combined with uncertain political conditions, has dampened somewhat the ardor of British scholars is evident from the fact that the year 1931 was marked by no important undertakings either in philology or in its closely allied study, literature. Nevertheless there were many sound contributions to these fields as the following list will show. General works include G. P. Baker, *The Fighting Kings of Wessex* (New York), a history of the period between the Roman invasion and the beginning of the Dark Ages; Helen M. Camin, *The Hundred and the Hundred Rolls* (London), an outline of local government in the Middle Ages; Dr. H. W. Sanders, *The Rolls of Norwich Cathedral Priory* (ib.), a valuable contribution to the study of medieval economics; Dr. C. R. Haines, *Dover Priory* (Cambridge), a study in monastic history; A. L. Palmer, *English Monasteries of the Middle Ages* (London), which deals primarily with their architecture and domestic arrangements; Wm. E. Mead, *The English Medieval Feast* (Boston), an account of the astonishing eating habits and customs of Englishmen in the late Middle Ages; L. F. Salzman, *English Trade in the Middle Ages* (Oxford), a supplement to his *English Industries in the Middle Ages*; Frederic R. Sanborn, *Origins of the Early English Maritime and Commercial Law* (New York), revealing the continuity of its development from Roman days; W. L. Hanchant, *King's English* (London), an anthology of extracts from the original writings of English sovereigns from Alfred to the present day; Dr. George Kitchin, *Survey of Burlesque and Parody in English* (ib.), revealing that parodies were directed against established institutions in the Middle Ages whereas in later times they were in favor of them and against reformers; Walter H. Godfrey, *The Story of Architecture in England* (New York) of which Part I goes from Roman times to the Reformation, and Part II from Tudor times to the end of the Georgian period; Edmund K. Broadus, *The Story of English Literature* (ib.), beginning with Celtic and Anglo-Saxon times and extending to the present day; Prof. W. M. Dixon, *The Englishman* (London), a study of the various aspects of English character and genius and their reflection in literature; Charlotte A. Simpson, *Rediscovering England* (ib.), a study of the growth of English villages as determined by geological and geographical conditions; Iris Brooke, *English Children's Costume* (ib.), an account extending from 1775 to the present day; the 14th volume of the great survey of the *Royal Commission on Historical Monuments* (ib.), being the first of three volumes covering Herefordshire.

English poetry is studied in John M. Gibbon, *Melody and the Lyric* (London), tracing the in-

fluence of music, especially dance tunes, on English poets from Chaucer to the Cavaliers; Guy Richardson, *Animals as Seen by the Poets* (Boston); F. E. Budd, *Lullabies* (London), an anthology of sleep songs extending from the fourteenth to the nineteenth centuries; and Prof. S. Banerjee, *Critical Theories and Poetic Practice in the "Lyrical Ballads"* (ib.).

Drama is the subject of A. Wigfall Green, *The Inns of Court and Early English Drama* (New Haven, Conn.), a history covering the sixteenth and seventeenth centuries; Henry W. Lanier, *The First English Actresses* (New York), an account extending from the initial appearance of women on the stage in 1660 to 1700.

Education is represented by Dr. H. McLachlan, *English Education under the Test Acts* (Manchester), a history of the Nonconformist academies which flourished from 1602 to 1820; Prof. Ernest Barker, *Universities in Great Britain: Their Position and Their Problems* (London), a survey; and *The Government of Oxford* (Oxford), an authoritative description of the administrative system and institutions of the University.

Studies on Anglo-Saxon and Middle English literature include *The Exeter Book of Anglo-Saxon Poetry* (London), a full-size facsimile reproduction of the 262 pages of one of the four great British codices which contain a small fragment of the vast oral vernacular poetry of the twelfth century; Milton H. Turk, *An Anglo-Saxon Reader* (New York), a revised edition, with a chapter on word formation by Prof. F. P. Magoun, Jr.; *The Junius Manuscript* (ib.), the first volume of a series, edited by Prof. Geo. P. Krapp, which will include all the surviving records of Anglo-Saxon poetry; Tom B. Haber, *A Comparative Study of the Beowulf and the Aeneid* (Princeton, N. J.), discussing the possible influence of the *Aeneid* on the Anglo-Saxon poem; Helen P. South, *The Proverbs of Alfred* (New York), a study of the Early Middle English poem, based on the recently discovered Maidstone manuscript; and John Masefield, *Chaucer* (London), the Leslie Stephen lecture delivered at Cambridge University.

The Elizabethan period, as usual, called forth some of the most important contributions of the year. Among those that should not be overlooked are F. O. Matthiessen, *Translation* (Cambridge, Mass.), in which the author analyzes the work of four of the leading Elizabethan translators, Hoby, North, Florio and Philemon Holland, for the purpose of showing how, through them, the great foreign classics influenced the literature and thought of the period; *A Poetical Rhapsody* (ib.), a reprint of the first edition of 1602 of this Elizabethan miscellany, with additional poems, edited by Prof. Hyder E. Rollins; *The Phoenix Nest, 1598* (ib.), a reprint of another well-known Elizabethan poetical miscellany, edited, with introduction, etc., by the same scholar; G. R. Taylor, *Tudor Geography, 1485-1583* (London), providing the intellectual background of an age of invention and discovery; *The English Works of Sir Thomas More* (ib., 2 vols.), the first two volumes of a seven-volume edition, reproduced in facsimile from William Rastell's edition of 1557, and edited, with a modern version of the same, by W. E. Campbell, with an introduction and philological notes by A. W. Reed; and *De Maisse* (London), the journal of this French Ambassador to the Court of Queen Elizabeth, which was translated and edited by George Bagshawe Harrison.



Shakespeare, as a consequence of recent discoveries made in regard to him, continues to hold the attention of scholars in such a manner that, with the possible exception of Dante, he is almost without a rival in any country. Among the numerous works devoted to him only a few of the most important may be mentioned here. Thus, Professors Wm. A. Neilson and Ashley H. Thorndike, *The Facts About Shakespeare* (New York) appears in a new edition revised according to the recent discoveries. Prof. Wm. W. Lawrence, *Shakespeare's Problem Comedies* (ib.) is a remarkable work, described by the *London Times* as "a volume of notable sanity," in which the author attempts to interpret these comedies through the cultural background of the period. Other works include: Percy Allan, *The Life Story of Edward Devere as William Shakespeare* (London), a biography of the seventeenth Earl of Oxford to whom the author attributes Shakespeare's plays; Prof. Henry W. Farnum, *Shakespeare's Economics* (New Haven, Conn.), a reconstruction of the economic background of Shakespeare's plays; Guy C. Rothery, *The Heraldry of Shakespeare* (London), an elaborate contribution; Lily B. Campbell, *Shakespeare's Tragic Heroes* (Cambridge), a study of the passions and of the purposes of tragedy in Shakespeare's day; Prof. Leslie Hotson, *Shakespeare Versus Shallow* (Boston), containing recently discovered facts about the poet's life; Robert W. Babcock, *The Shakespeare Idolatry* (Chapel Hill, N. C.), a study in English criticism of the late eighteenth century; J. W. Mackail, *The Approach to Shakespeare* (Oxford), studies of his plays and poems; Walther Ebisch and Levin L. Schucking, *A Shakespeare Bibliography* (Oxford), a selected list of editions, translations, criticism, etc.; Edwin E. Willoughby, *Jaggard: Shakespeare's Printer* (London), an illustrated account of literary conditions and book production in late Elizabethan times; Prof. John Dover Wilson, *Six Tragedies of Shakespeare* (London); *Shakespeare's Hamlet* (Cambridge, Mass.), a facsimile reproduction of the First Quarto (1603) copy in the Henry E. Huntington Library; and G. A. Jellicoe, *The New Shakespeare Memorial Theatre, Stratford-on-Avon* (London), an edition *de luxe*.

Studies on other British seventeenth century writers include Helen Darbishire, *Early Lives of Milton* (London), all written within 60 years of his death; *The Works of John Milton* (New York), the first two volumes of the Columbia University edition; Phyllis B. Tillyard, *Milton's Private Correspondence and Academic Exercises* (Cambridge), the first translation into English from the Latin; Paul Jordan-Smith, *Bibliographia Burtoniana* (Stanford University, Calif.), a study of *The Anatomy of Melancholy* with a bibliography of Robert Burton's writings; Izaak Walton, *The Compleat Angler*; or, *The Contemplative Man's Recreation* (New York), a reprint *de luxe* of this classic; Arthur H. Nethercot, *Abraham Cowley* (Oxford), a biography of the poet; Roswell G. Ham, *Otway and Lee* (New Haven, Conn.), a biographical study of two Restoration dramatists; *Broadside Ballads of the Restoration Period* (London), a limited edition of a collection of them; Jack Lindsay, *John Donne: His Life and Poetry* (ib.) said to be "one of the fullest and most delicately analytic studies ever written of an English poet"; *The Poems of Sidney Godolphin* (Oxford), a fine edition of the Cavalier poet which was prepared by William Dighton.

On the eighteenth century we have Mark Longaker, *English Biography in the Eighteenth Century* (Philadelphia); the development of the art during the century; Prof. A. E. Richardson, *Georgian England* (London), an account, drawn from contemporary sources, of social life, industry and the arts from 1700 to 1820; F. S. Oliver, *The Endless Adventure* (ib., 2 vols.) a history of England in the eighteenth century extending to the general election of 1734; *The Journal of James Boswell* (New York; Vol. 10, 1774-5; Vol. 11, 1775-6; Vol. 12, 1776-7), the Malahide papers, privately printed by Wm. E. Rudge; *Verney Letters of the 18th Century From the MSS. at Claydon House* (London), supplementary edition by Margaret Maria Lady Verney, of letters first published forty years ago.

Among dictionaries and works on our current speech, we may note Henry Cokeram, *The English Dictionary of 1623* (New York), being a reprint of Part I of what is believed by many to be the first English dictionary; C. O. Sylvester Mawson, *The Roget Dictionary of Synonyms and Antonyms* (ib.), a modernized and more complete edition of Roget's famous *Thesaurus* of English words and phrases, and also containing an appendix of foreign words and expressions; Burges Johnson, *New Rhyming Dictionary and Poet's Handbook* (ib.), containing illustrations of every fixed form of lyric poetry; Professor Geo. O. Curme, *Syntax* (ib.), being the third volume of *A Grammar of the English Language*; B. L. K. Henderson, *A Mirror of English* (London), in which the author assails many common faults in grammar and style; Professor Ernest Weekley, *Cruelty to Words* (New York), which pillories the errors of present-day writers; S. P. E. Tract No. XXV, *Robert Bridges* (Oxford), a brief memoir of the founder of the Society of Pure English, by Logan P. Smith and Elizabeth Daryush; C. L'Estrange Ewen, *A History of Surnames of the British Isles* (New York), a concise account of their origin, evolution, terminology and legal status; and Wm. D. Bowman, *The Story of Surnames* (ib.), a scientific study of the origin and growth of surnames, both British and American. Colloquial speech and slang are represented by *The Bible: An American Translation* (Chicago), a translation into current American speech, prepared by Profs. J. M. Powis Smith and Edgar J. Goodspeed for the University of Chicago Press; *Slang From Shakespeare* (Dallas, Texas), a dictionary of phrases from Shakespeare which are still in use, compiled by Anderson M. Baten; and *American Tramp and Underworld Slang* (New York), a glossary edited by Godfrey Irwin, with essays on slang by the editor and Eric Partridge. See LITERATURE, ENGLISH AND AMERICAN.

GERMANIC. German history and literature are discussed in the following: Ernst Kantorowicz, *Frederick II, 1194-1250* (New York), a biography, translated from the German by E. O. Lorimer; Clair H. Bell, *Peasant Life in Old German Epics* (ib.), translations and a critical study of two epics of 13th century German literature; J. G. Robertson, *A History of German Literature* (ib.), a new and revised edition of this comprehensive history; Norman MacLeod, *German Lyric Poetry* (ib.), a study of its development from the twelfth century to modern times; Professor L. A. Willoughby, *The Romantic Movement in Germany* (London), its history in the 18th and 19th centuries; W. Tudor Jones, *Con-*

*temporary Thought of Germany* (New York), a new volume in the Library of Contemporary Thought; *Jahrbuch der deutsch-amerikanischen Historischen Gesellschaft von Illinois* (Chicago), edited by Max Baum for the University of Chicago and published under the auspices of the German-American Historical Society of Illinois; *Works of Martin Luther* (Philadelphia, Vols. 3 and 4), translated with introduction and notes; Hastings Eels, *Martin Bucer* (New Haven, Conn.), a biography of an important leader in the history of the Reformation; H. W. Nevins, *Goethe: The Poet of Faust* (London), a critical biography; Otto Heller, *Faust and Faustus* (St. Louis, Mo.), a study of Goethe's relation to Marlowe; Romain Rolland, *Goethe and Beethoven* (New York), a study of the relationship between these two contemporaries, translated from the French. See GERMAN LITERATURE.

As for Dutch works, they included Albert Hyma, *The Youth of Erasmus* (Ann Arbor, Mich.), an account of the early years of the greatest scholar of the sixteenth century. Switzerland produced the following works of general literary and historical interest: J. E. Tyler, *The Alpine Passes in the Middle Ages* (London), a survey of their economic and political importance in that period; and G. R. De Beer, *Early Travelers in the Alps* (ib.), which deals with contemporary accounts from the sixteenth century to the end of the eighteenth.

Scandinavian literature and history was studied in Halvdan Koht, *Old Norse Sagas* (New York), a series of lectures delivered at the Lowell Institute, Boston, and published by the American-Scandinavian Foundation; A. and E. Keary, *The Heroes of Asgard* (ib.) a collection of tales from Scandinavian mythology; H. Koht, *Ibsen* (ib.) a biography of the Norwegian dramatist; A. A. Strömberg, *History of Sweden* (ib.), its entire history from the earliest times to the present; Lieut. Gen. Sir Geo. MacMunn, *Gustafus Adolphus* (ib.), a biography of the Swedish hero-king, *Hans Andersen* (Philadelphia), 40 stories translated from the Danish by M. R. James; Matthias Thordarson, *The Vinland Voyages* (New York), No. 18 of the American Geographical Society Research Series, edited by Prof. Halldor Hermannsson and translated by Thorstina J. Walters; Theodore C. Blegen, *Norwegian Migration to America, 1825-1860* (Northfield, Minn.), a history published by the Norwegian-American Historical Association; Florence E. Janson, *The Background of Swedish Immigration, 1840-1930* (Chicago), studies of the causes of Swedish immigration to the United States. See SCANDINAVIAN LITERATURE.

SLAVIC. General works include *The Slav Anthology* (Portland, Me.), a selection of representative poems, translated from the Russian, Polish, Bohemian, Serbian and Croatian by Edna W. Underwood; and Hebe Spaul, *The Baltic States: Latvia, Lithuania and Estonia* (New York).

Russia, notwithstanding the extraordinary transformation that she was undergoing, had heretofore failed to make a strong appeal to the learned world. Now there were multiple evidences of a great change in taste. On the history of Russia there was the fifth and last volume of V. O. Kluhevsky, *History of Russia* (New York) which traces the course of the Empire from the time of Catherine II to the end of the

Russo-Japanese War, with an appendix on the theory of historical study; Prince Mirsky, *Russia* (London), the first volume in the Cresset Historical Series, edited by Prof. C. G. Selincourt, whose purpose is to supply the sociological, religious and political backgrounds of the country; M. N. Pokrovsky, *History of Russia* (New York), a study, treated from the Marxian viewpoint, going from the earliest times to the rise of commercial capitalism; Avrahm Yarmolinsky, *Russian Literature* (Chicago), a scholarly and interesting bibliographical outline, forming No. 61 of the American Library Association's Reading with a Purpose Series; Nicolas Brian-Chaniouov, *The Russian Church* (New York), a lucid and satisfactory account extending from the date of the official establishment of Christianity in Russia in 988-991 to the present time; M. A. O'Brien, *New English-Russian and Russian-English Dictionary* (Philadelphia, 2 vols.), a timely work using the new official Russian spelling; R. Fulop-Miller, *Unknown Tolstoy* (New York), containing new information, drawn from sources hitherto unavailable, on the great writer's life and genius; and E. H. Carr, *The Life of Dostoevsky* (Boston).

The other Slavic countries are represented by the following: *Polish Romantic Literature* (New York), by Julian Krzyzanowski, lecturer in Polish at King's College, London; Clive Holland, *Czechoslovakia: The Land and Its People* (ib.), containing its history and development, as well as a description of the country as it is today.

CELTIC. In Celtic the Irish were especially active during the year 1931. First, the Irish Manuscripts Commission began publication, under the auspices of the Irish Government, of all the ancient Irish MSS that were to be found in the libraries of Ireland. All of these important literary monuments were being reproduced in beautiful facsimile editions. Next, a number of Irish and American students, including Dr. Eoin MacNeill, former Minister of Education of Ireland, Provost E. J. Gwynn of Trinity College, Dublin, J. L. Gerig and others organized the Society of Friends of the Universities of Ireland, the purpose of which was to stimulate interest in Irish studies both in America and Ireland. Finally, the Irish Stationery Office issued the first *Official Handbook of the Irish Free State* (Dublin).

Other works include Arthur K. Porter, *The Crosses and Culture of Ireland* (New Haven, Conn.), a study illustrating the relationship of the Irish crosses to the ancient culture of Ireland; R. A. S. Macalister, *Tara: A Pagan Sanctuary of Ancient Ireland* (New York), a history of the ruins; Rev. James A. Geary, *An Irish Version of Innocent III's 'De Contemptu Mundi'* (Washington, D. C.), a scholarly dissertation presented at the Catholic University; Daniel Corkery, *Synge and Anglo-Irish Literature* (New York), a biographical and critical study of the dramatist; *The Journal of the American Irish Historical Society, 1930-31* (ib. XXIX), a collection of studies dealing with Irish-American history; Edward F. Roberts, *Ireland in America* (ib.), a study of the influence of Irish immigration on the history of the United States during the first 150 years.

The American Iona Society issued during the year a splendid work entitled *The Distribution of University Centres in Britain* (Glasgow), by the late Hugh Gunn. Among other works re-

lating to Scotland may be mentioned the first part of the first volume of *The Scottish National Dictionary* (Glasgow, A-Aggle), edited by Wm. Grant; Prof. R. S. Rait, *Scotland* (London), a volume in the Modern World Series; *Mine Eyes to the Hills* (New York), an anthology of prose and poetry dealing with the Scottish Highland forest, compiled by Patrick Chalmers; and J. De Lancey Ferguson, *The Letters of Robert Burns, 1780-1796* (Oxford, 2 vols.), containing many new ones, all edited from the original manuscripts. Welsh is represented by J. E. Lloyd, *Owen Glendower* (Oxford), an account of the famous Welsh hero who figures in Shakespeare's *Henry the Fourth*.

ROMANCE: FRENCH. An indispensable work for all students of the Old French language and literature is Karl Voretzsch, *Introduction to the Study of Old French Literature* (New York), of which an authorized translation of the third and last German edition was prepared by Dr. Francis M. Du Mont. This unique survey goes from the earliest times through the fourteenth century and contains much new bibliographical material and certain revisions of text. A truly monumental work is Edmond Buron, *'Ymago Mundi' de Pierre d'Ailly, 1350-1420* (Paris, 3 vols.) an edition of a work from which Christopher Columbus got his inspiration to venture on unknown seas. The work contains the Latin text and French translation of the four cosmographical treatises of d'Ailly, including the marginal notes of Columbus, as well as a study on the sources of the author. Another unusual contribution is Gustave Cohen, *Chrétien de Troyes et son œuvre* (ib.), a brilliantly written study of the great "romancier d'amour et d'aventure" of the twelfth century, by one of the leading scholars of the present day. The same author's *Le Théâtre en France au Moyen Age* (ib.) provides a most interesting survey of religious and lay drama during the period when the popular drama was unexcelled for its wealth and inspiration.

Other works that deserve special mention are Eugène Anitchkof, *Joachim de Flore et les milieux courtois* (ib.), a well prepared biography and critical study of the great churchman of the twelfth century who is famous as the founder of Joachimism; Thomas Walton, *Le Doctrinal du Temps Présent de Pierre Michault, 1466* (ib.), a very useful critical edition of a work that represents the moralizing spirit of the Middle Ages at its best.

The fifteenth century is represented by Guy Endore, *The Sword of God: Jeanne d'Arc* (New York), an excellent critical biography based on the most recent material available; W. Barrett, *The Trial of Joan of Arc* (London), containing the first unabridged English translation of the official documents; and *The Complete Works of François Villon* (New York), including the poems long attributed to him, translated by J. U. Nicholson.

Among the large number of works devoted to the French Renaissance we may mention Jean Plattard, *The Life of François Rabelais* (ib.), translated from the French by Louise B. Roche; *The Works of François Rabelais* (ib., 2 vols.), edited by Albert J. Nock and Catherine R. Wilson; Georgia Harkness, *John Calvin: The Man and His Ethics* (ib.), a biography containing new material.

Contributions on the seventeenth and eight-

eenth centuries include Howard Robinson, *Bayle, The Sceptic* (New York), a study of the philosopher and critic, Pierre Bayle; Molière, *Tartuffe; or, the Hypocrite* (Leipzig, Germany), a new edition of Curtis Hidden Page's verse translation, with an introduction by Brander Matthews; Frederick C. Green, *Eighteenth Century France* (New York), essays on the social and intellectual life of the period.

Studies on the French language and syntax include Newton S. Bement, *The Conditional Sentence From Comynes to Malherbe* (New York), a supplementary contribution to the *Romanic Review*; Félix Boillot, *Psychologie de la Construction dans la phrase française moderne* (Paris), an excellent study on French syntax; M. A. Robert-Juret, *Les Patois de la Région de Tournus* (ib.), a contribution to dialectology; J. Llermet, *Contribution à la Lexicologie du Dialecte aurlillais* (ib.), a dialectical dictionary; and P. O. Crowhurst, *Cassell's Dictionary of French Synonyms* (New York), arranged in groups for the convenience of English students. See FRENCH LITERATURE.

ITALIAN. Francesco De Sanctis' famous *History of Italian Literature*, which was first published in Italy in 1870, was translated by Joan Redfern (New York, 2 vols.), with an introduction by Benedetto Croce. Contributions to Italian dialectology include Gerhard Rohlf, *Dizionario dialettale delle tre Calabrie* (Halle), consisting of a Calabrian-Italian and Italian-Calabrian dictionary of more than 40,000 words; and *I Nomi dialettali* (Trento), a word-list.

Dante, of course, received much attention. We should not fail to mention, however, Jefferson B. Fletcher, *The Divine Comedy of Dante Alighieri* (ib.), which is probably the best verse-translation of the poet yet made. Other translations include Lock Lockert, *The Inferno of Dante* (Princeton, N. J.), a new terza rima version; and Rev. Albert R. Bandini, *Dante's Paradiso* (New York), a lineal and rhymed translation.

Among the works on the later writers are Giovanni Boccaccio, *The Decameron* (ib., 2 vols.), translated by J. M. Rigg; Charles G. Osgood, *Boccaccio on Poetry* (Princeton, N. J.), being the preface and the fourteenth and fifteenth books of Boccaccio's *Genealogia Deorum Gentilium*, in an English version, with introductory essay and commentary; Prof. J. P. McMurrieh, *Leonardo da Vinci* (London), a masterly work dealing with his achievements as an anatomist; *A Translation of the Orpheus of Angelo Politian and the Aminta of Torquato Tasso* (Oxford), by Louis E. Lord, with an introductory essay on the pastoral; and Emile Namers, *Galileo* (New York), a biography, translated from the French. Excellent studies on modern Italian literature are Lionello Fiumi, *Sopravvivenze* (Milan), a really noteworthy contribution; and Federico Nardelli and Arthur Livingston, *Gabriel The Archangel* (New York), a biography of Gabriele D'Annunzio. See ITALIAN LITERATURE.

PORTUGUESE AND RUMANIAN. Both the *Revista Lusitana* (Lisbon), edited by Dr. Leite de Vasconcellos, and *Biblos*, the official review of the University of Coimbra, contained in 1931 useful contributions to the study of the Portuguese language and literature. A really noteworthy contribution is Dr. João da Providência Sousa Costa, *O Trocadiño em Camoës e a sua interpretação por G. Storck* (published at Coimbra).

In Rumanian we may note Marcu Beza, *Shakespeare in Rumania* (London) which deals with the poet's influence in that country as well as with parallels to his plays in the native folklore and fairy tales; and T. W. Riker, *The Making of Roumania* (Oxford), a study of an international problem.

SPANISH. The Hispanic Society of America continued to enhance its reputation of being probably the only organization in the United States that was seriously interested in encouraging Spanish scholarship. During the year 1931 its main contribution consisted of the publication of a large number of beautifully printed and illustrated leaflets dealing with art objects of all sorts now in the very extensive collection of the Society.

Among the more important works devoted to Spain the following deserve mention: Catherine Moran, *Spain* (Boston), a brief account, with an introduction by G. K. Chesterton; Havelock Ellis, *The Soul of Spain* (ib.), a new edition of this study of Spanish character and art; the second installment of Prof. E. Allison Peers, *Studies of the Spanish Mystics* (London); Eugenio D'Ors, *Ferdinand and Isabella* (New York), a study by a leading Spanish historian; Barbara Matulka, *The Novels of Juan de Flores and their European Diffusion* (New York), a very important and far-reaching study in comparative literature, issued by the Institute of French Studies; Christopher Hollis, *Saint Ignatius* (ib.), a biographical study of the founder of the Jesuit Order; Prof. J. D. M. Ford and Ruth Lansing, *Cervantes* (Cambridge, Mass.), a tentative bibliography of his works and of the biographical and critical material concerning him; Max A. Luria, *A Study of the Monastir Dialect of Judaco—Spanish Based on Oral Material Collected in Monastir* (ib.), a useful contribution to dialectology. See SPANISH LITERATURE.

On South America we should note first a series of useful bibliographies prepared under the auspices of the Department of Romance Languages at Harvard University. Thus, Profs. J. D. M. Ford, Arthur F. Whitten and M. I. Raphael, *A Tentative Bibliography of Brazilian Belles-Lettres*; G. Rivera, *A Tentative Bibliography of the Belles-Lettres of Porto Rico*; Prof. S. M. Waxman, *A Bibliography of the Belles-Lettres of Santo Domingo*; and Prof. Alfred Coester, *A Tentative Bibliography of the Belles-Lettres of Uruguay*, all of which contain descriptive notes in Spanish and are published at Cambridge, Mass. A very important bibliography is *Spain and Spanish America in the Libraries of the University of California* (Berkeley), being the second volume of the catalogue of the famous Bancroft Library.

The archaeological and other discoveries made in recent years in Mexico have resulted in centring attention on that country. Among the numerous works devoted to Mexico the following may be mentioned: Stuart Chase and Marian Tyler, *Mexico* (ib.), a comparison of our machine system with the handicraft system of Mexico; Mme. Calderon de la Barca, *Life in Mexico* (ib.), a new edition of a volume of letters published more than 90 years ago; and Wilfrid H. Callcott, *Liberalism in Mexico, 1857-1929* (Stanford University, Calif.), a history of the struggle for self-government in Mexico. Finally, a few works on other countries of South

America deserve mention: C. Farra-Perez, *Bolivar* (Pittsburgh, Pa.), a study of his political ideas, translated by N. A. N. Cleven; Francis R. Hart, *The Siege of Havana* (Boston), a history of the British siege of Havana during the Seven Years' War in America; R. J. and E. K. Van Deusen, *Porto Rico* (New York), a history from the earliest times to the present; F. A. Kirkpatrick, *A History of the Argentine Republic* (Cambridge), prepared for the celebration of the centenary of that republic; and Philip A. Means, *Peruvian Textiles* (New York), an illustrated monograph on examples of the pre-Incaic period, issued by the Metropolitan Museum of Art. See SPANISH-AMERICAN LITERATURES.

PHONETICS AND BIBLIOGRAPHY. Lee E. Travis, *Speech Pathology* (New York), a reference work on the causes, diagnosis and treatment of speech disorders; Prof. J. L. Barker, *Rate, Direction and Continuity of Movement in French and English Speech* (Salt Lake City), a study by one of our foremost phoneticians; Elsie Fogerty, *Speech Craft* (New York), a manual of practice in English speech; Thorleif Larsen and Francis C. Walker, *Pronunciation* (Oxford), a practical guide to American standards of speech; and Jean G. Demonbynes, *Abrégé de phonétique française* (Paris), intended for the use of students and teachers.

In bibliography, Prof. Wm. J. Entwistle, *The Year's Work in Modern Language Studies* (Oxford, Vol. I), a résumé of the year 1930 prepared for the Modern Humanities Research Association of Great Britain; *Handbuch der Literaturwissenschaft* (Potsdam), a survey of the year's work in literary criticism; *Summary of Reports* (New York), issued by the Committee on Modern Language Teaching; John Marshall, *Publication of Books and Monographs by Learned Societies* (Washington, D. C.), a survey made for the American Council of Learned Societies; Magdalen Casey, *Catalogue of Pamphlets in the Public Archives of Canada* (Ottawa), with brief descriptions and index of authors; A. Esdaile, *A Student's Manual of Bibliography* (New York), a handbook for librarians; Canon B. H. Streeter, *The Chained Library* (London), a survey of four centuries in the evolution of the English library; Wm. Targ, *American First Editions and their Prices* (Chicago, Ill.), a checklist of the foremost American first editions from 1640 to the present day; Maurice S. Sheehy, *A Decade of Research at the Catholic University of America, 1921-1930* (Washington, D. C.), a list of research projects and publications of the Catholic University; Ralph C. Williams, *Bibliography of the Seventeenth Century Novel in France* (New York), a poorly prepared but nevertheless useful list of over 1200 novels written in France in that period; and J. O. Kettridge, *Dictionary of Commercial and Financial Terms, Phrases and Practice* (ib.), a French-English and English-French dictionary for commercial use.

PHILOSOPHY. The outstanding philosophical works of the year illustrate the creditable tendency in contemporary philosophy toward greater specialization both in method and subject-matter. But the correlative process, the synthesis of opposing schools and the sifting of their diverse conclusions, is also in evidence.

The latter tendency is illustrated in Professor Stout's *Mind and Matter* (the first of two volumes based on the Gifford Lectures delivered in the University of Edinburgh in 1919 and 1921).

The volume begins with a brief but competent defense of animism, that is, "the tendency to seek and find in nature a correlate of our own mental life." Common sense believes that the ordered matter of the universe excludes teleology and infers that the teleology manifest in the world must result from the activity of Mind. Animism need not involve the anthropomorphic fallacy, says Stout. Aesthetic, causal, and teleological factors in nature all support the view of common sense which no arguments have discredited. Stout, however, is not willing to accept the interaction of mind and body, but inclines to a special type of parallelism in which mind and body are intimately united and act together within one whole. But though mind does not act on body, as the interactionists maintain, the laws of matter are not sufficient to explain the nature of mind. Metaphysical materialism, which makes this claim, is inadmissible and shows itself incompatible with the general order of nature, with the structure of the causal process, and with the teleological order of the world.

Having made so many assertions about Nature and Mind, Stout is obliged to explain the possibility of this knowledge. He begins with our knowledge of Nature. Many philosophers, he says, have denied the independent existence of the physical world, but all such systems refute themselves, the author thinks, since they assume at the beginning what they deny in conclusion—the independently real, physical world. The physical world, however, is infused with Mind which is analogous to our own finite minds and hence intelligible. "Mind, as I maintain, must be fundamental in the Universe of Being and not derivative from anything that is not mind—we are bound to posit one universal and eternal Mind developing and expressing itself in the world of finite and changeable beings which we call Nature." In his next volume, *God and Nature*, Stout promises to consider ethical and religious developments of human nature.

Another book, which sifts and appraises the conclusions of various schools, C. D. Broad's *Five Types of Ethical Theory*, is distinguished by the intensiveness of its criticism. "It appears to me," says Broad, "that the best preparation for original work on any philosophic problem is to study the solutions which have been proposed for it by men of genius whose views differ from each other as much as possible." Such a method will enable us to avoid their mistakes, and to discover the direction in which progress is possible. Accordingly he chooses for his study the ethical works of Spinoza, Butler, Hume, Kant, and Sidgwick, devoting by far the most attention to Sidgwick, whose *Methods of Ethics* he considers the greatest ethical work ever written.

Broad's criticism of Spinoza is directed mainly against his psychological egoism, which makes acts of self-sacrifice impossible. Here Spinoza forgets that even on the pre-rational level individuals have emotions and perform actions which are directly against their own interest. For example, an individual sacrifices himself for the species or acts in sympathy with his group or loves or hates to the point at which his own advantage is forfeited. Broad finds egoism on the rational level equally inadmissible.

The faults in Spinoza's ethics are corrected in Butler, whose "sweet reasonableness" is very attractive to Broad. According to Butler human propensities are arranged in a hierarchy, and

none of them are bad in themselves, but only excessively or inappropriately exercised. The good man is one who approximates to the ideal of human nature which, though it is inferred from the actual series of good and better men, is never really actualized. Broad, who sees some analogy between the perfect circle, the perfect gas, and the perfect man, upholds Butler's "ideal" as a useful notion. With many of Butler's conclusions Broad is in agreement. That there is too little self-love in the world, that self-love is not opposed to benevolence except in exceptional cases, that psychological egoism is impossible, that conscience is a rational faculty correcting, in crucial cases, both self-love and benevolence, Broad is willing to admit.

His attitude toward Hume is more critical, though he applauds the great skeptic's attack on psychological hedonism. Moreover, Hume's definition of a right act as one which is generally approved is not open to the charge of subjectivism, says Broad, since acts of approval can be ascertained and counted. But the definition is unacceptable, none the less, since we admit many acts to be right which are not generally approved, and conversely. The essay on Kant is the least satisfactory and it is doubtful whether Broad has considered many of the alternative interpretations of the Kantian ethics.

His criticism of Sidgwick, unlike his treatment of the other philosophers in the volume, is expanded into a very useful commentary. On basic matters Broad is usually in agreement with Sidgwick, viz: they agree upon a non-naturalistic definition of the right act and "ought," and both of them believe that there is such a thing as free will while admitting that its proof and even its definition are lacking. Similarly they both hold that whether one is a determinist or indeterminist can make very little difference to actual conduct. Broad's disagreements with Sidgwick are confined, for the most part, to fine points of analysis or proof.

Another book combining breadth with incisiveness, makes a brilliant tour through the sober but sensational developments of modern science. Unlike other books presenting brief analyses of modern scientific theories F. S. C. Northrop's *Science and First Principles* begins with Greek science, demonstrates the continuity of its development and its relevance to present problems, and attempts to show that forgetfulness of Zeno's reasonings may well have caused errors on the part of Einstein and others. Thus he argues that Zeno's contention that motion cannot exist without there being some other referent than the stuff which moves, since the stuff must move to a *where-it-is-not*, is certainly true and so important that no exponent of the Relativity Theory can reasonably neglect it.

It is partly on this argument, dating from the fifth century B.C., that Northrop supports his own theory of the macroscopic atom or egg, which, as he says, "is spherical in shape and hollow in its interior except for its inner field, which surrounds and congests them (i.e., the microscopic particles)." Thus to give the moving microscopic particles or atoms a reference beyond themselves, we must have, the author claims, a macroscopic atom, an egg-shaped universe, having properties satisfying experience, the physical evidence for the General Theory of Relativity, and the tensor variables.

Northrop's theory which generalizes beyond



the General Theory and differs, as he says, from the parallel developments of Weyl and Eddington is certainly more difficult to understand than Einstein himself, and perhaps for a different reason. Evidently the original and revolutionary system of Whitehead, on which Northrop throws a much needed light, is the main foundation and inspiration of his theory, and Whitehead himself in *Process and Reality* recognizes the kinship of Northrop's theory with his, though he rejects it.

Northrop's account of the theory of Relativity in his second chapter is, however, one of the best that has ever been written and compares favorably with Einstein's own brief exposition in *The Special and the General Theory of Relativity*. His principal contention throughout is that mathematical theory should be guided by physical evidence at every point, and that no brilliant constructions of the imagination should be admitted which do not have counterparts in the physical world. Naturally he criticizes Eddington who makes Relativity a mathematical system and regards only the pattern of relations as real, and naturally he commends Einstein who insists upon the physical basis and criticizes both Weyl and Eddington for their free constructions. The General Theory, according to Northrop, is the greatest triumph of *physical* theory in the history of physics. Neither time nor space, nor space-time exist any longer, he says.

After a chapter on *Quantum and Wave Mechanics*, Northrop gives his attention to *The Living Organism* and expounds the carbohydrate balance involved in the physiology of breathing as worked out by Haldane and Henderson at Yale. Four equations were discovered determining such substances as hæmoglobin, oxygen, carbon dioxide, etc., and only six chemical substances were involved. Thus it was known that 20 possible relationships were involved between these substances. Twenty laws were therefore predicted, and then discovered experimentally and then it was found that if the quantity of any two were known, that of the remaining four could be inferred. Thus the whole complicated relationship could be represented in a two-dimensional graph called a monogram. The physiology of breathing which seemed to require "norms" and a teleological principle is explicable, therefore, in purely physico-chemical terms. It is the peculiar complex substance, hæmoglobin, which preserves the equilibrium and stability characteristic of the organism. But the "intimacy" of the relation between these substances cannot be explained by chemical affinities or by the chance distribution of matter. We must have a new principle—"the constancy of the average density of nature" which is, as Northrop says, precisely the same idea that was involved in Einstein's theory of the finite universe. In his last chapter which brings biology and physics together we discover that the macroscopic atom (the universe) which is a counterpart of microscopic atom, has at least some of the attributes of divinity.

Husserl's *Ideen zu einer reinen Phänomenologie und phänomenologischen Philosophie* also appeared this year in an English translation with the unfortunate title, *Ideas*. It is not only the first English translation of Husserl's works, it is the most important. Unlike the *Logische Untersuchungen*, Husserl's earlier work, the present volume is concerned not so much to apply the phenomenological method as to define and generalize it. After the reader has grown accustomed to the deft and

hair-splitting analyses of the "*Untersuchungen*," he must in the present work, turn the phenomenological method back upon these analyses themselves. He is therefore privileged to master the phenomenology of phenomenology, to learn what is requisite to a phenomenologist, and even to become one himself if he understands what it is all about.

Bertrand Russell's new volume, *The Scientific Outlook*, is as witty and clear and informative as most of his popular books. It is a survey of modern science with its implications for human life and contains the same melancholy forecast of the future that we read in *Icarus*. Naturally Russell is amused at the optimism which Eddington derives from the Second Law of Thermodynamics. "This law states, generally speaking, that the universe tends toward democracy, and that when it has achieved that state, it will be incapable of doing anything more." Eddington, it will be remembered, declared that he is no phoenix-worshiper and would hate to think that the world winds itself up again for new cycles. "He prefers to think," says Russell, "that the world drama is only to be performed once, in spite of the fact that it must end in æons of boredom, in the course of which the whole audience will gradually go to sleep." Russell says it speaks well for Eddington's constitutional cheerfulness that he is able to derive optimism from modern physics. The forecast, to his mind, is rather dark.

Houston Peterson, in his *Melody of Chaos*, exhibits in a brilliant kaleidoscopic picture the collapse of basic religious, moral, and scientific standards as reflected in modern literature. He shows us an increasing mood of wildness and melancholy and traces in particular the literary consequences of Hume's destructive criticism of the self.

The appearance this year of two important books expounding the older formal logic and the new symbolic logic and showing their relation to one another, is almost more than our hopes could have bargained for. L. S. Stebbing's *A Modern Introduction to Logic* and R. M. Eaton's *General Logic* are the first books in English to cover this field, and they fill a need which has been felt in many universities. Although the two books cover the same ground, there are individual differences of treatment affording interesting comparisons.

Another evidence of the increased interest in logic, and the rich opportunities of applying it to new fields, is a new book by Jerome Michael and Mortimer J. Adler called *The Nature of Judicial Proof, An Inquiry into the Logical, Legal, and Empirical Aspects of the Law of Evidence*. This is a rigorous and praiseworthy attempt to reduce the concrete data of the theory of evidence to a strict logical system.

**BIBLIOGRAPHY.** The following summary includes the more notable books of the year under the general head of philosophy: Ernst Barthel, *Vorstellung und Denken*; C. D. Broad, *Five Types of Ethical Theory*; R. W. Church, *A Study in the Philosophy of Malebranche*; John Dewey, *Philosophy and Civilization*; R. M. Eaton, *General Logic*; Irwin Ldman, *The Contemporary and his Soul*; W. R. Boyce Gibson, English Translation of Husserl's *Ideen*; Paul Hutchinson, *World Revolution and Religion*; Régis Jolivet, *Essai sur le Bergsonisme*; Cassius Jackson Keyser, *Humanism and Science*; Maxime Leroy, *Descartes Social*; Alfred Loisy, *Mémoires*, vol. ii and iii; Douglas Clyde Macintosh, *The Pil-*



*grimage of Faith*; J. S. Mackenzie, *Cosmic Problems*; James Mackinnon, *The Historic Jesus*; Siegfried Marck, *Die Dialektik in der Philosophie der Gegenwart*; C. R. Morris, *Locke, Berkeley, Hume*; Jerome Michael and Mortimer J. Adler, *The Nature of Judicial Proof, an Inquiry into the Logical and Empirical Aspects of the Law of Evidence*; V. J. McGill, *Schopenhauer, Pessimist and Pagan*; F. S. C. Northrop, *Science and First Principles*; B. J. H. Ovinck, *Philosophische Erklärung der Platonischen Dialoge Meno und Hippias Minor*; Houston Peterson, *The Melody of Chaos*; S. Rawidowicz, *Ludwig Feuerbachs Philosophie*; Hubert Rick, *Neue Untersuchungen zu Platonischen Dialogen*; Bertrand Russell, *The Scientific Outlook*; Harold R. Smart, *The Logic of Science*; Suzanne Stebbing, *An Introduction to Modern Logic*; G. F. Stout, *Mind and Matter*; M. R. Cohen, *Reason and Nature*.

**PHONETICS.** See PHONOLOGY, MODERN.

**PHOSPHATE ROCK.** The raw phosphate rock industry in the United States in 1931 suffered substantial declines in both mine production and shipments. Preliminary figures compiled by the U. S. Bureau of Mines showed a decrease of 35 per cent in mine production, as compared with 1930, while shipments showed decreases of about 36 per cent in quantity and 35 per cent in value. The quantity of phosphate rock mined in the United States in 1931 was approximately 2,563,300 long tons, compared with 3,951,353 tons in 1930. Total shipments of phosphate rock in 1931 were approximately 2,492,500 long tons, valued at \$9,085,643, as compared with 3,926,392 long tons, valued at \$13,996,830 in 1930. Total stocks on hand Dec. 31, 1931, amounted to about 1,229,100 long tons, an increase of some 27 per cent compared with 968,745 tons on hand Dec. 31, 1930. Of the 1931 production, Florida furnished 2,080,956 tons and shipped 2,026,769 tons valued at \$7,032,250, or an average price of \$3.47 a ton. Tennessee produced 363,453 tons and shipped 344,677 tons valued at \$1,558,858, or an average price of \$4.52.

The world output of phosphate rock in 1930 was estimated at about 11,700,000 metric tons. French Morocco produced 1,779,008 metric tons; Tunisia 3,326,000 tons; and Nauru and Ocean Islands in the Pacific produced 512,265 tons. French Morocco and Tunisia in 1930 both showed a marked increase in production over 1929.

**PHOTO-ELECTRIC CELL.** See ELECTRIC LIGHTING; ELECTRICAL INDUSTRIES.

**PHOTOGRAPHY.** A significant advance was noted during the year in connection with the manufacture of sensitized photographic materials when emulsions of greatly increased speed and improved color sensitiveness were made available. Introduced at first in connection with panchromatic plates late in 1930, the improved characteristics were incorporated gradually into emulsions used in all other important branches of the industry serving amateur, professional, motion picture, aerial, and ciné amateur fields. These improvements permitted exposures with much less light than was necessary heretofore and insured more pleasing picture quality.

Steady but less sensational was the growth observed in various applications of photography, particularly in the use of sound motion pictures for educational and business purposes, as well as for entertainment. Besides the technical improvement in photographic quality, a distinct advance was made in the electrical and mechanical de-

vices utilized in the recording and reproduction of sound, thereby enhancing greatly the realism of the sound picture.

Two international congresses assembled during the summer, one at Dresden, Germany, and the other at Paris, France. The former city was host to the delegates attending the Eighth International Congress of Photography at which over 80 technical papers were presented. The Third International Congress of Radiology met at the latter city. At Rochester, N. Y., Kodak Research Laboratories occupied a new seven-story building.

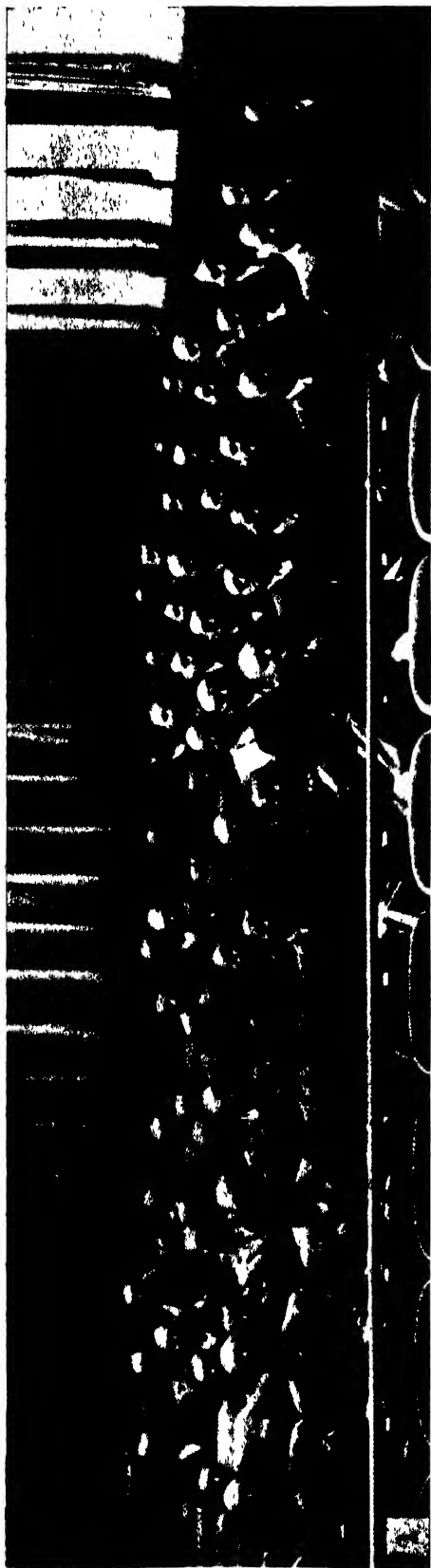
**APPLICATIONS OF PHOTOGRAPHY.** More extensive use was being made of photography each year in connection with photo-engraving processes. New sensitized materials were made available in 1931, namely, films of very high contrast and sensitized tracing cloth; and wider application was given to existing materials. According to Gamble (*Penrose's Ann.* 34, 1932, p. 1) color rotogravure was no longer an experiment but had become quite standardized. Over 50 American and Canadian newspapers were printed in two or more colors. Half-tones were actually engraved by a new phototelegraphy process, whereby electrical impulses created by a scanning beam are transmitted to the engraving tool. Cartwright, Haigh, and Turner reviewed existing processes for making photo-litho plates and suggested various improvements (*Phot. J.* 71, July 1931, p. 266).

So called methods of "noiseless" recording of sound photographically, resulted in almost complete elimination of extraneous surface noise in conjunction with pictures. During the latter part of the year equally significant improvements were made in disk recording of sound. A conscientious effort was made to stabilize existing equipment and make available in the theatre the quality of sound and picture which existed in master prints at the producing centres.

Further progress, of theoretical interest, was made in solving the problem of stereoscopic projection of pictures (*J. Opt. Soc. Amer.* 21, Feb. and July, 1931, pp. 109 and 397) but most authorities believed that the problem was still far from a practical solution.

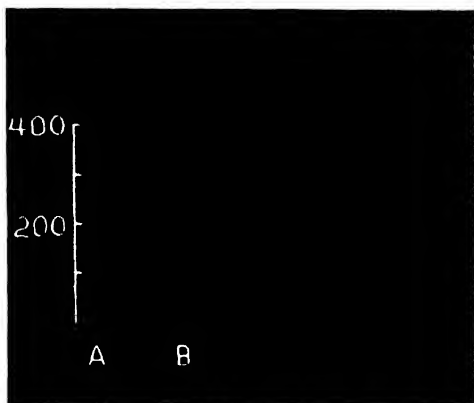
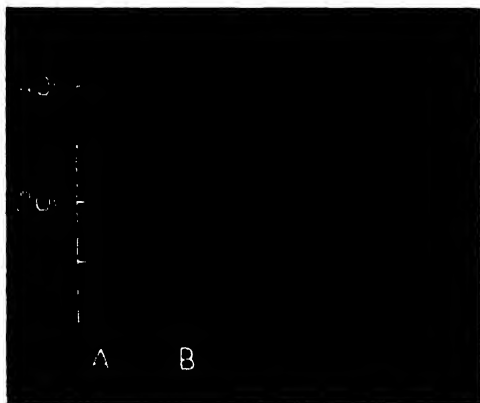
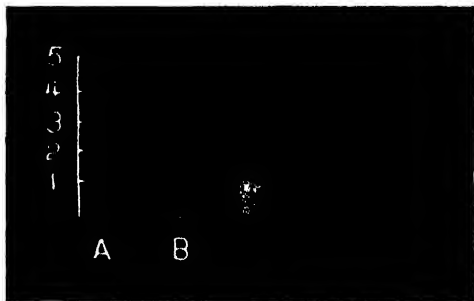
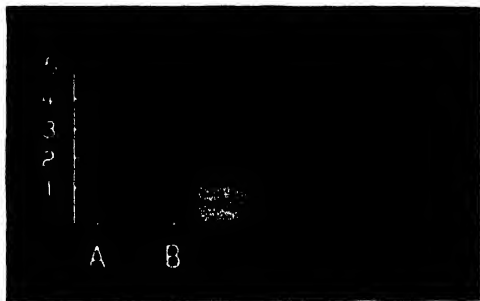
Many valuable applications of photography were made in studying natural phenomena. Withow and Boyd made simultaneous flame and pressure studies of the explosions within a gasoline engine cylinder with various fuel mixtures (*Ind. Eng. Chem.* 23, May, 1931, p. 539). (Plate II.) Two rolls of photographic paper were used by Jasper and Walker to record horizontal and vertical movements of the eyes of different individuals (*Science* 74, Sept. 18, 1931, p. 291) which studies are of pathological as well as psychological value. At the autumn meeting of the Society of Motion Picture Engineers, McClintock showed time-motion studies of plant growth which gave new evidence that characteristic growth movements exist for various plants. Edgerton described the use of a mercury-arc thyatron tube as an illuminant for making stroboscopic motion pictures of synchronous motors (*Elect. Eng.* 50, May, 1931, p. 327).

Additional refinements were discussed by Quayle and Erwin in the method devised by the former for photographing the flight of bullets (*Bull. Phot.* 48, Mar. 25, 1931, p. 355). The Library of Congress was using motion picture film to make a record of all documents in its archives, absolute accuracy being insured thereby



# PHOTOGRAPHS ON NEW HIGH SPEED MATERIALS

1. Photograph exposed on infrared plate in darkness. Infrared radiation supplied by fifteen 1000-watt incandescent lamps filtered to transmit only infrared. Exposure—1 second at F/3.5. Reproduced by courtesy of the Eastman Kodak Co., Rochester, N. Y.
2. Photograph on High Speed Panchromatic Plate. Exposure—1/150 second at F/2. No illumination other than that normally used in Madison Square Garden, New York, N. Y. Reproduced by courtesy of the International News Photos Inc.



SMOOTH OR NORMAL COMBUSTION

KNOCKING COMBUSTION

SIMULTANEOUS FLAME AND PRESSURE PHOTOGRAPHIC RECORDS OF ACTUAL EXPLOSION  
IN A GASOLINE ENGINE CYLINDER

*Reproduced by Courtesy of L Withrow and T A Boyd General Motors Research Laboratories, Detroit*



*Courtesy U S. Army Air Corps*

AERIAL MOSAIC PHOTOGRAPH

Exposed, Developed, Printed, and Assembled in Laboratory Plane by Lieut. George W. Goddard during a single flight

over hand written copies (*U. S. Daily* 6, May 25, 1931, p. 1). An Indianapolis doctor devised a camera for photographing the inner ear (*Science News Letter* 19, May 9, 1931, p. 293).

A three-color additive screen process of color cinematography on 35 mm. film known as the Spicer-Dufay method was exhibited before the Royal Photographic Society, London, in May 1931. The film base is covered with a mosaic of red, blue, and green areas over which a panchromatic emulsion is coated. The Autochrome color screen, so popular for many years but only available on plates, was marketed on a film support (*Bull. soc. franc. phot.* 73, May 1931, p. 115). Fundamental problems facing experimenters in three-color photography were discussed by Oliver and by Spencer (*Phot. J.* 71, Jan. 1931, pp. 6 and 9). The latter investigator also described a new single exposure camera, using semi-transparent mirrors made from very thin collodion membranes (*Brit. J. Phot.* 78, Nov. 13, 1931, p. 685). A simple color print process called Collochrome was described by Wheeler, which consisted in preparing two dyed tissue images and superposing these in register on a blue toned bromide print (*Brit. J. Color Supp.* 25, Dec. 4, 1931, p. 45).

The photographic corps of the U. S. Army continued their experimentation with different types of photography. During the air manœuvres in June, flashlight pictures were made by Stevens over New York, using flash bombs electrically ignited from the plane, and creating three billion candle power of illumination. Under the direction of Lieutenant Goddard a laboratory was built inside a cabin plane. It was equipped so that plates could be developed and prints made during the duration of a flight of a few hours. Aerial mosaics were made with this equipment over the city of Chicago, and over sections of Ohio. (Plate II.)

Trivelli developed an achromatic lens system, permitting photomicrography in the edge of the ultra-violet spectral region at 365 mμ, for which visual focusing could be done with green light at 546 mμ. Improved resolution was possible with this technic (*Scientific Monthly* 33, August, 1931, p. 175). Results of further photomicrographic studies using ultra-violet radiation at 275 mμ were published by Lucas who had developed a precise method of photographing successively different layers, or cross sections of various organisms. By means of an extremely delicate focusing scale, the plane of focus could be varied by one-quarter micron (about  $\frac{1}{400,000}$  in.) (*J. Soc. Mot. Pict. Eng.* 16, April, 1931, p. 445).

PHYSICAL MEASUREMENTS. Some confusion has prevailed for several years in the methods used by investigators in different parts of the world to express the values for various constants describing the characteristics of photographic emulsions. Much of this confusion will be eliminated in future measurements, it is hoped, providing manufacturers and laboratories put into practice the light standard and filter adopted in August by the Eighth International Congress of Photography. Although this standard gives a precise specification of the light source, certain members of the assembly believed the apparatus for making the measurements to be too complex and too expensive for many investigators. A simpler equipment was suggested but decision as to its approval was withheld to permit of care-

ful testing of the proposal. The congress also discussed a specification for the testing of the safety of amateur ciné film.

Increasingly greater use was being made each year of sensitometry in the various fields of photographic endeavor, more especially in connection with both sound and pictures in motion picture work. A laboratory sensitometer was designed especially for use in this field, having a constant light source and a means of varying the time of exposure over a wide range (*J. Soc. Mot. Pict. Eng.* 17, October, 1931, p. 536). Moore discussed several precautions to be observed in practical sensitometry (*Phot. J.* 71, November, 1931, p. 403), and Lobel and Dubois published the results of a study of the measurement of the sensitivity of photographic emulsions (*Kino-technik* 13, April 20, 1931, p. 142).

A projection method of testing photographic lenses was described by Rayton which consists in photographing the projected images of a small aperture placed at selected points in the image plane under test. Two instruments for the measurement of the density of silver deposits were made available, one of German manufacture (*Phot. Ind.* 28, Dec. 17, 1930, p. 1364), and the other of American make (*J. Soc. Mot. Pict. Eng.* 17, December, 1931, p. 922).

MANUFACTURE OF SENSITIZED MATERIALS. As a result of discoveries of new series of sensitizing dyes for photographic materials, coupled with more precise manufacturing technic, marked improvements were introduced in the sensitiveness (both to white light and to colored light) of panchromatic emulsions. The speed was approximately doubled for daylight exposures and increased three to five times for artificial light (*Amer. Cinemat.* 11, March, 1931, p. 9; *ibid.* April, 1931, p. 17; also *Filmtechnik* 7, Sept. 19, 1931, p. 4; and *Amer. Cinemat.* 12, July, 1931, p. 15). (Plate I.) Negative materials for the amateur were also improved, especially with regard to speed, color sensitiveness, and freedom from halation (*Proc. Master Phot. Finishers Amer.* 1931, also *Amer. Phot.* 25, May, 1931, p. 3).

Especially fine grain emulsions were made available for use in cameras taking small pictures requiring enlarging for convenient examination (*Phot. Korr.* 67, March, 1931, p. 84).

The sensitiveness of emulsions for spectroscopic work was also increased considerably during the past year. At the October meeting of the Optical Society of America, Mees described some of these improved materials for use in photographing ultraviolet as well as infrared radiation. (*J. Opt. Soc. Amer.* 21, December, 1931, p. 753.) Using these new infrared materials, hypersensitized with ammonia to increase their speed still more, a picture was taken without the aid of visible radiation in October at the Kodak Research Laboratories. Tungsten lamps filtered to transmit only infrared were used as the source of radiation (Plate I).

Of especial interest was the research work initiated by the U. S. Bureau of Standards on emulsion manufacture, the first results of which were published by Carroll and Hubbard (*Bur. Stand. J. of Research* 7, August and November, 1931, pp. 219 and 811). In their first paper, independent variables were studied which influenced the after ripening of photographic emulsions. The influence of temperature, of bromide ion, and of hydrogen ion concentrations was found to agree with predictions on the basis of chemical

reactions forming sensitivity nuclei. The second paper presents data related to the silver ion-gelatin equilibrium.

**NEW APPARATUS.** Greater use was made of small size cameras which would take 8 to 16 exposures on a short length of roll film. Many different types of such cameras were marketed ranging from simple design to those having focal plane shutters with speeds up to  $\frac{1}{1600}$ th sec., a wide aperture and focusing mount working from 3 feet to infinity (*Camera*—Phila. 42, February, 1931, p. 125; *Amat. Phot.* 72, July 8 and 15, 1931, pp. 64 and 64; *Phot. Dealer* 45, August, 1931, p. 328). A stereo attachment was marketed for one of the small cameras using ciné film. The device divides and transposes the two picture halves independent of the lens diaphragm opening (*Photo Era* 47, September, 1931, p. 165). An exposure meter using a small photo-electric cell for measuring the light intensity was supplied for the use of the amateur ciné enthusiast (*Movie Makers* 6, October, 1931, p. 544).

The most noteworthy change in motion picture camera construction was the progress made in silencing the camera mechanisms, permitting several models to be used on sound sets without the necessity of special sound-proof housings (*Amer. Cinemat.* 11, December, 1930, p. 11; *ibid.* 12, July, 1931, p. 9; *Filmtechnik* 7, Aug. 22, 1931, p. 1). A non-intermittent camera of unconventional design was exhibited at the meeting of the Motion Picture Engineers held in Hollywood in May (*Amer. Cinemat.* 12, June, 1931, p. 12). Several new models of amateur ciné cameras of more compact design were introduced some of which incorporated magazine loading features (*Movie Makers* 6, November, 1931, p. 603).

The portability of sound recording equipment was improved greatly, such apparatus being characterized by their compactness.

Laboratories continued to install automatic processing equipment for motion picture, amateur, and aerial films. Simultaneous printing of picture and sound records was replacing the earlier methods necessitating separate printing of the two records (*Mot. Pict. Herald* 104, Sept. 5, 1931, p. 42).

The quality of reproduced sound improved in conjunction with pictures as a result of better amplification and changes in loud-speaker design. Greater compactness in the construction of such equipment permitted this installation on smaller theatre stages.

Better quality illumination of higher intensity was introduced in projectors for the amateur, of which several improved models were marketed (*Movie Makers* 6, August, 1931, p. 442).

Enlargers were made available suitable for making enlargements up to 8 in. by 10 in. from small negatives (*Brit. J. Phot.* 78, Nov. 20, 1931, p. 702). Several models of print straighteners were designed for commercial use. The popularity of the photo flash bulb was attested by the many designs of reflectors introduced for use with such illuminants.

**THE PHOTOGRAPHIC PROCESS.** Our knowledge still remains rather vague concerning the composition of solutions suitable for replenishing developers. The subject is becoming of greater importance each year as a result of the introduction of automatic processing machinery. An attempt to provide such information for one developer in use in the motion picture trade was made by Crabtree and Ives who published specific

directions for replenishing both for small and for large scale development (*J. Soc. Mot. Pict. Eng.* 15, November, 1930, p. 627). Development according to a definite time and temperature was encouraged more extensively with the introduction of the new fast panchromatic emulsions which must be handled preferably in total darkness.

Some workers preferred to use a desensitizer bath before development which permits development before a brighter safelight than is normally recommended. Opinions of investigators appeared to vary considerably as to whether such solutions decreased emulsion speed. Summarizing the opinion of various workers, Emmermann concluded that a slight decrease in speed existed but that it could be compensated for readily by increasing the development time (*Filmtechnik* 7, Apr. 4, 1931, p. 5).

**PHOTOGRAPHIC THEORY.** A comprehensive paper on the physical aspects of the mechanism of latent image formation published by Harrison (*Phot. J.* 71, April, 1931, *Supp.* p. 1) reviewed the evidence accumulated by different investigators concerning the external photo-electric, photovoltaic, and photo-conductance effects on silver bromide. The first named effect is ruled out completely as of assistance in explaining latent image formation. Work on the photovoltaic effect is considered favorable but incomplete. Accumulated evidence of several investigators showed that the mechanism producing the photo-conductance effect is the same as that which produces the latent image.

The minuteness of the calculated photo-silver necessary for development of grains, according to Sheppard (*Phot. J.* 71, August, 1931, p. 313), suggests that the state and orientation of the silver atoms is more important than their size and for development is the essential factor. Weigert holds to a theory of development involving the existence of complexes called "micelles" which surround the crystals in an emulsion. Processes usually considered as taking place on the crystal surface are believed to occur in the micelle. A catalyst produced as a result of the action of light on this complex makes developability possible (*Abstract—VIII Internat. Cong. Phot.*, J. A. Barth, Leipzig, p. 37).

Potassium bromide has long been considered the most satisfactory anti-fogging agent for use in developers. Trivelli and Jensen showed, however, that several organic compounds, notably 6-nitrobenzimidazole, represent promising substitutes and in some respects are superior to potassium bromide (*J. Franklin Inst.* 212, August, 1931, p. 155).

**BIBLIOGRAPHY.** General reviews of photographic progress are published annually by the Society of Chemical Industry (British), the *British Journal of Photography* (London), and the American Photographic Publishing Co. (Boston). A progress report of the motion picture industry is published semi-annually in the *Journal of the Society of Motion Picture Engineers* (New York).

The more notable books published during 1931 include: E. J. Wall, F. J. Mortimer, *Dictionary of Photography*, 12th ed. (London); F. R. Frippie and W. E. Woodbury, *Photographic Amusements*, 10th ed. (Boston); G. Seeber, A. Parzer-Mühlbacher, *Kamera Kurzweil*, 6th ed. (Berlin); W. S. Davis, *Practical Amateur Photography* (Boston); O. G. Pike, *Nature Photography* (London); F. R. Newens, *Technique of Color Photog-*

raphy (London); L. G. Gabriel, *Bromoil and Transfer* (London); Various authors, *Recording Sound for Motion Pictures* (New York); G. M. R. Balbi, *Talking Pictures and Acoustics* (London); F. Fischer and H. Lichte, *Tonfilm und Wiedergabe nach dem Klangfilm-Verfahren: System Klangfilm Tobis* (Leipzig); J. H. Reyner, *Cine-Photography for Amateurs* (London); S. von Angerer, *Wissenschaftliche Photographie* (Leipzig); Capt. M. Hotine, *Surveying from Air Photographs* (London).

A partial list of the handbooks and annuals appearing during the year is as follows: *Handbuch der wissenschaftlichen und angewandten Photographie*, edited by A. Hay, 9 vols. (Vienna). Volumes issued during 1930 were vol. ii on *Die photographische Kamera und ihr Zubehör*, by K. Pritschow; vol. vi, pt. 1, *Stereophotographie, Astrophotographie. Das Projektionswesen*; *British Journal Almanac* (London); *American Cinematographic Annual* vol. ii (Hollywood); *Kinematograph Year Book* (London); *Year Book of Motion Pictures* (New York); *Motion Picture Almanac* (New York); *Soviet Photo Almanac* (Moscow); *Deutsche Kamera Almanach* (Berlin); *Photofreund Jahrbuch, 1931-32* (Berlin).

**PHOTOPLAYS.** See MOTION PICTURES.

**PHYSICAL ANTHROPOLOGY.** See ANTHROPOLOGY.

**PHYSICAL CHEMISTRY.** See CHEMISTRY; PHYSICS.

**PHYSICS.** An impressive aspect of physics during the year was the thoroughgoing survey of the spectral field to round out our knowledge of the energy levels which promise so much for the physical interpretation of the structure of the atom. The vast volumes of wave length data and diagrams in which the least item may be of profound significance represents devotion to routine measurements equaled but not surpassed by the volumes of star positions which to-day make possible the interpretation of cosmic structure and evolution.

Not less striking is the diffusion of the new note of uncertainty, even in spectroscopy, in which precise measurements had given so sound a basis for theory. Before the British Association, General Smuts stated that "Science, envisaging a solid world ruled by definite and determinable forces, is a fallen God." He held that the new view breaks the grip of rigid deterministic law and thus better suits the common belief in at least some measure of free will. Probability enters the field to usurp rigid determinism to such an extent that some doubt the validity of the second law of thermodynamics. Lewis's new theory involves the "Fluctuations" from probability, as a basis, stating that we cannot ignore even systematic departures ("fluctuations") from the perfect regularity of probability. He postulates that the mode of communication between two systems does not affect the distribution of energy or matter between such systems.

Tolman affirmed that the second law is so changed in the relativistic world that a model universe may expand and contract over and over without reaching a point where there is no more energy to use.

Bancroft stated that new discoveries do not easily enter general credence but must be engineered into understanding, belief, and application. He recited cases. At present, when the popular mind seems almost too credulous, physicists engage in speculation which might have astonished

even Tyndall, to whom imagination seemed so necessary for scientific discovery. For example, our expanding universe doubling its radius in a billion and a half years with explosive velocities above 10,000 miles per second suggests varied destinies. Some hold that at a critical distance it may explode, others that it may reverse and shrink, while still others believe that the expansion of distant systems will continue "forever" at a steadily increasing rate until the velocity of light is attained.

Takeuchi discusses a spherical universe having a radius fixed by a function having a constant determinable from the recession speed for distant objects and also by the estimated rate at which matter is turned into radiation. Both methods gave the same value for the constant.

Hubbell and Humason suggest that the nebular red shift may be due to the "fatigue" of light quanta. If the quantum is reduced by imperfect transmission through space, the lowered quantum energy may automatically lengthen the wave according to Einstein's  $E = h\nu$  relation. The observational constant in the shift formula is  $H = 100 \times 10^2$ , which correlates with universal constants of nature more fully than would be expected if it is assumed to represent a relationship due to mere chance. Lancos gave out a new mathematical theory for the unification of the laws of gravitation and those of electromagnetism based upon "the universal principle of least action."

Shapley recited obstacles which evokes human ingenuity in the study of nature—that the mind is too feeble to comprehend the universe, that the universe is too large for our available devices, that such fact-finding aids to our senses are not powerful enough to survey the far reaches our reason tell us exist, that funds are lacking, that our air is too dusty, that cosmic clouds hide the brilliant centre of our galaxy, that human life is too short, and cosmic processes too slow. These obstacles call forth man's genius to create physical procedure to do by indirection what he cannot do directly.

The artificial transmutation of the atom, first achieved by Rutherford in 1919, is now a matter of laboratory routine. A most striking case during the past year was Bothe's transmutation of beryllium into carbon. A high speed alpha particle of mass 4 and positive charge 2, ejected from polonium, was buried in the atomic nucleus of beryllium. The atomic weight, 9, of the beryllium nucleus was thus increased by 4, giving the new atom the weight of 13; the positive charge, 4, of the beryllium nucleus, was thus increased to 6, making the new atom an atom of carbon, a true synthetic isotope of carbon of atomic number 6, mass 13. The ultra gamma waves produced proved to have more energy than the impinging alpha particle, indicating that true energy sources exist within the atom as forecast in 1904-5 by Einstein and Le Bon, thus settling a controversy of years standing in atomic physics.

Chadwick, Constable, and Pollard bombarded atomic nuclei with alpha particles from polonium and found evidence that intra-atomic energy is quantized. Anderson and Millikan reported that atomic nuclei can easily be altered and that they have successfully accomplished it. Numerous attempts are being made to produce sufficiently high voltages to smash the nucleus or alter it. Brasch and Lange of the University of Berlin



have used natural lightning flashes (as high as 30,000,000 volts) in their experiments on atomic nuclei. One X-ray tube withstood 2,600,000 volts, being constructed of alternate rings of paper, rubber, and aluminum. Brasch and Lange at Mt. Generoso were planning to use natural lightning to operate an X-ray tube carrying 7,000,000 volts (2,000,000 higher than any artificial voltages produced in the laboratory).

In England powerful electromagnets were being used to tear the atomic nuclei apart. Pokrowski, using 140,000 volts, had broken down the nuclei of lead atoms and induced radioactivity in them. The Research Foundation was aiding Van de Graaf of Princeton in a new type of high voltage generator, static electricity being evolved by silk belts—the first model developing 1,000,000 volts. It was hoped to produce 20,000,000 volts in the finished apparatus.

Gamow's studies of the constitution of atomic nuclei in the light of radioactivity phenomena and energy levels within the nucleus were published in book form under the title *Constitution of Atomic Nuclei and Radioactivity*. Data already acquired in this field permit predictions. "For example," says Gamow in the closing sentence of his book, "we can see from the curves that a large gain of energy may be expected when an alpha particle is ejected and a proton captured by the nuclei of the  $4n-3$  type ( $\text{Li}$ ,  $\text{B}_{11}$ ,  $\text{F}_{19}$ ), whereas with nuclei of the  $4n-2$  type this would mean a loss of energy." The complete analysis of all atoms and their isotopes to chart their total protons and electrons has brought interesting results and predictions in the light of the significance of the stable tetrahedral structure of the alpha particle as a building unit of atomic nuclei.

Urey, Murphy, and Brickwedde reported the discovery of hydrogen isotope of mass 2, the existence of which was indicated both from theory and by the mass spectrograph. The separation of the new isotope was made by evaporating hydrogen at  $434^\circ$  below zero, Fahrenheit. The increased share of the nucleus in radiation involves a new series of Balmer lines based upon the change in the Rydberg constant. This was quantitatively attributable only to hydrogen atoms of mass 2. The achievement is unique in that it involves doubling the nuclear mass of an atom. The last specimen was in the ratio of about 1:800. An ionized hydrogen molecule of mass 2 and charge 1 would assume the configuration proton-electron-proton which may well form the nucleus of the new isotope.

Various reports were current as to the discovery of elements 85 and 87. Papish reported the discovery of element 87 and described its properties—that it is insoluble, inflammable, light-sensitive. Whether or not these were observed or predicted from theory is not stated. He stated that the X-ray spectrum lines (not published) confirm his discovery. From theory it would be expected to have the lowest ionization potential and the largest atomic radius. Allison of Alabama Polytechnic Institute reported finding elements 85 and 87 by means of the Faraday effect, stating that the method was extremely sensitive. The method itself had previously been published. The discovery of element 61 at the end of the year awaited confirmation.

The cosmic rays were estimated by Millikan as of strength equal to the total radiation from the stars. Anderson and Millikan, using cosmic

rays (energy  $10^8$  to  $3 \times 10^8$ ) as laboratory tools, bombarded oxygen and nitrogen nuclei and ejected electrons at 99.9 per cent of the velocity of light, and protons at half the velocity of light.

Anderson produced photographs of high speed particles from atom nuclei disrupted by cosmic rays from interstellar space. One trace shows an electron of 140 million volts energy, the other shows a positive charge particle, probably a proton, of about 70,000 volts energy. The curve is produced by the influence of a powerful magnetic field of 17,000 gauss. They are made visible by water vapor, condensed by the passage of the rays.

Meggers published the first analysis of the arc spectrum of rhenium, finding, as expected, the effect of nuclear asymmetry in fine structure characteristic of odd values of the atomic numbers. He covered the range from 2100 to 8800 angstroms, the rare ultimate being 3460.47 angstroms.

Simultaneously in Japan and in Germany were published independent solutions of the hyperfine structure of mercury line 4048.50. The Murakawa report was accompanied by excellent graphic figures which clarify the somewhat complex explanation. He found that the even isotopes were without nuclear moment, and that the odd isotopes 199 and 201 had nuclear moments of  $1/2$  and  $3/2$ , respectively. This simple assumption gives a clear, complete, and concise explanation of the observed fine structure. Schlüter and Keyston report in much more detail the same conclusion in a similar paper in which diagrams of energy levels are made especially clear.

Of outstanding importance in the year's contribution to physical technique was a new dye for sensitizing photographic plates to deep infrared radiation. Plates are made up and used immediately since the life of the freshly sensitized plate is short. The maximum sensitivity is at about 9600 angstroms, and excellent spectrograms were made as deep in the infra-red as 12,000 angstroms. In this range are many important spectral lines needed to complete the analyses of spectral lines in the systematic survey of the entire field of spectra.

Raman's cablegram reporting that he had obtained experimental proof of the spin of the photon created somewhat of a sensation in physical circles. His paper in the *Indian Journal of Physics* stated that "the ratio of the energy to the linear momentum of the quantum determines the velocity of light while the ratio of the energy to spin determines its frequency." He added that "the energy, momentum, and spin of the photon have their counterparts in the Maxwellian field theory and, indeed, may be regarded as a translation into the language of the quantum theory, of ideas derived from the classical electrodynamics."

In simple scattering the rotational quantum number  $K$  of the molecule obeys the rule  $\Delta K = 0$  or  $\pm 2$ . A photon spin  $+\hbar/2\pi$  may remain unchanged, or change to  $-\hbar/2\pi$ , while a proton spin  $-\hbar/2\pi$  may remain unchanged or change to  $+\hbar/2\pi$ . The change in the quantum is thus 0 or 2 Bohr units. In the interchange of energy between the photon and the molecule, Raman's experiments and measurements are "clearly decisive in favour of the spin theory." This discovery, if confirmed, widens the gap between the quantum concept and the wave theory,

and adds to the evidence that light is corpuscular.

The quantum is the subject of many papers and much speculative study. The quantum is opposed to continuity and yet the space-time continuum is an achievement of relativity physics. Eddington portrayed vividly the paradox of the quantum. While a quantum of light is large enough to fill the lens of a 100-inch telescope, it is small enough to enter an atom. It may spread like a circular wave through the universe, but when it hits its mark, this cosmic wave instantaneously contracts to a point, where it strikes with its full and undivided force.

Podolsky, Einstein, and Tolman announced the astonishing opinion that "The principles of quantum mechanics would actually impose limitations on the localization in time of a macroscopic phenomenon such as the opening and closing of a shutter." They cite a model, suggesting the quantization of large scale phenomena. Connan suggests that photons may form protons and electrons if the frequency is high and the space cold enough and the density great, by a photochemical reaction.

Dumond confirmed the motions of negative electrons in solids by measuring the Doppler effect which increases the spread or scattering of transmitted X-rays, and gave the average speed of the orbital electrons of the carbon atom as 1500 miles per second.

Rogowski focuses electrons by an extra coil between the diaphragm and cathode, obtaining a very bright spot on the zinc sulphide screen, of 50-candles intensity. He records the oscillations of a very short wave with a "writing speed" of about a third the speed of light, this being at present the limiting speed since the electron mass increases rapidly at higher speeds.

Mourontseff found that electrons in an electron tube complete their passage in one six-hundred-millionth of a second. A bullet would take 60 times this period to travel through the paper on which this is printed, and it would take sound 6000 times longer to travel an inch.

For experimental physics and for industry and technology epochal achievements were to be credited to the electron tube, including the photo-electro cell, the triode and its companions, the X-ray tube, and the cathode-ray tube, in all of which the electron is the active agency. Tubes are now made of 500 kilowatt capacity. Photoelectric cells are finding countless uses in science, and industry, continuously and automatically controlling processes and measuring products without contact, without moving parts, replacing human scrutiny, toil, and handling where once mechanization seemed impossible. Almost every property or condition of a product can alter the characteristics of a circuit especially at high frequencies. Hence we can measure the changes in the circuit and thus deduce the changes in the product.

The extension of the uses of the electron in science, technics, and industry is a phenomenon of present day achievement. A low-grid-current tube with a thyatron or similar tube amplified a current ten thousand million million times to control one-tenth of an ampere directly. Sutherland discussed grid-current measurements, stressing the need of high insulation and describing a photo tube and single amplified tube unit which would operate a relay that would act directly for a period of years.

The lightest known unit is the electron, and the most mobile, capable of speeds almost as great as the velocity of light. The electron detects, counts, records, measures, controls, and regulates, and the electron tubes in which it operates may fitly be named "The Aladdin's lamps of industry." Among its numberless new uses is the control of carton wrapping, of the cutting of steel bars, of mine hoists, sorting beans by color, counting butter cartons, sending and delivering automatically mail bags to predetermined destinations, sorting letters into 100 compartments at the rate of a hundred a minute, sorting tabulating machine punched cards, stop-control of dangerous machinery which will not operate if any part of the operator is in the danger zone, similar control for elevators, and so on through a well-nigh endless list.

A notable contribution to electron tube design is the new Hund tube of great simplicity which operates cold, without vacuum, without filament, and amplifies, modulates, detects, and serves as oscillator, with seemingly indefinite life.

Mecke finds that at 50 kilometers altitude the concentration of ozone is about  $2 \times 10^{-4}$  compared with  $10^{-8}$  on the earth's surface.

The Carnegie Institution devotes constant effort throughout the world to measure the magnetic elements. Recent results confirm the striking similarity in the curve of terrestrial magnetic activity and the relative number of sun spots. The favored theory is that streams of particles from the sun affect the upper layers of the atmosphere, causing aurora and magnetic storms. As the sun turns it brings the same aspect facing the earth every 27 days. The correlation shows this period distinctly, connecting the spot and facular activity in the sun with terrestrial storms. The Carnegie results cover a world-wide front in the field of terrestrial magnetism. Its instruments are used of a sensitivity such as to be responsive to trolley lines five miles away.

Sotome reported that his measurements of calcium flocculi on the sun showed a higher correlation than sun spots in relation to total solar activity. He found that the central zone affects the sun's radiation especially and that Abbot's solar constant corresponds to actual solar activity. Schostakowitsch discussed periodicities involving solar activity revealed by the sunspot cycle with respect to geophysical, biological, economic, and social cyclical changes. In accordance with modern theory Armellini found that the diameter of the sun had increased by 1 second of arc in the period from 1925 to 1930, in proportion as the energy produced is greater than that radiated.

Radio showed the expected improvement as the 1932 minimum of the sunspot cycle was nearing. The cathode ray tube was expected to become the screen of the home movies shortly. The cathode scanning system gives a weightless moving system which makes it most suitable for the high frequency (quasi optical) waves which give great promise of use in television or visual broadcasting.

Olsen announced a new ribbon type microphone, a light metallic ribbon hanging freely in a magnetic field accessible to air vibrations. This has a sense of direction, and a plane of zero sensitivity in which the camera director and other disturbing noise sources may be placed without affecting the sound recording. At the Munich Congress of Electrical Music, instru-

ments were demonstrated by true audio-frequency oscillations produced electrically.

Recent advances in the measurement of sound intensities are adding precision to the entire system of sound recording, transmission, and reproduction of motion pictures with sound, and radio, both audio and visual. A range of 60 decibels on sound recording films is possible (a decibel being the least perceptible change in loudness). A fair-sized theatre may be given the illusion of a large-sized orchestra with a 20 decibel level, while a 30 decibel level will simulate gun fire, according to Hansen.

The establishment of the American Institute of Physics marks a great step forward. Physics now has three journals: *Review of Modern Physics*, *The Physical Review*, and *Physics—A Journal of Applied Physics*. The first gives "comprehensive, authoritative, and timely discussions of the current problems of special interest." The second continues as the American journal of experimental and theoretical physics. The third is conducted to expand physics in its rôle as the science "basic to other natural sciences and to the arts and industries." These three journals are published by the American Physical Society.

Nobel prize (q.v.) was awarded C. R. Bergius and Carl Bosch for the development of hydrogenation processes for liquefying coal to produce motor fuels, lubricating oils, methanol, and other substances.

The Frederick Ives Medal was awarded to Theodore Lyman for his researches in the ultraviolet spectrum of hydrogen.

The upper air is a physical laboratory in which nature's own experiments are being observed. During the year the stratosphere was reached by two investigators demonstrating that, suitably housed, life can exist and vehicles travel in regions 10 miles up and higher. A German and a French plane were being designed for speeds of 500 miles an hour for stratospheric flight in this region. A device to record continuously and automatically the height of the Kennelly-Heaviside layer is a new aid in the physics of high altitudes. Rocket designers have active projects of reaching the stratosphere and the higher regions to sample the atmosphere and to demonstrate the feasibility of long range rocket flight.

Thus physics extends its field into the heart of the atomic nuclei, to the farthest perceptible universe, to the highest atmosphere; and its theories, laws, methods, and devices are fast making it a master science, reconstructing all industries and sciences. See ASTRONOMY; CHEMISTRY; METEOROLOGY.

**BIBLIOGRAPHY.** The year was productive of new books in the field of physics. A few may be cited here. Jeffrey's *Scientific Inference* describes the formulation of generalizations from facts, and shows how conclusions may with high probability outstrip the measured data. Ross in his *Science, Matter, and Time* gave results of experiments testing some original points of view. Loeb outlined the current theories of gas behavior in his new work *The Nature of a Gas*. Brownell surveyed the general field of physical science in his new book entitled *Physical Science*. Planck's *The Universe in the Light of Modern Physics* proved to be his personal interpretation and exposition of recent physical theory.

Gregory published *A Short History of Atomism*, covering the subject from the earliest times.

Rabinowitsch and Thilo, in their *Periodisches System*, review the rise and development of the periodic system, the structure of the nucleus, spectroscopic basis for electronic structure, including wave mechanics, properties of the elements as related to their position in the periodic system, and finally the periodicity of properties which give it the name *Periodic System*. Style, in his *Photochemistry*, describes the quantum theory of light absorption, especially by molecules, basic laws of photochemistry, secondary processes, and the relation between quantum yield and temperature and pressure. Hill's *Adventure in Bio-Physics* reviews measurements of the energy balance in bodily exercise and sport. Braun's *Flussige Kristalle und Lebewesen* is unique in giving only the opinions and views of the 57 authors whose 172 papers in the field of liquid crystal phenomena are here abstracted. Gortner calls it "a new type of a book." The work deals with the rôle of liquid crystals in living processes.

**PHYTOPATHOLOGY.** See BOTANY.

**PIANISTS.** See MUSIC.

**PIERS.** See BRIDGES; FOUNDATIONS.

**PIGS.** See LIVESTOCK.

**PILSUDSKI, J.** See POLAND under *History*.

**PISTOL SHOOTING.** See SHOOTING.

**PITTSBURGH, UNIVERSITY OF.** A nonsectarian institution of higher education for men and women in Pittsburgh, Pa., founded in 1787. The total autumn enrollment for 1931 was 11,041, distributed as follows: College, 1933; engineering, 610; mines, 121; business administration, 660; education, 1054; Johnstown Junior College, 755; Erie Centre, 553; Uniontown Centre, 239; graduate school, 1210; downtown division, 2736; medicine, 265; law, 378; pharmacy, 230; dentistry, 284; retail training, 13; extension division, 1392. The 1931 summer session enrollment was 4007. There were 985 members on the faculty for the year ending June 30, 1931. The amount of endowment was \$2,032,555, and the income from endowment during 1930-31 was \$110,070. There were 144,703 volumes in the library. The Falk Clinic was dedicated and the Fanny Edel Falk Elementary School was opened in the autumn of 1931. Chancellor: John G. Bowman, LL.D.

**PITTSBURGH, BRIDGES AT.** See BRIDGES.

**PLANET PLAN.** See CHILE under *History*.

**PLANETS.** See ASTRONOMY.

**PLANKTON.** See ZOOLOGY.

**PLANT FOOD.** See FERTILIZERS.

**PLANT PHYSIOLOGY.** See BOTANY.

**PLANT QUARANTINES.** See HORTICULTURE.

**PLATINUM.** The platinum refiners of the United States in 1930 purchased 797 ounces of crude placer platinum of domestic origin and 44,765 ounces of foreign crude platinum, according to the U. S. Bureau of Mines. In 1929 the refiners purchased 516 ounces of domestic crude platinum and 51,618 ounces of foreign crude platinum. Domestic material purchased in 1930 included 513 ounces from Alaska, 236 ounces from California, 10 ounces from Oregon, and 38 ounces from unspecified sources. Refined platinum metals recovered in 1930 from crude platinum, from ore concentrates, and from gold and copper refining amounted to 43,502 ounces, of which 9308 ounces was reported to have come from domestic materials. During the year there was formed a British corporation, Consolidated Plat-

inums, Ltd., for marketing Russian, South African, Colombian, and Canadian platinum. In Canada platinum is a by-product of nickel refining.

The price of platinum in New York, which had fallen in 1930 from an average of \$61.923 per ounce in January to \$36.00 at the end of December in that year, continued to decline until May, 1931, when the average for the month was \$24.980. June witnessed an improvement with an average price of \$37.115 per ounce while in July and until the end of the year \$40 per ounce was the ruling price. Imports of platinum in 1931 were less in value and amount than in 1930. The 1931 imports of grain, nugget, sponge, and scrap totaled 67,078 ounces valued at \$1,905,062, while ingots, bars, sheets, and plates totaled 23,553 ounces valued at \$657,413. The 1930 corresponding imports were 81,229 ounces valued at \$3,363,858 and 24,926 ounces valued at \$961,334.

**PLAUTUS.** See PHILOLOGY, CLASSICAL.

**PLAYGROUND AND RECREATIONAL ASSOCIATION OF AMERICA.** See NATIONAL RECREATION ASSOCIATION.

**PLAYS.** See THEATRE; LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; GERMAN LITERATURE; ETC.

**PLUMS.** See HORTICULTURE.

**PLUNKETT,** REAR ADMIRAL CHARLES PESHALL, U. S. N. RET. An American naval officer, died Mar. 25, 1931, in Washington, D. C., where he was born Feb. 15, 1864. He was graduated from the U. S. Naval Academy in 1884, and was promoted through the grades to rear admiral in 1919.

During the World War he was director of gunnery training and engineering and also commanded the 14-inch naval railway batteries operating with the French and American armies along the Western front. He commanded the destroyer force of the United States Fleet from January to July, 1919, and the destroyer squadrons of the Atlantic Fleet from July, 1919, to November, 1920. He was also in charge of all operations of the flight of the Navy N-C planes across the Atlantic in June, 1919. During 1920-21 he was chief of staff at the Naval War College and during 1921-22, president of the Board of Inspection and Survey. In December, 1922, he assumed command of the 3d Naval District and Navy Yard, New York, where he continued until his retirement in 1928. He received the Distinguished Service Medals of the United States Army and Navy, and was made a Commander of the French Legion of Honor.

**PNEUMONIA.** See MEDICINE, PROGRESS OF. **"POCKET BATTLESHIPS."** See NAVAL PROGRESS.

**POETRY.** See FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LITERATURE, ENGLISH AND AMERICAN; PHILOLOGY, MODERN. **SPANISH-AMERICAN LITERATURES;** **SPANISH LITERATURE;** **PHILOLOGY, CLASSICAL.**

**POLAND.** A European republic formed Nov. 9, 1918, as a result of the World War. Capital Warsaw.

**AREA AND POPULATION.** With a area of 149,958 square miles, Poland had a population at the census of Dec. 9, 1931, of 32,120,020 (preliminary returns). At the census of 1921, the population was 27,176,717. For the period 1925-29 inclusive, the average annual number of births per 1000 of population was 33.2, the average annual number of deaths was 17.3, and the

natural increase was 15.9. In 1929, when the excess of births over deaths was 468,140, there were 243,442 emigrants, most of whom went to Germany, France, Canada, Argentina, and the United States. Emigration in 1930 totaled 218,387, of whom 9231 went to the United States. The largest cities, with the census population of Dec. 9, 1931, and the 1921 census population in parentheses, were: Warsaw (Warszawa), 1,178,211 (930,713); Łódź, 605,287 (451,974); Posen (Poznań), 240,574 (184,758); Lemberg (Lwów), 316,177 (219,388); Cracow (Kraków), 221,260 (183,706); Wilno (Vilna), 197,049 (128,954 in 1919); Katowice, 127,841 (104,868). Poles formed 69 per cent of the population in 1921; Ruthenians, 15 per cent; Jews, 8 per cent; White Russians, 4 per cent; Germans, 3 per cent; and other nationalities, 1 per cent.

**EDUCATION.** During 1929-30 there were 26,577 elementary schools, with 77,338 teachers and 3,715,041 pupils; 759 secondary schools, with 14,279 teachers and 203,387 pupils; 214 teachers' training schools, with 1931 teachers and 35,515 students; and 731 professional schools, with 84,298 students. Universities and high schools in 1929-30 numbered 20, with a total of 45,060 students. The principal universities were: Warsaw, 9121 students; Cracow, 6061; Lwów, 6100; Posen, 4163; Wilno, 3416; and Lublin, 584.

**PRODUCTION.** Poland is predominantly agricultural, although there are numerous important industries. In 1930, 63.8 per cent of the population was engaged in agriculture, forestry, or fishing; 15.4 per cent in mining and industry; 9.5 per cent in trade and transportation; and 11.3 per cent in other occupations. Of the total area of Poland in 1931, cultivated land comprised 48.6 per cent, forest 24.1 per cent, pastures and meadows 15.3 per cent, and waste land 10.4 per cent. Nearly 60 per cent of the arable land was devoted to cereals. The area and production of the principal crops in 1929 and 1930 are shown in the accompanying table from the *Commerce Yearbook* for 1931.

#### POLISH CROPS: ACREAGE AND PRODUCTION

Crop	Area <sup>a</sup>		Production <sup>b</sup>	
	1929	1930	1929	1930
Wheat .....	3,526	4,066	65,861	82,321
Rye .....	14,328	14,567	275,964	273,928
Barley .....	3,110	3,048	76,235	67,238
Oats .....	5,416	5,404	203,451	161,737
Corn .....	218	232	3,752	3,425
Potatoes ...	6,513	6,602	1,166,585	1,135,447
Sugar beets .	590	457	4,970 <sup>c</sup>	4,717 <sup>c</sup>
Beet sugar <sup>d</sup> .	...	...	916 <sup>c</sup>	760 <sup>c</sup>
Linseed ....	289	285	3,173	1,736
Flax .....	289	285	144,849 <sup>e</sup>	130,697 <sup>e</sup>
Forage roots .	525	641	4,983 <sup>c</sup>	5,980 <sup>c</sup>

<sup>a</sup> Thousands of acres.

<sup>b</sup> Thousands of units—bushels except as indicated.

<sup>c</sup> Unit, metric ton.

<sup>d</sup> Seasons ended following year.

<sup>e</sup> Unit, pound.

The mineral production in metric tons in 1930, with 1929 figures in parentheses, was: Bituminous coal, 37,520,000 (40,236,000); lignite, 54,980 (74,000); crude petroleum, 662,763 (674,089); salt, 388,000 (509,488); potash, 298,000 (358,628); iron ore, 477,949 (705,532); steel, 1,237,497 (1,376,713); and zinc, 174,362 (169,029). The output of natural gas was 486,504,000 cubic meters (467,084,000 in 1929). The chief industrial products are cotton and wool textiles, paper and paper manufactures, chemicals, timber, iron, and refined petroleum. Petroleum refining

is of increasing importance, as is sugar refining. In 1929-30, 70 sugar refineries produced 824,300 metric tons. Virtually all industries were adversely affected by the economic depression of 1930-31, but the textile mills showed increased activity in 1931. The number of registered unemployed workers, including office workers and unskilled laborers, reached a peak of 372,536 in April, 1931. See UNEMPLOYMENT.

COMMERCE. The economic depression resulted in a drastic curtailment of Polish foreign trade in 1930, imports being 28 per cent and exports 13.5 per cent lower in value than in 1929. Imports in 1930 amounted to 2,245,973,000 zlotys (1 zloty equaled about \$0.1122), compared with 3,110,979,000 zlotys in 1929, while exports aggregated 2,433,244,000 zlotys, against 2,813,359,000 zlotys in the previous year. The visible balance of trade, which was unfavorable by 297,620,000 zlotys in 1929, became favorable by 187,271,000 zlotys in 1930, due to the sharp decline in imports. Part of the decline in foreign-trade values was attributable to lower price levels, but the volume declined also. In 1931, according to preliminary data, imports totaled 1,462,500,000 zlotys and exports 1,878,400,000 zlotys, leaving a favorable trade balance of 415,900,000 zlotys.

Polish imports in 1930 came chiefly from Germany, which furnished 26.8 per cent of the total (27.4 per cent in 1929); the United States, 12.2 (12.4); Great Britain, 7.9 (8.5); Czechoslovakia, 7.5 (7.3); France, 6.8 (6.9); Austria, 5.7 (5.9); Switzerland, 3.8 (3.3); Italy, 3.1 (2.6); and the Soviet Union, 2 (1.2). Germany, Czechoslovakia, Austria, and Great Britain were the principal purchasers of Polish exports. The United States in 1930 sold Poland directly goods valued at \$30,400,000 (\$43,000,000 in 1929), according to Polish statistics, and purchased Polish exports valued at \$2,838,000 (\$4,853,000 in 1929).

FINANCE. In the budget for the fiscal year commenced Apr. 1, 1931, as passed by Parliament, total receipts were estimated at 2,866,700,000 zlotys (1 zloty equals \$0.1122 at par) and expenditures at 2,865,900,000 zlotys, leaving an estimated surplus of 800,000 zlotys. The largest expenditure items were: Minister of War, 830,200,000 zlotys (29.2 per cent of the budget); public debt service, interest, and amortization, 315,100,000 zlotys (11 per cent). At the end of the first half of the 1931-32 fiscal year, expenditures exceeded receipts by 124,340,000 zlotys.

Actual total receipts for 1930-31 were 2,747,850,000 zlotys and actual expenditures were 2,809,600,000 zlotys, compared with the budget estimates of 3,038,700,000 zlotys and 2,975,400,000 zlotys (including supplementary credits of 34,500,000 zlotys), respectively. The actual deficit of 53,440,000 zlotys was covered out of funds of the Treasury Reserve accumulated during previous years. These reserve funds totaled 300,000,000 zlotys after the transaction. The 1929-30 budget operations yielded a surplus of 20,769,000 zlotys.

Approximately 36 per cent of the foreign debt was held in the United States, largely in the form of long-term government loans. Funds raised in France, which ranked next in volume, were invested chiefly in Polish enterprises. Translated into dollars, the public debt on July 1, 1931, amounted to \$572,944,496, or about \$15.25 per capita, of which \$525,644,496 represented the foreign and \$47,300,000 the domestic debt.

COMMUNICATIONS. At the beginning of 1930

there were 15,132 miles of state-owned railway lines in operation, of which 10,707 miles were main and 1425 miles narrow-gauge lines. The operating revenue of state lines in 1929-30 was 1,621,851,000 zlotys and operating expenses were 1,586,523,000 zlotys. Highways in 1931 extended 141,039 miles, of which 32,752 miles were surfaced and 108,228 miles were earth and sand-clay. There were also about 1875 miles of navigable waterways, of which 298 miles were accessible to vessels of over 400 tons.

Shipping traffic through the new Polish port of Gdynia during 1930 was approximately half that carried on through Danzig (q.v.). A total of 5078 vessels of 4,143,000 net registered tons entered Danzig and 6086 vessels of 4,143,000 tons cleared, compared with entrances of 2238 vessels of 2,031,000 tons and clearances of 2219 vessels of 2,015,000 tons at Gdynia. In 1931, traffic through Gdynia again showed a marked increase, while that through Danzig declined slightly as compared with 1930.

GOVERNMENT. Under the constitution adopted Mar. 17, 1921, executive power is vested in the President, chosen by both houses of the National Assembly for a period of seven years; and legislative power is vested in the National Assembly, consisting of the Senate of 111 members and the Diet (444 members), called the Sejm, both elected by universal suffrage. President in 1931, Ignace Moscicki elected June 1, 1926. The Cabinet appointed Dec. 5, 1930, included the following: President of the Council of Ministers (Premier), Walery Slawek; War, Joseph Pilsudski; Foreign Affairs, August Zaleski; Finance, Ignacy Matuszewski. The composition of the Sejm (lower chamber) following the election of Nov. 16, 1930, was: Government bloc, 247; National People's Union, 62; Peasant party, 48; Socialists, 24; Ukrainians, 17; Christian Democrats, 15; National Labor, 10; Jews, 6; Germans, 5; Communists, 4; other parties, 6; total, 444. Out of 111 members of the Senate, the Government bloc controlled 74; the National People's Union, 12; Peasants, 6; Socialists, 5; Ukrainians, 4; Christian Democrats, 4; Germans, 3; other parties, 3.

#### HISTORY

INTERNAL DEVELOPMENTS. The storm of political agitation which raged through 1930 subsided markedly during the following year. The parliamentary *impasse*, which had provoked unrest, was ended by the defeat of the Opposition in the elections of November, 1930, and the Government bloc pushed through without difficulty legislation designed to mitigate the effects of the economic depression. With the Sejm functioning normally in accordance with his views, Marshal Pilsudski's dictatorship became less obtrusive, although he remained the unchallenged ruler of Poland.

The Slawek Government at the beginning of the year found itself under heavy fire in connection with the imprisonment of many Opposition deputies at Brest-Litovsk during the 1930 election campaign. Defending the Government's action before the Sejm on January 24, the Premier denied charges of maltreatment of the prisoners and said that their arrest was necessary to prevent a planned *coup d'état*. The Premier's statement was sustained, and an Opposition motion for an investigation defeated, by a vote of 233 to 150. The defendants were released after two months in Brest-Litovsk prison, but 11 of the most prominent were brought to trial in Warsaw.

October 26, on a charge of plotting to overthrow the Republic by force. Among the defendants were former Premier Witos, the former Cabinet Minister Norbert Barlicki, Vladislav Kiernik, and Herman Lieberman, all leaders of the Socialist and Peasant parties. The trial, conducted by a tribunal of four professional judges, was still under way at the end of the year. Over 250 witnesses were heard.

The two main problems confronting the Government at the spring session of Parliament were the revision of the Constitution in line with Marshal Pilsudski's demand for the centralization of power in the hands of the executive, and the balancing of the budget. The projected constitutional changes provided for the election of the President by direct popular vote from two candidates, one designated by the two houses of Parliament and the other by the retiring President. His greatly increased powers would include the right to convene and dissolve Parliament, to appoint Ministers and judges and one-third of the Senators, to sign and ratify treaties without approval by Parliament, to issue decrees with the force of law, and to veto bills. Parliament would retain the right to overturn a Ministry by an absolute majority, but the Ministers would be responsible to the President as well as to the Sejm.

In the debate which opened in the Sejm in March, the Government bloc contended that the existing Constitution (promulgated in 1921) had been rendered obsolete by Pilsudski's *coup d'état* of May, 1926, and that the subsequent changes should be embodied in the fundamental law. The Opposition parties bitterly opposed the change on the ground that it would perpetuate the principle of dictatorship. While the revision passed its first reading in the Sejm in March, the Government was unable to muster the needed two-thirds majority to secure its final adoption.

Meanwhile the economic crisis was resulting in a sharp curtailment of revenues. Marshal Pilsudski returned from a four-months' vacation at Madeira, March 29, to aid in drafting economy measures, which Premier Slawek had hesitated to enact without his chief's approval. While declaring that the balancing of the budget was the Government's first duty, the Marshal, in the absence of the Finance Minister, ordered the distribution of a 15 per cent bonus to the 17,000 army officers. On May 1, however, the Ministry put into effect an economy programme which canceled the bonus and reduced by 15 per cent the salaries of all Government employees. Despite the Finance Minister's protests, Pilsudski on May 10 ordered the War Office to refund the deducted pay of army officers and soldiers and to make no reductions in the future. In subsequent conferences with the Premier and Finance Minister Pilsudski finally consented to a 5 per cent reduction in the army's pay. The position of the two Ministers had been weakened, however, and on May 26 the entire Ministry resigned.

The following day Col. Aleksander Prystor, the closest friend of the Marshal, formed a new Cabinet as follows: War, Marshal Josef Pilsudski; Interior, B. Pieracki; Foreign Affairs, Senator August Zaleski; Finance, Jan Pilsudski; Justice, C. Michalowski; Industry and Commerce, Gen. F. Zarzycki; Agriculture, Dr. L. Janta-Polczyński; Agrarian Reform, Prof. L. Kozlowski; Religion and Education, J. Jedrzejewicz; Labor and Social Welfare, Gen. S. Hubicki; Communica-

tions, Alfred Kühn; Public Works, M. Norwid-Neugebauer; Posts and Telegraphs, J. Boerner.

A new economy programme was announced by the Finance Minister June 16. Expenditures for the year 1931-32 were to be cut by some 390,000,000 zlotys to about 2,470,000,000 zlotys (approximately \$272,000,000). The income of civil servants was to be further reduced by the cancellation of allowances for rent and other extras. Five of the country's 13 Provinces and the three Ministries of Agrarian Reform, Public Works, and Posts and Telegraphs were to be abolished, thus allowing for the discharge of nearly 70,000 out of the 487,000 public employees. All capital expenditures were also to be postponed.

Partly as a result of these economies and partly because Poland's six-year tariff war with Germany had served to render her independent of the Berlin money market, the country was less affected by the German, Austrian, and British financial crises of the summer of 1931 than any of the central European states. The economic situation grew decidedly worse, however, and the fall session of the Sejm was convoked earlier than usual (on October 1) to consider measures for maintaining the stability of the zloty, and to deal with unemployment and farm relief. Among government measures introduced were proposals for an increase of the income tax, collection of tax arrears in kind from the peasants for distribution among the unemployed, the reduction of child labor, and the prohibition of overtime work.

**UKRAINIAN SITUATION.** Continuation of terrorist activities on the part of secret Ukrainian organizations during 1931 testified to the ineffectiveness of the Polish military punitive expeditions which were sent into Eastern Galicia in the autumn of 1930. With the approach of the September Assembly of the League of Nations, before which the Ukrainian minority leaders planned to lay their case against Poland, the Government took steps to conciliate them in an effort to induce them not to bring the matter before the League. M. Nakoniecznikoff-Klukowski, Governor of Lwów Province, who was responsible for the forcible "pacification" of that region in 1930, was removed in July, his post being filled by the recently resigned Finance Minister, M. Matuszewski. This did not meet the Ukrainian demands, however. They asked for the release of all those imprisoned during the "pacification," reparation for damage done by the Polish military, a long-term agrarian credit, and the formation of one administrative unit in place of the three Eastern Galician Provinces, with a local legislature. Meanwhile terrorist retaliation in Eastern Galicia was believed responsible for the assassination on August 29 at Truskawiec of Tadeusz Holowko, vice president of the Government bloc in the Sejm, who had been negotiating with the Ukrainian leaders.

**GERMAN MINORITY QUESTION.** Poland was severely censured by the League of Nations Council in January and May in connection with the complaints of the German minority in Upper Silesia, Poznań, and Pomerania against Polish outrages during the elections of November, 1930. At the January session of the Council, the Council's committee of inquiry presented a report severely critical of the action of Polish authorities in Upper Silesia. It was pointed out, however, that Poland admitted the rights of the German minority had been infringed and was prosecuting the



offenders. The tardy submission of Poland's reply before the May session of the Council, together with the statement of the Polish representative that Poland would not accept responsibility for new outbreaks in Silesia in case the report was not immediately accepted by the Council, evoked the wrath of Foreign Secretary Henderson of Great Britain, who was presiding. He adjourned the question to the September session, after telling the Polish representative flatly that his Government "cannot rid themselves of responsibility." Poland accepted the rebuke without a word, and the matter was buried for the time being in September (see LEAGUE OF NATIONS).

**THE FRENCH RAILWAY LOAN.** Conclusion in April of negotiations for a French loan for the completion of the Polish Upper Silesia-Gdynia railway line seemed certain to aggravate Polish-German relations over a long period. The new line promised also to modify the economic aspect of Central Europe by providing the Polish Silesian iron and coal area with a direct route to the sea about 100 miles shorter than the existing outlets through Germany. It seemed likely to attract much of the export business of eastern Czechoslovakia, to facilitate the development of the new Polish port of Gdynia, and to consolidate Poland's hold on the Corridor. Naturally, the agreement bound Poland more closely to its alliance with France and strengthened the position of France's allies in Eastern Europe.

As approved by the Sejm April 24 and by the Senate April 27, the agreement granted the *Compagnie Franco-Polonaise de Chemin de Fer* a 44-year concession to complete and operate a double-track line, already partly completed by the Polish Government, from Kattowice in Upper Silesia a distance of about 300 miles to Gdynia. The concessionary company subsequently floated at 1,000,000,000-franc loan (approximately \$39,200,000) on the French market, which was guaranteed by the Polish Government. Poland retained the prior right to purchase the concession after 20 years. It was stipulated that the Polish Government would fix all rates on the railway and exercise an important influence in the selection of personnel, although headquarters of the concessionary company remained in Paris. The concessionary further agreed to refund to the Government the sum of 90,000,000 French francs (about \$3,500,000) derived from the sale of bonds and an additional sum of 12,000,000 French francs (about \$468,000) at the end of each fiscal year, provided the operating account of the railway did not show a deficit.

**ANTI-SEMITIC OUTBREAKS.** Early in November, 1931, there was a recurrence of anti-Jewish hostility in Poland, resulting largely from the agitation of Nationalist university students. Attacks upon Jews reached such proportions that the authorities closed the universities and other educational institutions in Warsaw, Vilna, Cracow, and Lwów for several weeks. By the end of the month the disorders had given place to a fairly widespread economic boycott and social ostracism of Jews. According to the Central Committee of Orthodox Jews of Poland, the Government and the people generally condemned and helped to suppress the disorders. See JEWS.

**WILSON MEMORIAL UNVEILED.** At Poznań (Posen) on July 4, in the presence of President Moscicki, Mrs. Woodrow Wilson, and a great gathering of Polish notables, was unveiled a statue of President Wilson by Gutzon Borglum

presented to the Polish nation by Ignace Paderewski. See SCULPTURE.

**FOREIGN RELATIONS.** Polish foreign relations during 1931 were marked by a continuance of the fundamental Polish-German antagonism over the question of the Polish Corridor, Danzig, and the German minorities. The great military demonstration of the German Steel Helmet organization at Breslau near the Polish border on May 30 and the growth of Hitlerite and Nationalist sentiment in Germany during the year served to aggravate Polish fears of an attempted forceful revision of Germany's eastern boundary (see GERMANY under History). Hostility of Poles and Germans in Danzig (q.v.) grew more bitter and threatened to involve Germany and Poland.

The Danzig situation came before the May session of the League Council, which asked the World Court for an advisory opinion on the status of Polish nationals and persons of Polish origin resident in Danzig (see WORLD COURT). Count Gravina, the League's High Commissioner in Danzig, told the Council that "there is no concealing the fact that Polish-Danzig relations are traversing a serious crisis, the development of which in recent months has been particularly alarming." On October 25, the High Commissioner issued a verdict in the ten-year litigation between Poland and Danzig, which stated that Poland was obliged to use the harbor facilities of Danzig to the fullest extent. Poland interpreted the decision as acknowledging her right to develop the port of Gdynia. On July 12, the Danzig Government appealed to the League to prevent the marching of Polish marines through the streets. The World Court ruled, 11 to 3, on Dec. 11, 1931, that Polish war vessels were not legally entitled to access to the free port of Danzig.

The Polish-German controversy over the Corridor was spurred by Senator Borah's interview with French correspondents during Premier Laval's visit to Washington in October. Senator Borah suggested that conferences between Poland and Germany be held for the peaceful settlement of the boundary dispute. On October 25, Foreign Minister Zaleski announced in an interview that Poland would not discuss the problem of frontiers with Germany. Despite these evidences of rancor, the Sejm on March 12 ratified the trade convention between Poland and Germany signed a year earlier after five years of negotiation. Little was expected of the trade agreement, which was originally designed to promote the exportation of Polish agricultural products to Germany in return for German manufactures. At the same time the Sejm ratified another treaty settling various issues raised by the transfer of German territory to Poland after the World War.

There was little change in the status of the Polish-Lithuanian dispute over Wilno (Vilna). Polish relations with the Soviet Union improved coincidentally with the improvement in relations between France and Russia. On February 13, Foreign Minister Zaleski announced before the Foreign Affairs Committee of the Senate that negotiations for a non-aggression pact with Russia had been under way for some time. By August 23, the negotiations had progressed to the stage of the submission of a Polish trial draft of the treaty to Moscow. The mutual distrust between the two countries was by no means allayed, however. The Soviet Military Attaché at Warsaw returned hurriedly to Moscow July 17, when the

Military Intelligence Service of the Polish Army arrested and executed Major Piotr Demkowski, a Polish officer charged with being a Soviet spy.

**POLAR RESEARCH.** Interest in polar research during 1931 continued at a high level, due to the numerous expeditions in the field, particularly in the Greenland area, and to extensive preparations for an international polar project in 1932. By September of 1931, 14 nations had agreed to coöperate in the 1932 project, organized in commemoration of the 50th anniversary of a similar international undertaking. From August, 1882, to August, 1883, 12 nations coöperated in maintaining special expeditions in both the Arctic and Antarctic, which obtained valuable data on meteorological conditions and terrestrial magnetism. The 1932 expeditions were to remain in the field until August, 1933, and so far as desirable were to reoccupy stations used 50 years earlier. A British expedition planned to return to Fort Rae in Northern Canada. An American expedition, with two airplanes, arranged to establish a base at Fort Conger on Ellesmere Island, within 600 miles of the North Pole.

**ANTARCTIC.** Exploration in the Antarctic during 1931 was carried on by two expeditions. A Norwegian expedition on the *Norvegia*, commanded by Maj. Gunner Isachsen, on Feb. 7, 1931, completed the circumnavigation of the Antarctic Continent in one season. A number of exploratory airplane flights were made from the *Norvegia* by Capt. Hjalmar Riiser-Larsen, who reported the discovery of new land. About 200 miles of coast line, lying some 500 miles southwest of Enderby Land, was claimed for the Norwegian crown and named Princess Ragnhild's Land, in honor of the Norwegian princess.

Sir Douglas Mawson and his British-Australian-New Zealand Antarctic Research Expedition returned to Hobart, Tasmania, in the *Discovery* on Mar. 18, 1931, after extensive explorations along the coast of the Antarctic Continent from the vicinity of the Ross Sea westward to Kemp and Enderby Lands. The ship had sailed from Hobart on Nov. 22, 1930. The season's work resulted in the discovery of new lands, the charting of a considerable stretch of the Antarctic coast, the checking of previous observations, and the collection of a large amount of scientific data. New land was sighted by airplane between longitudes 121° and 128° E., which was named Banzare Land, after the title of the expedition. Further west, at longitude 76° E., more new land was sighted, which was named Princess Elizabeth Land. Landing parties conducted investigations along the coast of the nearby MacRobertson Land, which had been sighted on the *Discovery's* 1930 expedition.

**ARCTIC.** German, British, Danish, and Norwegian expeditions were active in Greenland during 1931. The German expedition of 17 members returned to Berlin Nov. 20, 1931, after a year and a half devoted to an investigation of the Greenland ice cap. They left in an icy grave the body of their leader, Prof. Alfred Wegener, who died in November or December, 1930, while attempting to return to the coast from the central station. His body was found the following May. Among the notable achievements of the expedition was the confirmation of Professor Wegener's theory that Greenland was a great ice-filled bowl instead of a high plateau. Extensive measurements of the ice cap were made and at the centre

of the island, where the altitude was 9850 feet, the ice was found to be 8850 feet thick. Meteorological observations were made throughout the winter of 1930-31 both in the interior and at the coast stations of the expedition. Parker Cramer, American aviator, and Capt. Wolfgang von Gronau, German aviator, made separate flights over the Greenland ice cap in the summer of 1931 to test the feasibility of a regular northern air route between Europe and America. Cramer was lost at sea en route to Copenhagen, but Von Gronau, flying westward, arrived safely in Chicago.

The British Arctic Air Route Expedition, which arrived in Greenland, July 26, 1930, to survey an air route from Canada to Great Britain across the Greenland ice cap, returned to London in the fall of 1931. One member of the party, Augustine Courtauld, spent more than six months alone at a station in the centre of the ice cap in order to make meteorological observations. Surveys of the coastal regions were made by boat and from the air. Another party of the expedition's members explored and mapped the region around Mount Forel (11,500 feet), the highest mountain in the Arctic, and ascended to within 500 feet of the summit. In the summer of 1931, two small parties crossed the ice cap from the east to the west coast.

Rivalry between Danes and Norwegians for the possession of the northwestern coast of Greenland resulted in the sending of one Norwegian and two Danish expeditions to that region during 1931. See **GREENLAND** under *History*.

In September, 1931, Sir Hubert Wilkins made an experimental cruise under the ice north of Spitzbergen (Svalbard), preliminary to a projected undersea voyage to the North Pole. His submarine *Nautilus* was damaged by contact with the ice, however, and Sir Hubert was persuaded to abandon his attempt. Returning from his eighth trip to the Arctic in September, 1931, Commander Donald B. MacMillan reported that he had mapped 1500 square miles of uncharted territory along the coast and interior of northern Labrador and explored some 50,000 square miles by airplane.

The Norcross-Bartlett Greenland Expedition collected plant specimens for the New York Botanical Gardens. Alterations in existing maps of Franz Josef Land and the discovery of additional small islands in that vicinity resulted from the explorations of the Soviet Arctic Expedition on the ice-breaker *Malygin*, headed by Prof. U. U. Vize. Another Soviet expedition on the *Lenin* explored the Siberian coast between the three great rivers, the Kolyma, Indigirka, and Lena. Soviet explorers, who wintered in North Land (formerly Nicholas II Land) in 1930-31, made several trips by sledge to unexplored areas. They reported that Northern Land was an island, covered for the most part with glacial ice. See **EXPLORATION**; **AERONAUTICS**.

**POLICE.** See **CRIME**.

**POLICE POWER.** See **LAW**, **PROGRESS AND DEVELOPMENTS**.

**POLIOMYELITIS.** See **MEDICINE**, **PROGRESS OF**.

**POLISH CORRIDOR.** See **DANZIG**; **POLAND**, and **GERMANY**, under *History*.

**POLITICAL AND SOCIAL SCIENCE.** THE AMERICAN ACADEMY OF. A national forum for the discussion of political and social questions, founded in Philadelphia, Dec. 14, 1889, and in-

corporated Feb. 14, 1891. The organization does not take sides upon controverted questions, but seeks to secure and present reliable information to assist the public in forming an intelligent and accurate opinion. In addition to occasional meetings during the fall and winter, an annual meeting is held in the spring of each year which sessions, extending through two days, are devoted to the discussion of some general subject. The thirty-fifth annual meeting, which was held April 17-18, 1931, considered the general subject "Elements of an American Foreign Policy." A six-session meeting conducted November 6-7, 1931, dealt with the general topic "Power and the Public." The *Annals* is published bi-monthly as the official organ of the academy, each issue being devoted to a study of a particular topic of economic, political, or social importance. In 1931, the following volumes were issued: *The Coming of Industry to the South*; *The Insecurity of Industry*; *Organized Commodity Markets*; *Zoning in the United States*; *Elements of an American Foreign Policy*; *Prisons of Tomorrow*; and *An Economic Survey of Australia*. These publications, from time to time, have included special studies prepared by research fellows appointed by the academy. The officers in 1931 were: President, Dr. Ernest Minor Patterson; secretary, Dr. J. P. Lichtenberger; treasurer, Charles J. Rhoads; and vice presidents, the Hon. Herbert Hoover, Dr. Carl Kelsey, and Dr. Charles G. Haines. Headquarters are at 3457 Walnut Street, Philadelphia, Pa.

**POLITICAL ECONOMY.** Subjects in the field of applied economics are treated in this volume under the following heads: BANKS AND BANKING; BUSINESS REVIEW; FINANCIAL REVIEW; CHILD LABOR; COÖPERATION; LABOR ARBITRATION AND CONCILIATION; LABOR LEGISLATION; MATERNITY PROTECTION; MINIMUM WAGE; OLD AGE PENSIONS; STRIKES AND LOCKOUTS; UNEMPLOYMENT; WOMEN IN INDUSTRY; WORKMEN'S COMPENSATION. See also such articles as: CHILD WELFARE; LABOR, AMERICAN FEDERATION OF; STATISTICS; SOCIALISM; TRADE UNIONS; WELFARE WORK. See also the article on AGRICULTURE and the various crops. Further discussions are to be found in articles on the several industries, minerals, public utilities, etc. Books on political science and economics for the general reader are to be found listed in the article LITERATURE, ENGLISH AND AMERICAN, under *Economics and Politics*.

**POLITICAL SCIENCE, ACADEMY OF.** An international institution for advancing the political sciences and promoting their application to public problems, founded in 1880 in New York City and incorporated in 1910. Its membership on Dec. 31, 1931, numbered 7103, of whom eight were honorary members, 224 life members, 5584 individual members, and 1287 subscribing members, chiefly libraries and organizations. At the semi-annual meeting on April 24 in New York City "Depression and Revival" were discussed. At the fifty-first annual meeting on November 13 unemployment, readjustments in production, prices and wages, and the world crisis were discussed. The officers for 1931 were: Alanson B. Houghton, president; Albert Shaw, Paul M. Warburg, and R. C. McCrea, vice presidents; Parker T. Moon, secretary and editor of publications; George A. Plimpton, treasurer; and Ethel Warner, director and assistant treasurer. The headquarters of the Academy are in Fayerweather Hall, Columbia University, New York City.

**POLITICS, INSTITUTE OF.** As finally established, in 1921, the purpose of the institute was to offer a forum for the discussion of world problems. The annual sessions of the institute generally occur in the month of August, and are held for four weeks.

The eleventh session of the institute met July 30-Aug. 27, 1931. The following lecture courses were delivered: "The Economics of Fascism," Dr. Luigi Villari, Rome; "The Economics of Communism," Dr. George S. Counts, New York City; "The Economics of Capitalism," M. C. Rorty, New York City; "The Economic Problems of the British Dominions," Prof. Theodore E. Gregory, London; "Economic Problems and Policies of Germany," Prof. Herbert von Beckerath, Bonn; "Economic and Commercial Policies of France," Charles A. Le Neveu, Paris.

The following is a list of round-table subjects, with the leaders of the round-table conferences: "The Future of Democracy," Prof. Arthur N. Holcombe, Harvard University; "Social Psychology of International Conduct," Prof. G. M. Stratton, University of California; "International Problems of Commercial and Financial Policy," Prof. Jacob Viner, University of Chicago; "The Future of the British Commonwealth of Nations," Dean P. E. Corbett, McGill University law faculty; "The Distribution of Wealth and Income," Prof. Theodore E. Gregory, London School of Economics; "The Political Situation in Western Europe," Dr. Williams E. Rappard, Geneva. There were special general conferences on "Public Opinion and Disarmament," conducted by James G. McDonald of the Foreign Policy Association, New York City, and "The Pact of Paris," presided over by Prof. George H. Blakeslee, of Clark University, who also conducted the conference on "India and Nationalism."

**POLO.** The Santa Paula polo team, fresh from the Pampas of the Argentine, completely dominated the 1931 season, achieving unexpected heights of excellence because of their thundering, hurly-burly style of play, and capping the summer's achievements by winning the National Open Championship at Meadow Brook in September. Only twice before has this title left the United States—in 1910, when the Earl of Rocksavage led the British to victory and in 1922 when Lewis Lacey's Argentine Hurlingham team won the championship. Manuel Andrada, Andres Gazotti, Juan and José Reynal composed the triumphant four. Alfredo Harrington was an original member but when he was thrown heavily when showing a mount in the National Polo Pony Show, Gazotti, reserve, was called into action. Stephen Sanford's Hurricanes, with Pat Roark, England's best, Terence Preece, and Winston Guest, defending champions were expected to gain top honors again but the aggressiveness, dash and fiery play of the visitors conquered.

Devereux Milburn, retired internationalist, returned to play in the Monty Waterbury Memorial Cup competition. He teamed with the two Guest brothers—Ray and Winston—and Michael Phipps and this quartet captured the trophy in this leading handicap event of the sport. In the final this Templeton team defeated Greentree, with Hitchcock, John Hay Whitney, G. H. (Pete) Bostwick, steeplechase rider, and Stewart Iglehart, riding, 11 to 9.

The national junior championship was won by Roslyn, composed of Ray Firestone, Seymour Knox, Harold E. Talbott, and W. H. Post, 2d.

Roslyn downed the Aiken Knights, 9-6, in the final of this tournament which was played at Rumson. These same Aiken Knights—Pete and Dunbar Bostwick, the Gerry's, E. T. and R. K., jr.—won the Herbert Memorial Cup.

With handicaps figuring for the first time in the history of the game, and incidentally in the only collegiate championship held, the U. S. Military Academy riders galloped off with the outdoor intercollegiate title at Cedarhurst. Yale was considered a top-heavy favorite but handicap burdens proved too much and the Blue did not reach the final. Army rode off Harvard in the final.

The indoor season was again a successful one with a new team—Los Nanduces—toppling Winston Guest's Optimists to win the national open title in April. Yale's great team galloped away with both the Class A and Intercollegiate titles. The Brooklyn Riding and Driving Club won the Class B competition, Cleveland Class C, and Fort Sheridan Class D. Hun School won interscholastic honors.

**POMPEII.** See **ARCHAEOLOGY.**

**POMPILI, BASILIO, CARDINAL.** An Italian prelate of the Roman Catholic Church, died in Rome, May 5, 1931. He was born in Spoleto, Italy, Apr. 16, 1858, and attended the Vatican and Pontifical Seminaries, where he specialized in canon and civil law. Following his ordination in 1880, he became advocate to the Congregation of the Council and in 1891 was appointed Uditore. He also held important posts in the tribunals of the Apostolic Penitentiary and of the Sacred Rota, and was one of the chief consulting experts to the commission appointed by Pope Pius X for the codification of the canon laws. In 1907 he was made secretary of the Congregation of the Council. Elevated to the cardinalate in 1911, he became Vicar General for the Diocese of Rome two years later and in 1917 Cardinal Bishop of Velletri and Archpriest of the Basilica of St. John Lateran.

**PONAPE.** See **CAROLINE ISLANDS.**

**PONDICHÉRY.** See **FRENCH INDIA.**

**PONS, LILY.** See **MUSIC** under *Artists.*

**POPE PIUS XI.** See **ROMAN CATHOLIC CHURCH.**

**POPULATION.** See each country under *Area and Population; Agriculture.*

**PORK.** See **LIVESTOCK.**

**PORTLAND CEMENT.** See **CEMENT.**

**PORTO RICO (PUERTO RICO),** pōr'tō-rē'kō.

An island in the West Indies, ceded by Spain to the United States by the treaty of Dec. 10, 1898 (ratified Apr. 11, 1899). Capital, San Juan.

**AREA AND POPULATION.** The most easterly and smallest but most densely populated of the four Greater Antilles, Porto Rico is situated 480 miles east of Cuba and 1380 miles southeast of New York. The island is about 100 miles long and 35 miles wide, with an area of 3435 square miles, or approximately the size of Connecticut. The population at the census of 1930 was 1,543,913, or 449.5 inhabitants for each square mile, as compared with 1,299,809 (378.4 per square mile) in 1920, an increase for the decade of 244,104, or 18.8 per cent. In 1920, the population was 73 per cent white and 27 per cent Negro and mulatto. The leading cities, with their populations in 1930, are: San Juan, 114,715 (71,443 in 1920); Ponce, 53,530 (41,912); Mayagüez, 37,060 (19,124); and Caguas, 19,791 (12,149). For the period 1926 to 1930, births averaged 56,370 annually and deaths 33,876, the excess of births

being 22,494 annually. The average birth rate for the period per 1000 of population was 38.5 and the death rate 23.1.

**EDUCATION.** The public-school system is centralized under a Commissioner of Education appointed by the President of the United States for a term of four years. Elementary education is free and nominally compulsory. About 42 per cent of the population was illiterate in 1931, although illiteracy had been greatly reduced in the preceding quarter century. In 1930-31, enrollment in about 3786 public schools totaled 226,215. In addition, there were 9927 pupils in private schools and about 3493 in the University of Porto Rico. Provisions of the Federal vocational training act were extended to Porto Rico by Federal legislation approved Mar. 3, 1931, making available a Federal contribution of \$120,000.

**PRODUCTION.** Agriculture is the principal support of the population; there were 52,113 farms at the census of 1930, as compared with 41,078 in 1920. The major crops are sugar, tobacco, citrus fruits and coffee, and the secondary crops are cotton, cacao, coconuts, beans, plantains, and fresh vegetables. Porto Rican sugar has free access to the American market, but the disastrous fall of prices for this and other island products in the years 1929-31 reduced Porto Rico's income markedly. The sugar crop for 1931 totaled 783,295 short tons, a figure exceeded only by the 1930 crop of 865,352 short tons. Shipments of fresh vegetables to the United States increased from 368,163 pounds in 1928-29 to 1,678,458 pounds in 1929-30. Fruit shipments to the United States rose from \$3,861,000 in the calendar year 1929 to \$6,972,000 in 1930. See **AGRICULTURAL EXTENSION WORK.**

Manufacturing industries are confined chiefly to the production of refined sugar, cigars and cigarettes, wearing apparel, fine needlework, and canned and preserved fruits. The needlework industry, which employed about 50,000 workers, mostly women, shipped articles valued at \$12,883,000 to the United States in 1930 (\$14,293,000 in 1929).

**COMMERCE.** The external trade of Porto Rico for the fiscal year ended June 30, 1931, resulted in an excess of exports over imports of \$21,149,424, the largest favorable balance of trade in ten years. Exports held up remarkably well as compared with most other countries, the 1930-31 total being \$98,486,834, as against \$99,566,205 in 1929-30. Imports declined more sharply to \$77,337,410 from \$83,922,829 in 1929-30. In the calendar year 1931 imports from the United States were valued at \$60,636,500 (\$74,219,219 in 1930) and exports to the United States totaled \$87,911,706 (\$99,880,061 in 1930).

The United States monopolized the bulk of the external trade, purchasing exports valued at \$94,876,997 in 1930-31, as against \$95,097,640 in the previous year, and supplying imports to the value of \$68,018,167, as compared with \$73,078,779 in 1929-30. Exports increased considerably in volume but declined slightly in value due to lower price levels. The value of the five principal exports to the United States in the calendar year 1930 was: Sugar, \$57,391,000; raw tobacco, \$12,752,000; cotton clothing, \$11,645,000; fruits, \$6,792,000; and manufactured tobacco, \$4,039,000.

**FINANCE.** For the first time in 17 years, the Government reported an actual surplus in the general fund for the fiscal year ended June 30, 1931, including appropriation liabilities carried

over. Total receipts into general funds for the year were \$16,511,299, including \$11,054,197 of revenue receipts, \$3,394,001 received through the sale of bonds, and other transfers. Total disbursements and transfers amounted to \$16,360,150, including \$15,705,197 of disbursements against appropriations. The surplus of \$151,149, added to the balance of \$401,877 on hand July 1, 1930, left a balance on hand July 1, 1931, of \$553,026. On the latter date, the excess of total current assets over appropriation liabilities was \$203,969, while a year earlier appropriation liabilities exceeded the cash on hand by \$88,546. Including the wiping out of the floating debt, the improvement in the status of the general fund during the year was \$1,964,431. The budget for 1931-32 carried appropriations of \$11,285,245.

The bonded indebtedness of the Insular Government on June 30, 1931, totaled \$29,097,000, or a net increase during the year of \$3,558,633. Sinking funds for redemption of bonds were \$1,458,577. The debt was contracted mainly for public improvements.

**COMMUNICATIONS.** Porto Rico in 1930 had 463 miles of railway line, about 1600 miles of highway (including 1080 miles of hard-surfaced roads). A total of 1217 vessels of 1,463,000 registered tons entered Porto Rican ports in the foreign trade (excluding the United States) in 1930 and 1194 vessels of 1,555,619 tons cleared.

**GOVERNMENT.** Porto Rico is governed in accordance with the Jones Act passed by the United States Congress Mar. 2, 1917, and subsequent amendments. Executive power is vested in a governor appointed by the President of the United States and legislative power in a legislature of two elective houses—a senate of 13 members and a house of representatives of 39 members, all elected for four years. A resident commissioner, elected by the people for a term of four years, represents Porto Rico in the United States Congress. The six departmental heads form an executive council, presided over by the Governor. The Jones Act conferred United States citizenship collectively upon the people of the island. Of the 7143 Government employees in 1931, all except 233 were native Porto Ricans. Governor in 1931, Col. Theodore Roosevelt, a son of President Roosevelt, who assumed office Oct. 7, 1929, succeeding Horace M. Towner.

#### HISTORY

**PRESIDENT HOOVER'S VISIT.** The attention of the American mainland was centred on Porto Rico and its problems as a result of a two-day visit made by President Hoover on Mar. 23-24, 1931. The President was enthusiastically welcomed in the course of his 90-mile motor trip across the island to San Juan, the capital. In a speech there, he stressed the importance of co-operation in the economic rehabilitation of the island, which was still suffering from the disastrous effects of the 1928 hurricane.

**INDEPENDENCE MOVEMENT REVIVED.** A wing of the Unionist party under Senator Antonio R. Barcelo, which had exercised control of island politics from 1904 to 1930, revived the independence issue at a special convention held in San Juan June 8, 1931. The convention dropped the former party plank demanding statehood and substituted for it the goal of complete separation from the United States. This action was taken on the initiative of Senator Barcelo, shortly after the Porto Rican Supreme Court had refused him

permission to use the Unionist party label in filing his candidacy for the post of Resident Commissioner in the United States. The Court sustained the claim of the *Allianza* party to the Unionist title. Enactment of a law establishing a commission form of government for the city of San Juan had had the effect of cutting off the municipality's contributions to the Unionist party funds. Moreover, in 1930 the Unionist party was reduced to a minority in the Legislature for the first time since its organization a quarter of a century earlier. According to observers, these factors combined to bring about Senator Barcelo's change of policy.

According to American observers, the party's independence programme failed to provoke widespread enthusiasm in the island. The numerically small Nationalist party applauded the Unionist stand, but called on Unionist members to demonstrate their sincerity by resigning from all Government posts, an invitation which was not accepted. The three other parties—*Allianza*, Republicans, and Socialists—all vigorously opposed independence and a number of the Unionist leaders withdrew from the party in protest against the separation plank. Among these was former Senator Mariano Abril, a founder of the party and for many years editor of its chief newspaper. He declared that fully 80 per cent of the population favored autonomy, i.e., statehood or the right to elect the Governor and all other officials, rather than independence.

**THE SAN JUAN CONTROVERSY.** In connection with his effort at a general reorganization of Porto Rican municipal administration, Governor Roosevelt aroused the hostility and active opposition of Mayor Roberto Todd of San Juan and other city officials. The bonded indebtedness of all the island's municipalities had increased from \$4,132,177 in 1922 to \$18,123,652 in 1930. The hurricane of 1928 precipitated a financial crisis, which made it necessary for the Insular Government to assume the debt charges of certain cities. For the fiscal year ended June 30, 1930, 71 out of 77 municipalities reported budget deficits. Conferences between the Governor and municipal and Legislative officials resulted in the passage during the 1930-31 session of the Legislature of a law simplifying municipal administration and providing for a closer check on expenditures.

To meet the particularly acute financial situation in San Juan, the Legislature in May, 1931, passed an emergency measure creating a commission form of government to continue for six years. Five commissioners, nominated by the Governor and confirmed by the Senate, were to select a city manager and auditor for the city and supervise the actions and plans of both. The city manager, in turn, was to appoint the administrative staff. San Juan, which had been controlled for six terms by Mayor Todd, had reported increasingly large deficits. In 1928-29 the deficit was \$36,020, in 1929-30 it was \$114,363, and in 1930-31, \$140,000. According to Governor Roosevelt, these deficits did not include a considerable percentage of uncollectible taxes carried as assets. When the bill establishing commission government was passed municipal employees had been unpaid for many months and the city was unable to sell its securities on the open market.

Both laws were intended to become operative immediately, but were held up by suits filed in



the Porto Rican courts. Mayor Todd in the meantime refused to vacate his office, the term of which was to expire in January, 1933. He asserted that the law establishing commission government for San Juan was passed by a fictitious majority of the Legislature after legal adjournment time and that the city's accumulated deficit of over \$400,000 was due to the failure of the Insular Government to collect and pay to the city taxes due. In September, the local courts upheld the constitutionality of the law and the commission form of government went into effect, the new city manager being Jesus Benitez Castano.

**OTHER LEGISLATION.** Other legislation adopted during the 1930-31 session of the Legislature included a Civil Service law and fiscal measures intended to adjust more equitably the burden of taxation. Taxes were increased on gasoline, automobiles, tires, electric refrigerators, and a wide range of luxury articles. A Department of Labor was created to take over work formerly handled by a bureau in the Department of Agriculture and Labor. Governor Roosevelt vetoed an election bill which sought to abolish the literacy requirement for suffrage and which he said would put election machinery into the hands of the majority group in the Legislature.

**PROHIBITION REPEAL MOVEMENT.** An agitation for the repeal of the Volstead Act in so far as it applied to Porto Rico gained ground during 1931. In December of 1930 the Insular Supreme Court, by a three to two decision, had decided that Federal prohibition cases could be tried in the island courts, but that the prosecution must be conducted by the United States Attorney or one of his representatives. The decision ended prosecutions by the insular police and the insular Attorney General's Office, which previously had accounted for 80 per cent of all convictions involving prohibition law violations. An average of 3500 liquor cases a year had been tried in insular courts as a result of police enforcement activities. In June, 1931, the League of Civic, Economic and Social Associations, and the League of Women Voters voted to send a commission to Washington to secure permission from Congress for the holding of a prohibition referendum on the island at the 1932 election. The island's Resident Commissioner in Washington, Felix Cordova Davila, petitioned President Hoover for the restoration of the liquor traffic in Porto Rico.

Dr. Carlos C. Chardon, Insular Commissioner of Agriculture, was formally inducted as the first Porto Rican chancellor of the University of Porto Rico on May 23. Governor Roosevelt on August 4 addressed a letter to the Federal Land Bank in Baltimore urging modification of the bank's foreclosure policy, affecting some 5000 Porto Rican farmers who had borrowed \$15,000,000. The press of the island criticized severely the eviction of a number of farmers and Governor Roosevelt pointed out that the foreclosed farms for the most part reverted to jungle for lack of buyers.

**PORTS AND HARBORS.** New York. Permission was granted by the U. S. War Department on January 17 for the construction of 1000-ft. piers on both the New Jersey and New York sides of the Hudson River opposite mid-town Manhattan. This involved the further narrowing of the Hudson by an extension of the pier-head lines but would still leave a channel over half a mile wide. It cleared the way for pier constructions estimated at \$25,000,000. The War Department had under way a special study of the

much discussed question of bridge clearance in port areas. While existing New York bridges were built with a clearance of 135 ft., proposals for a bridge over the lower Hudson, in the heavy shipping area, led to the Port Authority advising 185 ft. clearance for the Hudson to Hastings and 150 ft. above that point.

**U. S. WAR DEPARTMENT.** In order to take advantage of lower construction costs Congress was asked to pass a new river and harbor bill at the increased total of \$75,000,000.

An international commission representing the United States and Mexico had under consideration the creation of a deep-water port at the mouth of the Rio Grande.

A radical change was made in harbor entrance design in the construction at Franklyn, Mich., and some other Great Lakes ports on the east shore of Lake Michigan. The old narrow channels between parallel entrance piers were replaced by a new entrance of the modern arrowhead type in which a triangular bay is inclosed by breakwaters. The two breakwaters are about half a mile apart at the shore and converge to a 400 ft. harbor entrance. It was expected that navigation would be facilitated during storm and ice conditions by this type of construction.

**PHILADELPHIA-CAMDEN PORT AUTHORITY.** Following the trend of recent years, a new organization, similar to the Port of New York Authority, was created June 29 to take over and operate the great Philadelphia-Camden Suspension bridge and supervise transit and port development in this area.

**SOUTHAMPTON, ENGLAND.** Steady progress was made in the dock extension project of the Southern Railway at this great port. About half of the 7000-ft. quay wall and the reclamation of 180 acres back of it, were completed. Construction of the remaining portion and the reclamation of 180 additional acres was to go forward immediately.

**UNIQUE FLOATING DOCK PROJECT.** The construction of a floating dry dock for the harbor board of Wellington, New Zealand, was completed in yards on the Tyne, England. The dock was constructed in three sections which were launched and joined together to form the completed structure, 584 ft. long and 107½ ft. wide. This was towed 13,000 miles to New Zealand by the Suez Canal route, reaching its destination safely on Dec. 28, 1931, after a trip of nearly six months.

**INDIA.** The Government of India had under construction a port on the east coast about midway between Madras and Calcutta. There was no port in this line of coast and the new work, to be completed in 1932, will serve an interior area of some 125,000 square miles. Dredging of swampy areas, filling in of other low land, construction of quay walls, store yards, water supply, and complete facilities for a 30-ft. ocean port were involved. Ore and oil will be important cargoes in this new development.

**PORTUGAL.** A republic of Europe, situated west of Spain in the Iberian Peninsula. Capital Lisbon.

**AREA AND POPULATION.** The total area of Portugal, including the Azores and Madeira, was 35,880 square miles and the census population for 1930 was 6,660,852 (preliminary), compared with 6,032,991 at the census of 1920. Continental Portugal comprised 34,604 square miles and 6,196,020 inhabitants (1930); the Azores and Madeira, 1276 square miles and 464,832 inhabit-



ants. Births for the period 1926 to 1930 averaged 206,872 annually and deaths 122,102, the rates per 1000 inhabitants being 31.1 and 18.3, respectively. The population of Lisbon was 587,334 in 1930 and 486,372 in 1920; of Porto (Oporto), 227,595 (203,091 in 1920).

**EDUCATION.** Of the total 1920 population, 4,277,341 were unable to read or write. In 1928-29 there were 340,622 pupils in primary schools, 10,290 in circuit schools, 14,080 in secondary schools, and 5013 in three universities at Lisbon, Coimbra, and Porto.

**PRODUCTION.** Agriculture is the chief industry. The yields of the principal crops in 1930 were: Wheat, 13,531,000 bushels; rye, 4,863,000 bushels; barley, 2,651,000 bushels; oats, 7,723,000 bushels; corn, 14,924,000 bushels in 1929; potatoes, 12,669,000 bushels in 1929; wine, 174,350,000 gallons in 1929; olive oil, 3,417,000 gallons in 1930-31. Cork production, one of the principal sources of wealth, totaled 140,000 metric tons in 1930. Sardine fishing is important. The 1929 mineral production included 228,000 metric tons of coal and lignite and 384,000 tons of copper pyrites. The chief manufactured products are cotton textiles, decorative tile, chinaware, superphosphate of lime (about 100,000 tons annually), cement, and embroidery.

**COMMERCE.** Imports in 1930 were valued at 2,405,709,000 escudos (\$108,016,000), as against 2,528,607,000 escudos (\$113,029,000) in 1929, and exports declined to 945,274,000 escudos (\$42,443,000) from 1,073,240,000 escudos (\$47,974,000) in the previous year. The United Kingdom in 1930 supplied 21.4 per cent of all imports and took 21.5 per cent of all exports. The chief exports, in order of value, were wines, fish and sardines, cork, fruits and nuts, and olive oil. According to preliminary figures for 1931, exports were 17 per cent and imports 30 per cent lower than in 1930.

**FINANCE.** For the fiscal year ended June 30, 1931, the Finance Minister reported a surplus in the closed account of 152,000,000 escudos, compared with surpluses of 40,000,000 escudos in 1929-30 and of 286,000,000 escudos in 1928-29. Ordinary budget estimates for 1930-31 were: Revenues, 1,947,242,000 escudos; expenditures, 1,899,965,000 escudos. For 1931-32, the respective estimates were 1,800,960,000 escudos and 1,764,297,000 escudos. The total public debt on June 30, 1929, including that held by the Government, amounted to 6,704,537,000 paper escudos (\$296,340,000, converted at the newly stabilized par of \$0.0442) and 185,342,000 gold escudos (\$200,202,000, converted at the par value of the gold escudo, \$1.0805). The escudo was stabilized at \$0.0442 U. S. currency, effective July 1, 1931 under the law of June 13, 1931; the former par value was \$1.0805.

**COMMUNICATIONS.** In 1929, there were 2100 miles of railway line operated by the private Portuguese Railway company, including 894 miles of line leased from the Government. Highways extended 9937 miles (1929). In 1930, 7356 vessels, of 27,597,000 net registered tons, entered the ports in the international and coastwise trade, and 7289 vessels, of 27,646,700 tons, cleared.

**GOVERNMENT.** For the Constitution of 1911, see 1930 YEAR BOOK. Acting President in 1931, Gen. Antonio Oscar de Fragoso Carmona (elected Mar. 25, 1928). The Cabinet, as constituted Jan. 20, 1930, was headed by Gen. Domingos de

Oliveira as Prime Minister. Dr. Antonio de Oliveira Salazar was Minister of Finance. Parliament had not been convened (1931) since the establishment of the military dictatorship on June 6, 1926.

## HISTORY

**ANTI-CARMONA REVOLTS.** The series of revolutionary conspiracies against the military dictatorship established by General Carmona in 1926 assumed more formidable proportions in 1931. Headed by political exiles from the mainland, garrison revolts broke out in Madeira and the Azores early in April, followed two weeks later by a temporarily successful uprising in Portuguese Guinea. The Government immediately dispatched a military and naval expedition, including some 700 troops, to Madeira. The rebel leader, General Sousa Diaz, was forced to capitulate unconditionally on May 2, following the bombardment of the environs of Funchal, the chief city, and skirmishing between attacking and defending forces. The Azores garrisons surrendered about the same time. The Government reported the cost of the revolts in both Madeira and the Azores at about \$3,000,000, the loss of a gunboat through a collision, and 15 men killed and 30 wounded.

Meanwhile revolutionary elements on the mainland took advantage of the absence of a part of the army to attempt the overthrow of the dictatorship. May Day disorders in Lisbon assumed such proportions that the members of the Cabinet took refuge in the military barracks. The police restored order only after turning a machine gun on the rioters. May Day's toll was four killed and 21 injured in Lisbon, 18 injured in Oporto (Porto), where martial law was declared, and minor casualties in other cities. The uprising in Bolama, capital of Portuguese Guinea, on the night of April 17 was not learned of in Portugal until May 4. A naval force with 600 Portuguese troops immediately sailed for Bolama and it was reported on May 7 that the rebel junta there had surrendered.

The Government sought to conciliate the unrest evidenced by these events and announced a plan to modify the dictatorship, which included the election in October, 1931, of a Parliament to draft a new Constitution and the promulgation of a new administrative code early in 1932. It also undertook an extensive program of public works construction, financed partly by a loan of \$5,000,000 floated in London. In preparation for the elections, the Democrats, Socialists, Nationalists, and minor parties opposing the dictatorship united their forces in a new National Union party, led by Gen. Norton de Matos, former Ambassador to Great Britain.

On the morning of August 26 another uprising against the Government took place among part of the Lisbon garrison. Fierce street fighting, in which machine guns, armored cars, and bombing planes participated, took a toll of 80 lives and about 300 wounded. The revolt, which apparently resulted from the dismissal of Col. Schiappa de Azeveda as Minister of War, was finally crushed. The officers and leading civilians participating in the outbreak were deported to the African colonies, while the disaffected troops were split up and distributed among other Portuguese garrisons. Nothing further was heard of the promise of elections in 1931, and political unrest was still acute at the end of the year.

**THE ECONOMIC DEPRESSION.** The prevailing political discontent was stimulated by high taxation at a time when the incomes of all classes of the population were falling off due to the world economic depression. At the close of 1931, Portuguese business and financial circles were alarmed by the continued low value of the pound sterling, with which the escudo was closely bound. The reduction of remittances from Portuguese emigrants and the suspension of interest payments on Brazilian external bonds were other blows to Portuguese economy, which were reflected in a 30 per cent decline in imports in 1931.

Friction between British commercial interests and the Portuguese Government continued during 1931, largely as a result of the discriminatory customs duties levied upon goods imported in foreign bottoms. In May, the Council of the London Chamber of Commerce requested the British Government to terminate the Anglo-Portuguese commercial treaty. See **NAVAL PROGRESS**.

**PORTUGUESE EAST AFRICA.** See **MOZAMBIQUE**.

**PORTUGUESE GUINEA, g'ĩnã.** A colony of Portugal on the west coast of Africa, entirely surrounded on the land side by French territory. It includes the archipelago of Bijagoz, together with the island of Bolama on which is situated the capital, Bolama (population 4000). Area, estimated at 22,000 square miles; population (1928), 343,961. The principal port is Bissau.

For the revolt against the Carmona Government in 1931, see **PORTUGAL** under *History*.

**PORTUGUESE WEST AFRICA.** See **ANGOLA**.

**POST OFFICE DEPARTMENT.** See **UNITED STATES** under *Administration*.

**POTASH.** See **FERTILIZERS**.

**POTASSIUM.** See **FERTILIZERS**.

**POTATOES.** The potato production in 1931 of 26 countries reporting to the International Institute of Agriculture was estimated at 4,448,511,000 bushels, a decrease of only 2.2 per cent from the preceding crop and an increase of 8.7 per cent over the annual average for the five years 1925-1929. The potato area of these countries in 1931, 25,093,000 acres, was 3.1 per cent above the acreage of 1930 and 3 per cent above the five-year annual average. As in the preceding year a number of European countries reported yields well above the annual average for the five-year period. The leading producing countries exclusive of the United States reported yields as follows: Germany, 1,592,009,000 bushels; Poland, 1,208,113,000 bushels; Czechoslovakia, 316,062,000 bushels; Spain, 124,162,000 bushels; and Belgium, 101,580,000 bushels. For the Soviet Republics an average annual yield of 1,604,057,000 bushels grown on 13,447,000 acres was reported for the five years 1925-1929. France, which is a large producer of potatoes, is not included in the estimates here given. The Canadian crop of 1931 was estimated at 91,815,000 bushels, or 14.2 per cent above the yield in 1930 and 23.1 per cent above the five-year annual average.

The potato crop of the United States in 1931 as estimated by the Department of Agriculture was 376,248,000 bushels produced on 3,382,000 acres or at an average yield per acre of 111.3 bushels. Both yield and acreage in 1931 were larger than in either of the two preceding years. The late potato crop was estimated as 13 per

cent larger than the crop of 1930. The early potato crop, grown in the Southern States and generally marketed from March to June, was placed at 46,381,000 bushels produced on 346,730 acres or at the rate of 134 bushels per acre. The average farm price, 42.9 cents per bushel, was based on the farm prices of late potatoes prevailing December 1, and on the seasonal average price of early potatoes. On this basis the value of the 1931 crop was only \$161,264,000 which was 45 per cent less than the value of the preceding crop and 62 per cent below that of the 1929 production. The average of December prices per bushel in 1931 was less than half the corresponding price the preceding year, only one-third of that price two years before and the lowest since 1900.

The leading potato producing States and their yields were reported as follows: Maine, 50,960,000 bushels; Minnesota, 28,880,000 bushels; New York, 28,684,000 bushels; Pennsylvania, 26,549,000 bushels; Wisconsin, 24,924,000 bushels; and Idaho, 24,200,000 bushels.

During the fiscal year ended June 30, 1931, the United States exported 1,548,000 bushels of potatoes and imported 343,757,000 pounds.

**POULTRY.** See **LIVESTOCK**.

**POULTRY DISEASES.** See **VETERINARY MEDICINE**.

**POWER, TYRONE.** An American actor, died in Los Angeles, Calif., Dec. 30, 1931. Born in London, England, May 2, 1869, he attended Dover College and made his first appearance on the stage in St. Augustine, Fla., in 1886 in *The Private Secretary*. He played in *The Lion and the Lamb* in New York City in 1889 and had the leading rôle in his own play, *The Texan*, in London in 1894. He subsequently toured with Beerbohm Tree, with Mrs. Fiske in *Little Italy* and *Becky Sharp*, and with Julia Marlowe in *When Knighthood Was in Flower*. His last stage appearances were with Fritz Leiber in Shakespearean repertoire. He also had appeared in several silent motion picture productions.

**POWER COMMISSION, FEDERAL.** See **UNITED STATES** under *Administration*.

**POWER DEVELOPMENT.** See **POWER PLANTS**; **STEAM TURBINES**; **WATER POWER**.

**POWER PLANTS.** The prevailing depression was reflected in the power plant field to the extent that fewer new plants were projected during 1931 than normally, although most of those stations upon which construction had begun were completed. There was a marked falling off in the industrial power load of central stations, but this was largely offset by an increase in the domestic load, with the commercial lighting load holding up well, so that the total output for the year, or 86,679,000,000 kilowatt-hours, was less than 4 per cent under that of 1930. The income from the sale of electricity was less than 1 per cent under the preceding year. The central station budget for 1932 was about \$450,000,000, of which 18 per cent was allocated to generating plants, 12 per cent to transmission lines and 64 per cent to distribution.

Some increased activity was apparent in the construction of new municipal plants and those serving public institutions. Increased attention was given to lower plant investment costs without sacrificing operating efficiency. This was reflected to some extent in simplification of design and as a result many of the newer plants showed low unit investment, which was, in most installations, under \$100 per kilowatt.

In engineering aspects, 1931 was not a year of spectacular achievements, but rather one of engineering refinements and technical research. With the exception of the new stokers at the Hudson Avenue station of the Brooklyn Edison Company, each capable of burning 57,000 pounds of coal per hour, and the largest built up to 1931, and the installation of a 50-ton pulverizer at the Kips Bay plant of the New York Steam Company, there were no new records established in the size of steam generating equipment. Although the first 1800-pound plant in the United States went into operation at the Philip Carey Company, Lockland, O., the number using steam at 1200 to 1400 pounds put into service was exceeded by those of moderate pressure, 400 to 600 pounds. There was, however, a noticeable trend toward higher temperatures with several of the new plants employing steam at 825° F. instead of 750° which heretofore had been considered as the desirable limit in America. This increase in temperature was made possible through advances in metallurgy. The 10,000-kilowatt 1000° F. unit at the Delray Station in Detroit, was in commercial operation and had been operating for some months at 900° F. The same trend was apparent in Europe. While a few stations there employed high temperatures for several years, the practice was gaining more general acceptance. Notable among these newer installations was the St. Denis station, nearing completion, which was to employ steam at 925 pounds pressure and 930° F. temperature and a new large high-pressure station in Moscow which will employ steam at 932° F.

During the year two notable applications of the mercury cycle were announced. These were a 20,000 high kilowatt installation at the Schenectady works of the General Electric Company and one of like size at the Kearny station of Public Service Electric & Gas Company of New Jersey. Decision to install these units was predicated largely upon the pioneer installation at Hartford which in February, 1931, had completed a year's continuous successful operation during which it turned out 135,000,000 kilowatt-hours at an average heat consumption of 10,100 B.t.u. per net kilowatt-hour. The new units which were double the size of the one at Hartford were expected to deliver a kilowatt-hour on 8800 B.t.u. The Schenectady installation was to be an outdoor plant. The mercury pressure was to be 125 pounds gauge, and after passing through the mercury turbine the vapor was to generate steam at 475 pounds, 465° F. in a condenser-boiler. The exhaust from the Kearny mercury turbine was to generate steam at 350 pounds to be used as part of the supply to a 75,000-kilowatt steam turbine.

**PRAIRIE PROVINCES.** The name applied to the three Canadian Provinces of Manitoba, Saskatchewan, and Alberta (q.v.). The census population of the three Provinces in 1931 was 2,353,529, compared with 1,956,082 in 1921. See CANADA.

**PRATT INSTITUTE.** A nonsectarian educational institution in Brooklyn, N. Y., founded in 1887 and composed of four schools: Fine and applied arts, household science and arts, science and technology, and library science. The 1931 autumn enrollment was 5080, distributed as follows: Arts, 2005; household science, 992; science and technology, 2056; library school, 27. There were 181 members on the faculty and 12 special lecturers.

The library contained 143,000 volumes. President, Frederic B. Pratt, A.M., LL.D.

**PREHISTORIC MAN.** See ANTHROPOLOGY.

**PRESBREY, EUGENE WYLEY.** An American producer and dramatist, died in Hollywood, Calif., Sept. 9, 1931. He was born in Williamsburg, Mass., Mar. 13, 1853, and made his début as an actor at the Boston Theatre, Boston, in 1874, remaining there until 1880 when he went to New York City to appear in *Hazel Kirke*. He was stage director for A. M. Palmer during 1883-96 and a lecturer at the American Academy of Dramatic Arts during 1886-94. From 1896 to 1906 he was an independent producer, and after 1919 a consulting expert for feature films, being associated with the Paramount and Metro-Goldwyn-Mayer Companies. Among his plays are *Squirrel Inn* (with Frank R. Stockton, 1893); *Giles Corey* (1894); *The Courtship of Miles Standish* (1895); *A Ward of France* (with Franklin Fyles, 1897); *The Three Graces* (1907); *The Coast of Chance* (1908); *The Barrier* (from Rex Beach's novel, 1908); and *The Other Man* (1912).

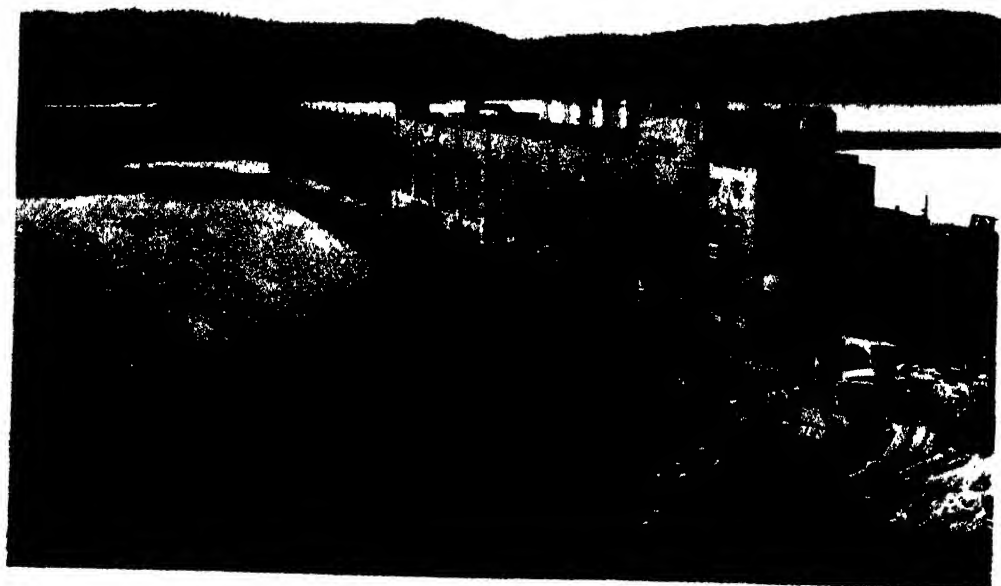
**PRESBYTERIAN CHURCH.** The Presbyterian Church, with the Reformed churches, rests on features of the Reformation brought forward by Zwingli and Calvin. It consists of bodies in the United States, the British Isles, and elsewhere, following the doctrinal and ecclesiastical system developed in Holland and France and more fully in Scotland under John Knox. Organizations in the United States bearing the Presbyterian name: The Presbyterian Church in the United States of America; Presbyterian Church in the United States (South); United Presbyterian Church of North America; Cumberland Presbyterian Church; Cumberland Presbyterian Church, Colored; Reformed Presbyterian Church; Reformed Presbyterian Church, General Synod; Associate Synod of North America, also known as the Associate Presbyterian Church; and the Associated Reformed Presbyterian Synod. The Presbyterian churches of the United States have official affiliations with the Alliance of Reformed Churches throughout the World Holding the Presbyterian System.

**PRESBYTERIAN CHURCH, CUMBERLAND.** See CUMBERLAND PRESBYTERIAN CHURCH.

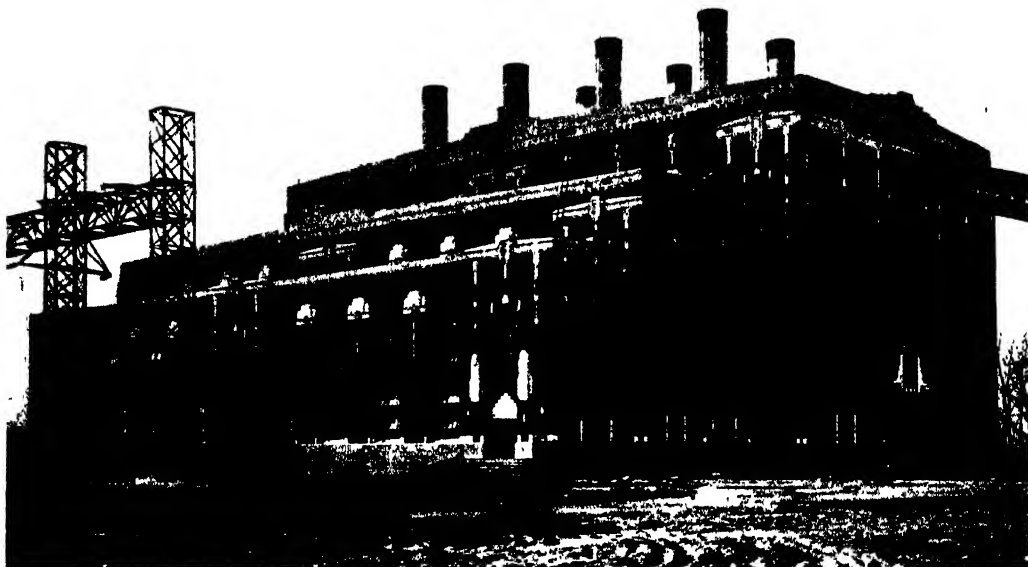
**PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA.** This is the largest body of the denomination and is represented by churches in every State of the Union and by official mission stations in Alaska, Cuba, Porto Rico, and foreign lands. In 1931 its churches in the United States were organized into 46 synods and 293 presbyteries. Statistics for the year ending Mar. 31, 1931, showed a total communicant membership of 1,999,131. The Sunday-school enrollment totaled 1,620,496. As a result of the movement to dissolve churches having a nominal existence and to combine churches where advisable, the number was decreased by 75, giving a total of 9242, including 44 churches organized during the year, as against 80 which were dissolved. The number of ministers in 1931 was 10,014. Contributions during the year amounted to \$58,171,381. Of the total income, \$45,217,335 was used for congregational expenses, while \$12,484,804 was devoted to benevolences, including \$3,841,579 given to the board of national missions, \$3,364,882 to the board of foreign missions, \$842,684 to the board of Christian education, and \$324,985 to the board



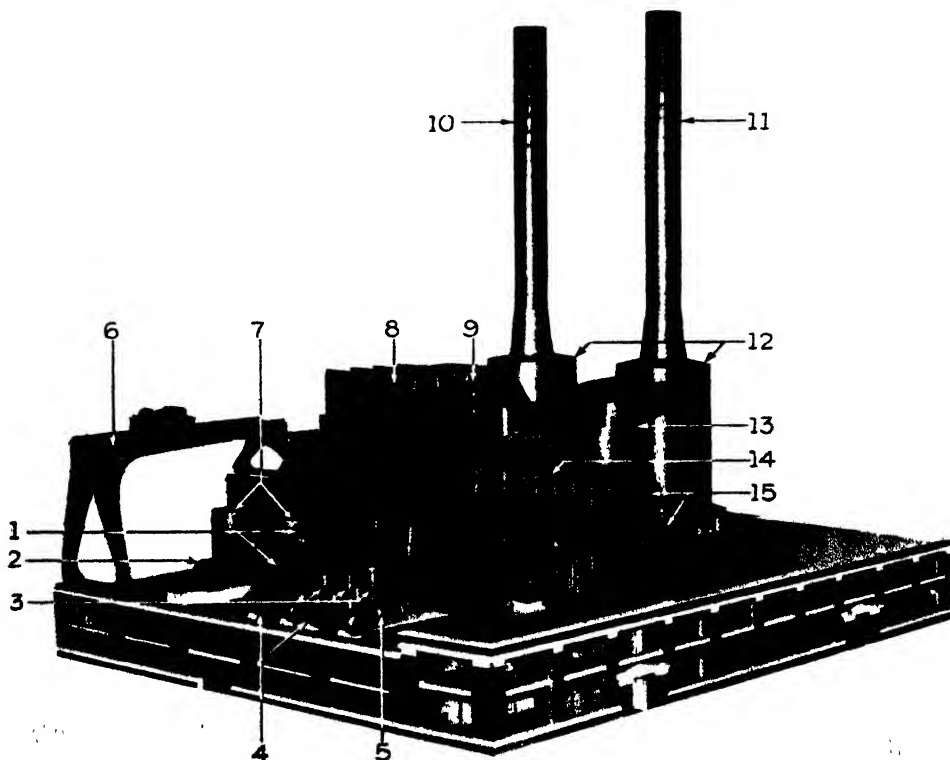
BREMO STEAM PLANT OF VIRGINIA PUBLIC SERVICE CO.



SAFE HARBOR DEVELOPMENT ON SUSQUEHANNA RIVER  
POWER PLANTS OF 1931



**HARDING STREET STATION OF INDIANAPOLIS POWER AND LIGHT COMPANY**  
Initial Installation of 70,000 kilowatts with Provision of Extension to 140,000 kilowatts



**MODEL OF GENERAL ELECTRIC MERCURY-PROCESS POWER PLANT AT SCHENECTADY**

Key to Numbered Parts: 1. Deaerator. 2. Mercury Turbine-generator. 3. Feed-water Heaters. 4. Evaporators. 5. Steam Turbine-generator. 6. Gantry Crane. 7. Condenser Boilers. 8. Mercury Boiler. 9. Air Preheater. 10. Mercury Boiler Stack. 11. Steam Boiler Stack. 12. Cylinders containing induced-draft fans, and serving as coal bunkers. 13. Air Preheater. 14. Steam Boiler. 15. Forced-draft Blowers.

of pensions for current needs, besides \$1,193,189 additional for the pension endowment fund. The denomination maintains 52 colleges and 13 theological seminaries. Its official organ is the *Presbyterian Magazine* (monthly). Privately-owned periodicals are the *Presbyterian Advance*, the *Presbyterian Banner*, and the *Presbyterian* (all weekly).

The 1931 meeting of the general assembly of the Presbyterian Church in the United States of America was held in Pittsburgh, Pa., May 29-June 3. As a result of action taken at the 1930 assembly, by which women were admitted to the office of ruling elder, women were enrolled as commissioners for the first time in the history of the assembly, five being seated. The department of church coöperation and union reported progress in negotiations looking toward union with other Reformed Churches holding the Presbyterian system. However, it was not regarded as likely that organic union would soon be achieved except with the United Presbyterian Church of North America; negotiations were continued on a definite basis with that body for possible union in 1932.

The assembly approved the report of the special commission on marriage, divorce, and remarriage, which included a study of a proposed revision of the chapter on marriage and divorce in the Confession of Faith; but it went unequivocally on record as disapproving ecclesiastical pronouncements on the subject of birth control. It also voiced its undiminished opposition to the beverage traffic in intoxicating liquor, whether legalized or illicit, and pledged whole-hearted coöperation to President Hoover and to those responsible in the enforcement of prohibitory laws. The assembly endorsed the programme presented by the general council, making the supreme issue of the coming year in the church one of spiritual emphasis, and voted to petition President Hoover for a national day of humiliation and prayer.

At this assembly was celebrated the centennial of organized American Presbyterian foreign missionary enterprise. A revision of the Book of Common Worship was adopted. The assembly declared adopted by vote of the presbyteries two overtures: one revising the organization and procedure of the permanent judicial commission; and one rescinding the constitutional rule which provided for the licensing of local evangelists. It also voted to send down overtures for the purpose of maintaining high standards in and assuring the better and easier distribution of the ministry. Dr. Lewis Seymour Mudge of Philadelphia was elected Moderator, or presiding officer, for 1931-32 and was also reelected as Stated Clerk of the general assembly for a third five-year term. This was only the fourth time since 1789 that the same person filled both of these offices simultaneously. Dr. Cheesman A. Herrick, president of Girard College, was named Vice Moderator. The office of the general assembly is 518 Witherspoon Building, Philadelphia, Pa.

**PRESBYTERIAN CHURCH IN THE UNITED STATES (SOUTH).** This division of the Presbyterian denomination covers the territory commonly known as the Southern States.

The denomination was composed in 1931 of 17 synods and 92 presbyteries, with 3557 organized churches, 2424 ministers, and 462,299 members. The ruling elders numbered 16,047 and deacons, 17,966. Contributions for the year amounted to \$8,808,292 for current expenses and \$4,164,815

for benevolences. The church supported 420 missionaries in Africa, Brazil, China, Japan, Korea, and Mexico; these missionaries were assisted by 3408 native workers. In the six countries there were 49,346 church members and 86,962 Sunday-school members. The church maintains 4 theological seminaries, 1 training school for lay workers (white), 1 training school for lay workers (colored), 18 colleges, 13 junior colleges, 12 secondary schools, 19 mountain schools, 2 Mexican mission schools, and 15 orphans' homes and schools. It publishes the *Presbyterian Survey*, which is the medium of communication of all departments with the membership of the church. Privately-owned papers are the *Christian Observer* and the *Presbyterian of the South*.

The general assembly of the Presbyterian Church in the United States met in Montreat, N. C., May 28, 1931. R. A. Dunn, LL.D., a ruling elder of Charlotte, N. C., was elected Moderator, succeeding the Rev. Thomas W. Currie, president of Austin (Texas) Theological Seminary. The offices of the general assembly are located at 720 Kirby Building, Dallas, Texas. The Rev. J. D. Leslie, D.D., was Stated Clerk and the Rev. E. C. Scott Assistant Stated Clerk in 1931.

**PRESBYTERIAN CHURCH OF NORTH AMERICA, UNITED.** A branch of the Presbyterian Church formed by the union of the Associate and the Associate Reformed Churches, effected in Pittsburgh in 1858.

The general assembly convened in Youngstown, Ohio, May 27, 1931. On that date there were in the United States 11 synods, 56 presbyteries, 879 congregations, 901 ministers, 4949 ruling elders, and a church membership of 176,666. The total membership, including missionary fields, was 242,293. The Sabbath-school enrollment was 207,144, while the young people's societies numbered 1133 with a membership of 29,874. Contributions for the year 1930-31 totaled \$5,892,484, and missionary contributions \$1,929,829. Among matters of chief importance approved by the Youngstown assembly were making optional the election of synodical superintendents by the American synods, and changing the membership of the board of administration, requiring that it be selected from the synods of America by a specified scale of representation, and not as heretofore from the membership of the budget mission boards.

The denomination supported 432 men and women in four foreign mission fields and 365 men and women in homeland missions. It carried on medical work in 32 foreign hospitals and dispensaries; conducted educational work in 397 schools at home and abroad; maintained nine colleges and four theological seminaries at home and abroad; and reached 37,729 young men and women in its schools and colleges, from which more than 6000 were graduated. The official organ of the church is the *United Presbyterian*, a church-owned, yet independent weekly, published in Pittsburgh. The moderator of the general assembly in 1931 was the Rev. J. Knox Montgomery, D.D., LL.D., president of Muskingum College, New Concord, Ohio, and the stated clerk was the Rev. O. H. Milligan, D.D., Avalon, Pa. Headquarters of the board of administration are at 705 Publication Building, Pittsburgh, Pa.

**PRESBYTERIAN SYSTEM, ALLIANCE OF REFORMED CHURCHES THROUGHOUT THE WORLD HOLDING THE.** See REFORMED CHURCHES THROUGH-



OUT THE WORLD HOLDING THE PRESBYTERIAN SYSTEM, ALLIANCE OF.

**PRESIDENTIAL PROGRAMME FOR UNEMPLOYMENT.** See UNEMPLOYMENT.

**PRESIDENTS OF COLLEGES.** See UNIVERSITIES AND COLLEGES; article on each college.

**PRICES.** See BUSINESS REVIEW.

**PRIMITIVE ART.** See ART EXHIBITIONS; PAINTING.

**PRIMITIVE METHODIST CHURCH.** See METHODISTS.

**PRINCE EDWARD ISLAND.** An island in the Gulf of St. Lawrence, constituting one of the Maritime Provinces of Canada. The smallest of the nine Provinces, it had an area of 2184 square miles and a population at the census of 1931 of 88,038, compared with 88,615 in 1921. The capital, Charlottetown, had 12,357 inhabitants in 1931 (10,814 in 1921). Living births in 1929 numbered 1668; deaths, 1122; marriages, 469, according to preliminary figures. The public school enrollment in 1929 was 17,180.

Approximately 90 per cent of the population is engaged in agriculture and 94.2 per cent of the farmers own their farms. Stock raising, fishing, and silver-fox breeding are other leading industries. Field crops valued at \$10,973,000 were harvested from 567,180 acres in 1930, as compared with \$16,940,400 from 545,763 acres (1929). The fisheries output totaled \$1,297,125 in 1929 (\$1,196,681 in 1928). The value of fur-bearing animals on farms in 1928 was \$3,676,229. With 276 manufacturing establishments, the gross value of factory output in 1929 was \$4,638,725, of which \$1,773,894 was the value added in process of production.

Preliminary figures for the fiscal year ended Dec. 31, 1930, placed ordinary provincial revenues at \$1,148,749 and ordinary expenditures at \$1,133,366, as compared with \$1,083,571 and \$1,033,315, respectively, in the preceding year. Total liabilities on Dec. 31, 1929, were \$2,558,740 and total assets about \$1,585,505. Under the provincial temperance law, upheld at a plebiscite in 1929, liquor sales are controlled by a Prohibition Commission, which reported sales during 1930 of \$126,410 and a gross profit of \$32,202. The government is administered by a lieutenant-governor, appointed by the Dominion, and a legislative assembly of 30 members elected for four years. Half of the assembly is elected by real property holders and the remainder by universal male and female suffrage. The Liberal administration of Premier W. M. Lea was defeated in the provincial election of Aug. 6, 1931, and a Conservative Government was formed headed by J. D. Stewart. Lieutenant-Governor in 1931, Frank R. Heartz. See CANADA.

**PRINCETON UNIVERSITY.** A nonsectarian institution of higher learning for men in Princeton, N. J., founded in 1746. The total enrollment in the autumn of 1931 was 2554, of whom 2298 were undergraduates and 256 were graduate students and fellows. The faculty numbered 315; there were also 37 assistants and 39 administrative officers.

The endowment in 1931 was \$24,328,339; the total income, \$2,892,278; and the total expenditure, \$2,870,415. Bequests and gifts amounted to \$1,755,345 for endowment and \$149,956 for current expenses. Among the bequests were \$100,000 for music from C. H. Ditson; \$359,482 for scholarships from Frank Hartley; and \$57,000 for the library, infirmary, scholarships, and fel-

lowships from T. W. Hunt. The Fine Memorial Hall, which was erected and endowed in memory of the late Dean Henry B. Fine by Thomas D. Jones and his niece, Miss Gwethalyn Jones, was opened as headquarters of the department of mathematics in the university. The library in 1931 contained 650,000 volumes, exclusive of pamphlets, broadsides, and manuscripts. President, John Grier Hibben, Ph.D., Litt.D., LL.D., whose announced retirement was to take effect in 1932 after 20 years of service.

**PRINGLE-PATTISON, ANDREW SETH.** A British philosopher and logician, died in Selkirk Sept. 1, 1931. Born in Edinburgh in 1856, he was educated at the university there and in Germany. He returned to the University of Edinburgh in 1880 to be an assistant and lecturer in logic and metaphysics for three years and was also appointed to the Balfour lectureship in philosophy. In 1883 he went to the newly-founded University College of Cardiff as professor of logic and philosophy, and in 1887 accepted the chair of logic, rhetoric, and metaphysics at St. Andrews University. In 1891 he was appointed professor of logic and metaphysics at the University of Edinburgh, where he remained until his retirement in 1919. In 1898 he assumed the name Pringle-Pattison, in addition to his own, on succeeding to the Haining estate. His publications include *The Development from Kant to Hegel* (1882); *The Idea of Immortality* (Gifford lectures, 1922); *The Philosophy of History* (British Academy lecture, 1923); and *Studies in the Philosophy of Religion* (1930).

**PRISONS.** See CRIME.

**PRIZE FIGHTING.** See BOXING.

**PRIZES, ART.** See ART EXHIBITIONS.

**PRODUCE.** See AGRICULTURE; HORTICULTURE.

**PROHIBITION.** WICKERSHAM COMMISSION. In January, 1931, the long awaited report of President Hoover's Commission on Law Observation and Enforcement was made public. It at once became apparent, despite the outward unanimity of the Commission, that considerable difference of opinion existed among its individual members as to the possibility of the enforcement of the Eighteenth Amendment by the Federal Government. In its conclusions the Commission, after having given the whole subject elaborate examination over a period of 18 months, made the following declarations: (1) It was opposed to the repeal of the Eighteenth Amendment. (2) It was opposed to the restoration of the saloon. (3) It was opposed to the entry by the Federal or State governments into the liquor business. (4) It was opposed to the modification of the Volstead Act in order to permit the manufacture and sale of light wines and beers. However, declared the Commission, the cooperation of the States and the support of public opinion were essential to law enforcement. Said it: The public was not obeying the law; the present organization for enforcement was inadequate; if, after further trial, enforcement was still impossible, the Eighteenth Amendment should be revised to give Congress the power "to regulate or prohibit" the manufacture, sale and transportation of intoxicating beverages.

The Commission's inquiries indicated that the following three factors were standing in the way of the enforcement of the Amendment: (1) The great margin that existed between the cost of producing or importing illicit liquor and the price that such liquor commanded when sold.

In other words, the liquor traffic was a vastly profitable industry and because it represented, in effect, big business, it was inevitable that there should be encouraged bootlegging, hijacking, gang wars, and official corruption. The public in many localities was, however, hostile to or, at best, completely indifferent to enforcement. (2) The Commission made the excellent point that in the case of the enforcement of the narcotic laws, for example, public opinion was favorably disposed, with the result that the traffic in drugs had been driven underground. On the other hand, the drink traffic flourished openly because the American public refused to regard it as a criminal enterprise. (3) The general feeling prevailed that the enforcement of the Eighteenth Amendment was the task of the Federal Government exclusively, and many States gave only lip service to the need for enforcement.

On these grounds the outlook in 1931 for the ultimate success of what President Hoover had characterized as a "noble experiment" was, to say the least, dubious. Because of the great number of "speakeasies" (i.e., places for illicit sale of liquor) that existed with "public tolerance" and because of the inability of the government to choke off the sources of the liquor supply, there existed reasons for regarding the whole problem skeptically. On the first point the Commission said bluntly: "Unless the number of speakeasies can be substantially and permanently diminished, enforcement cannot be held satisfactory." On the second point, while the Commission was hopeful that most of the channels through which the illicit liquor flow could be dammed up, it was not at all sanguine about the success as far as one source was concerned, namely: illicit distilling. This was the Achilles heel of Prohibition in 1931.

The volume of liquor actually manufactured in the United States was many times greater than the quantities both imported and produced from other sources. Said the Wickersham Commission concerning this most important source of supply coming from the existence of an illicit distilling industry.

With the perfection and discovery of new methods of distilling alcohol, the illicit distillery has become for the time being the chief source of supply. In consequence . . . a steady flow of whiskey, much of it of good quality, is put in circulation at cheap prices. . . . The improved methods, the perfection of organization, the ease of production, the cheapness and easy accessibility of materials, the ease with which plants may be concealed, the huge profits involved, have enabled this business to become established to an extent which makes it very difficult to put at an end.

The chief factor in the development of illicit distilling was the appearance of new and cheap materials that could be employed, notably corn sugar but also cane and beet sugar, molasses, corn meal, and other grains. Further, it was estimated by the Prohibition Bureau's director that in the fiscal year ending June 30, 1930 the illicit production of wine and malt liquors had been 118,320,000 and 683,032,000 gallons, respectively. This was not much less than 40 per cent of the actual legitimate withdrawals in 1914 and still took no count of other forms of liquor diversion. The Commission enumerated and described five other sources from which the nation got its illegal drink, as follows: (1) Importation from Canada, the Caribbean and Europe; (2) The diversion of industrial alcohol; (3) The illegal brewing of beer; (4) The diver-

sion of medicinal and sacramental liquors and wines; (5) Home-brewing.

Importation, especially importation from Canada, was perhaps the second most important source of supply. In the beginning, liquor was run across the border irregularly and through the use of such vehicles of transportation as were readily at hand; this traffic, too, had become organized and directed and a steady flow was making its way across the northern frontier, using trucks, speed-boats, and even airplanes. In 1929, Canada, on the representation of the United States, sought to check the traffic by refusing clearance to liquor destined for this country. Temporarily, the liquor traffic received a check. However, new methods were devised for running the rum across the border, and it was found that liquor exported to the West Indies, Mexico, and Central America might be reexported to the United States without difficulty.

Diversion of industrial alcohol constituted another important source of supply. Despite the fact that in 1928 the Government began to reduce the number of private denaturing plants and limited the quantities these might produce, the Wickersham Commission found over-production of industrial alcohol, with the inevitable conclusion that a large part was being diverted for the making of illegal drink, was the rule.

The home manufacturer who makes beer or gin for his own consumption or for sale to a neighborhood "beer flat," "blind pig," or "speakeasy" constituted the fourth important form of leakage. As Mr. James J. Forrester, a member of the Commission's research staff, said in *Current History* for March, 1931:

The distilling apparatus is easy to obtain, the materials abundant, and the process simple. He uses redistilled commercial alcohol, corn sugar, cornmeal, fruit, fruit and vegetable parings, raisins, and various kinds of cereals. The most commonly used ingredient is corn sugar, the production of which has increased far beyond the apparent demand of legitimate commerce during the past five or six years.

The Wickersham Commission had evidence to point that there were more speakeasies in existence ten years after Prohibition than there had been licensed saloons before. In fact, a commonly accepted estimate put the number of speakeasies at three times the old saloons.

Because there were signs of improvement in the nature of enforcement, particularly after the Federal Prohibition Service was placed on a merit basis, the majority of the Commission's members expressed a willingness to see the law given a further trial. But it was plain that enforcement could not travel very far without the aid of State officials. And the States, apparently, were showing little disposition to lend aid, particularly in those regions where large urban populations lived. Already, six States were without enforcement laws; in 1930, in two others, the electorates voted for the repeal of the enforcement measures; in few commonwealths were there separate enforcement departments. Without public approval, there was little likelihood of an expansion of State activity, and everything pointed to a growing desire to "let the Federal Government do it."

This, on the face of it, was plain enough and seemed to indicate that the Commission, while it saw serious obstacles in the way of the enforcement of the amendment, was not disheartened and advocated the continuance of the ex-

periment on the basis of a heightened enforcement effort. Yet there was serious cause for confusion in the public mind. This was due to the fact that appended to the formal report were the individual statements by all the Commissioners which indicated, to say the least, a serious difference of opinion among them and that the majority either favored revision or repeal of the Prohibition Amendment. Four of the commissioners sought revision; two were in favor of outright repeal; and only five placed themselves on record as favoring further trial of the present liquor regulations. The individual members stood as follows on the question of the continuance of the present situation: The chairman, George W. Wickersham, Judge William I. Grubb, Judge William S. Kenyon, Judge Kenneth Mackintosh, and Judge Paul J. McCormick favored further trial. The following called for revision of the amendment and the enforcing laws: President Ada L. Comstock, of Radcliffe College; Henry W. Anderson; Frank J. Loesch, and Dean Roscoe Pound, of the Harvard Law School. Newton D. Baker and Monte M. Lemann advocated outright repeal. Commissioner Anderson, in an elaborate appended statement, called for the sale of liquor by a corporation under governmental regulation, a proposal which was endorsed by Commissioners Loesch, Mackintosh, and Pound. Commissioners Kenyon and McCormick also gave the proposal their recommendation if further trial of the enforcement laws showed that the Prohibition Amendment continued to be a failure.

What further complicated the situation and added to the atmosphere of uncertainty was the fact that President Hoover, in transmitting the report to Congress, based his message entirely on the formal recommendations of the Commission and failed to take into consideration the doubts expressed by the Commissioners in their individual statements. The President declared himself in accord with the Commission (but not with the individual Commissioners) in opposing the repeal and in favoring the improvement of enforcement. He said further:

I do, however, see serious objections to, and therefore must not be understood as recommending, the commission's proposed revision of the Eighteenth Amendment which is suggested by them for possible consideration at some future time if the continued effort at enforcement should not prove successful. My own duty and that of all executive officials is clear . . . to enforce the law with all the means at our disposal without equivocation or reservation.

It was no wonder that both wets and dries regarded the report as favorable to their own particular points of view. Thus, prominent Congressional dries like Senator Sheppard and Andrew J. Volstead expressed themselves as pleased with the report. F. Scott McBride, of the Anti-Saloon League, said: "It's a good report for us." Bishop Cannon, of the Methodist Church, South, called it "eminently sound." On the other hand, Congressional wets like Senator Blaine and Representatives Celler and Lenthicum regarded the report as bolstering their cause.

**THE POSITION OF THE DEMOCRATIC PARTY.** John J. Raskob, chairman of the Democratic National Committee, made a number of serious efforts during the year to crystallize his party's position on the Prohibition question. Confronted by a state of affairs in which members of the Democracy in large urban centres, particularly in the East, were openly in favor of repeal and where Democratic members of the Southern States

were hostile to any talk of modification or the withdrawal of the Amendment, he, nevertheless, exercised himself in the search of a middle ground where these two widely separated points of view might meet. The formula finally perfected by Mr. Raskob called for the acceptance by the party of the principle of home rule under which the Eighteenth Amendment was to continue in the country's fundamental law but by which individual States might exercise their discretion as to whether or not they were to assume control of local liquor traffic. In other words, the proposal called for the maintenance of dry rule in those States that wished to continue as dry, and State control of liquor manufacture, sale and transportation in those States that were wet.

On March 5, Mr. Raskob placed his plan before the Democratic National Committee in Washington. Mr. Raskob explained his proposal in the following words:

This problem will undoubtedly be one of the outstanding issues in the next campaign, and my recommendation is that the Eighteenth Amendment be not repealed, but that the Democratic party advocate a new amendment which will provide that nothing in the Eighteenth Amendment shall prevent any State from directing and controlling absolutely, without interference by the Federal Government, the manufacture, transportation, and sale of intoxicating liquors within its own borders, provided that the plan under which it proposes to do this shall first have been submitted to the people of that State and approved by a majority of them in a State-wide referendum, and provided further that this new amendment to the Constitution shall not be effective unless and until it is ratified, not by the legislatures of three-fourths of the States, but by conventions of the people in three-fourths of the States.

Needless to say, Mr. Raskob's suggestion met with deep hostility. Southerners, notably Senators Joseph T. Robinson of Arkansas, Cordell Hull of Tennessee, and Cameron Morrison of North Carolina, expressed themselves as unalterably opposed to any tinkering with the Eighteenth Amendment and the National Prohibition Act. On the other hand, the party's former candidates, Alfred E. Smith and James M. Cox, gave the national chairman their support. That the party itself might refuse to accept such a solution of the most important political question of the day at its 1932 presidential election, was indicated by the nature of the comments with which Mr. Raskob's statement was received. It was becoming increasingly plain that the majority of the Democratic leaders planned to make the forthcoming Presidential contest revolve about important economic issues rather than the Prohibition question. Mr. Raskob's utterances were interpreted as an effort to further the candidacy of Alfred E. Smith to whom the Prohibition question was more important than any other.

**ATTITUDE OF THE AMERICAN LEGION.** One of the most significant straws in the wind was the action taken by the American Legion at its annual session in Detroit in September. By a vote of 1008 to 394 the convention adopted a resolution calling for the submission of the entire Prohibition question to the States for settlement. The American Legion resolution read as follows:

Whereas, the Eighteenth Amendment of the Constitution of the United States has created a condition endangering respect for law and the security of American institutions, therefore be it

Resolved, that the American Legion in this thirteenth annual convention assembled, favors the submission by Congress of the repeal or modification of the present prohibition laws to the several States with a request that each state submit this question to the voters thereof.

**AMERICAN FEDERATION OF LABOR.** Following the action of the American Legion was a somewhat similar step taken by the American Federation of Labor at its annual convention at Vancouver, B. C., in October. A resolution adopted by the convention called for the modification of the Volstead Act and the legalization of the manufacture, sale, and transportation of light wines and beer with alcoholic content of 2.75 per cent. The convention also approved the setting up of a committee to press the programme of modification it was advocating and an announcement was made that the order contemplated an intensive drive in its effort to change the dry law. Said a statement from the Federation's executive committee concerning the future plans of this campaign:

There have been those who fearful of the progress we are making have sought our defeat by raising the cry that modification of the Volstead act as urged by our committee and the American Federation of Labor will bring back the old saloon and all its attendant evils. We have no hesitation in saying that if that were true, and those who raise that cry know that it is untrue, such a condition would be 100 per cent better than now prevails.

However, all who approach the question with an open mind, know that there is no possibility of the saloon returning. Our programme does not contemplate the return of the saloon. We do not want the saloon. Nor do we want to take from the National Government control over the manufacture and sale of the malted beverages we ask to be made legal.

Then, too, all of our States would have authority and power to enact such additional laws as will make impossible the licensing of any saloon or other place for the sale of malted beverages of the alcoholic content urged by the American Federation of Labor and our committee. . . . We will continue to appeal to the reasonable man and woman who believes in law and order and public morality, and who is willing to honestly face facts, confident that in so doing we will secure that which we ask—an honest definition from Congress of what actually constitutes an intoxicating beverage.

**THE NATION'S DRINK BILL.** The Association Against the Prohibition Amendment, whose reports have received the attention of these columns in previous YEAR BOOKS, issued a statement in May in which it estimated that the liquor bill of the United States for 1929 was \$2,848,000,000. Declaring that the illicit traffic in liquor was one of the nation's major industries, the Association compared it to the value of all automobiles in the country which it put at \$2,793,000,000, and to the total receipts of the gasoline industry which it put at \$2,954,000,000. The Association estimated that the American people in 1929 had spent \$2,200,000,000 for distilled liquors, \$395,000,000 for beer, and \$253,000,000 for wine. Said it: "Though the amount of beer consumed annually in the United States has sunk to almost one-third of pre-war beer drinking, while twice as much wine as was used in 1914 is now consumed, the money paid for hard liquor shows an increase of over 300 per cent in the last fifteen years with an average increase in the nation's bill for all alcoholic beverages of more than \$1,000,000,000."

Under Prohibition, according to the Association's report, per capita consumption of spirits increased from 1.44 gallons in 1914 to 1.65 gallons in 1929, while the per capita consumption of beer dropped from 20.69 gallons in 1914 to 6.5 gallons in 1929. The consumption of wine increased from .53 to .90 gallons. Thus, the Eighteenth Amendment and the National Prohibition Law, according to the Association, could be credited only with a reduction in the beer consumption. Expenditures for drink are compared as follows in the Association's report:

	[000 omitted.]			Total
	Spirits	Malt liquors	Wines	
Drink bill, 1929 . .	\$2,200,000	\$ 395,000	\$253,000	\$2,848,000
Drink bill, 1914 . .	663,000	1,032,000	124,000	1,819,000
Increase .	1,537,000	637,000	129,000	1,030,000

\* Decrease.

On the basis of these findings, the Association Against the Prohibition Amendment indicated its belief that a tax on legalized liquor at 1918 rates would produce in excess of \$900,000,000, in those 17 States which could be expected to set up systems for liquor sales. The Association argued that State regulation would not increase the country's drink bill, pointing out that money which went to pay the extortionate profits of bootleggers and rum runners and for the corruption of public officials would find its way into the public treasury.

With these utterances the Woman's Christian Temperance Union took issue in July. A statement from its national headquarters declared that liquor taxes before Prohibition never constituted more than 8 per cent or 9 per cent of the income of State and local governments at any time. Liquor never paid a billion dollars in taxes to any one. "From the imposition of the Federal revenue tax on liquor in 1862 down through the Spanish-American War . . . liquor paid a total of only \$3,000,000,000 to the Federal Government, while local saloon and bar licenses paid a trivial amount in proportion . . . The total tax payments to national, State, county and local tax collectors was \$2,799,422,402 in 1913. Of this, liquor paid only 10½ per cent or only \$309,663,321 of which the Federal Government got \$230,146,332."

**DISAGREEMENT AMONG THE WOMEN.** That distinct differences of opinion among the women of the nation existed as far as the Prohibition law was concerned, was evidenced from the public expressions made by representative women's organizations during the year. Three outstanding groups met in Washington in the spring, of which two went on record as favoring the continuance of the Prohibition experiment while the third expressed its opposition. As one commentator declared: "Not since the suffragettes and the anti-suffragettes fought it out over the Nineteenth Amendment has there been such a fight among America's women." The Women's National Committee for Law Enforcement, whose delegates claimed they represented twelve million women, called on President Hoover with a pledge to support his stand on Prohibition. Headed by Mrs. Henry W. Peabody, this Committee declared itself as favoring a nation wide education campaign for law enforcement, to be "fortified by good example" in the home.

Next to express itself on the question was the National Women's Democratic Law Enforcement League, headed by Mrs. Jesse W. Nicholson, of Maryland. This group had bolted the Democratic party in 1928 because of the nomination of Alfred E. Smith and apparently was prepared to take similar action in the coming presidential campaign if the Democracy adopted a like position. The meeting demanded the removal of John J. Raskob, chairman of the Democratic National Committee, and cheered attacks upon the party's most prominent presidential

aspirants, Alfred E. Smith, Franklin D. Roosevelt, Albert C. Ritchie, and James A. Reed.

The third group, the Women's Organization for National Prohibition Reform, led by Mrs. Charles H. Sabin, announced its unalterable opposition to the continuance of the Prohibition law. Appearing before President Hoover, the delegation submitted a resolution petitioning him and Congress to permit the nation an opportunity to vote on the repeal of the Eighteenth Amendment. Another resolution adopted by the organization's meeting called upon its members to support only those candidates for public office who have openly declared themselves in favor of the repeal of the Eighteenth Amendment.

**ADVISORY RESEARCH COUNCIL, BUREAU OF PROHIBITION.** In May, the Federal Bureau of Prohibition announced the creation of an advisory research council whose members were to formulate plans of research into the operation of the Eighteenth Amendment along the lines of sociology and political economy. According to the announced plan, the council was to prepare a programme of subjects for investigation to be offered to graduate students working for the master's or doctor's degree in colleges and universities. Said Amos W. W. Woodcock, national Prohibition director, concerning the nature of the enterprise:

The reputation and character of the persons composing this council insure in advance the handling of research work in graduate schools along purely scientific lines.

The utmost academic freedom is to be given directors of research and those graduate students who elect to investigate the subjects made by the council.

No special objective is asked for. It is facts that are wanted.

The members of the council, who were to serve without compensation, were the following persons: R. C. Cabot, professor of social ethics at Harvard; S. M. Lindsay, professor of social legislation at Columbia; W. S. Carpenter, professor of politics at Princeton; R. D. McKenzie, chairman of the sociology department at the University of Michigan; C. W. Pipkin, professor of comparative government at Louisiana State University; C. E. Gehlke, professor of sociology at Western Reserve University; W. R. Miles, professor of experimental psychology at Stanford University; Emory R. Johnson, professor of transportation and commerce at the University of Pennsylvania; S. C. May, professor of political science, University of California; Miss Susan M. Kingsbury, professor of social economics at Bryn Mawr University.

**PROHIBITION AND THE SEVENTY-SECOND CONGRESS.** It became apparent that the Seventy-Second Congress, meeting for its first session in December, 1931, contained a sizable wet sentiment which was prepared to bring the matter of Prohibition to a definite issue. Heretofore, the dries in the Congress, holding overwhelming strength in both houses, had succeeded in blocking every move to bring a bill or resolution calling for modification or repeal out of committee. Not until the Seventy-Second Congress convened did there exist a national legislature where the wets were able to muster as many as 100 votes against the Amendment or the National Prohibition Law. In the Seventy-second Congress' House, however, out of a total membership of 435, the wets were able to count on the voting strength of at least 174 members. In the Senate, out of 96 members, the wets were able to muster at least 30.

That in the House, certainly, there was every possibility of a show-down on the question, one was able to gather from the following two facts: First an improved organization of its membership; and, second, a liberalization of the rules to permit an open fight on the floor.

The wet members banded themselves into what was unofficially called "The Committee Opposed to National Prohibition." Organized on non-partisan lines, it was headed by Representative J. Charles Linthicum, of Maryland. In the second place, the new rules voted by the House provided that on the petition of 145 members any committee might be cited for discharge from any further consideration of a bill. This meant that a House committee prepared to kill a resolution or bill might be called upon to submit the question for the total membership's consideration, whether or not the committee's majority was actually in opposition.

In the opening weeks of the new session there were before House committees two significant bills which seemed likely to receive the action indicated above and presented the possibility of an open fight on the House's floor. One demanded a national referendum on Prohibition and the other, in the form of an amendment to the constitution, called for the transference of Prohibition enforcement from the federal government to the State governments. The latter proposal was submitted by Representative John Q. Tilson, of Connecticut, Republican floor leader of the Seventy-First Congress.

**BIBLIOGRAPHY.** Two books of the year threw interesting light on the Prohibition discussion. The first of these, *The Prohibition Experiment in Finland*, by Dr. John H. Wuorinen, an American scholar, was published by Columbia University. Dr. Wuorinen pointed out that Finland, in its experiment with complete legal Prohibition since 1919, has gone through practically the same round of experience to be found in the United States, viz: (1) great initial enthusiasm and confidence in Prohibition; (2) difficulties of enforcement; (3) extensive smuggling and law breaking; (4) increased venality among enforcement authorities; (4) a gradual return to sober reflection on the whole issue, with resulting doubt as to whether legislative fiat is the best road to public or private morality. The action taken by Finnish citizens on the public referendum on the last two days of the year is described in the article *FINLAND under History*.

Prof. G. E. C. Catlin's *Liquor Control* (published in the Home University Series) is an excellent summary of the whole question. The author concerns himself with the biological and medical aspects of regulation and control as well as the political and sociological. The writer points out that heavy drinking is bad for the individual as well as the social group. He also recognizes that liquor restraint is likely to improve the economic status of the working classes. However, he makes the point that squalor and the misery of inadequate wages are just as likely to be responsible for the drinking habit as the reverse. Dr. Catlin sees the necessity for regulation (as opposed to Prohibition) and believes that the Bratt system of private liquor monopoly, as it exists in Sweden, is the most likely of success. He says:

The most efficient method, and the one most concurrent with the form which public control tends at the time to be taking, would appear to be the establishment of



local trusts for the sale, where demanded, under the most respectable and agreeable conditions of all such alcoholic liquors as public opinion might choose to sanction.

**WORLD-WIDE STATUS AT THE END OF THE YEAR.** The vote in Finland in favor of the repeal of the country's Prohibition law, if it were to be followed by repeal, would leave the United States alone in the whole world as a so-called Prohibition country. The experiences during the World War and in the post-War era had not been entirely satisfactory. In Russia, Prohibition was imposed as a war-time measure but was repealed in 1925. Estonia and Latvia, among the succession states, repealed Prohibition in 1920. Norway adopted Prohibition in 1916 but in 1927 abandoned it for regulation and local option. In Sweden, the Bratt system of regulation was adopted in 1919 and still continues to function. During the war eight of the nine Canadian provinces adopted Prohibition but in the succeeding years all but Prince Edward Island had returned to the regulation and licensing system. In New Zealand and in the Australian provinces of New South Wales and Victoria, popular plebiscites have returned heavy majorities against the adoption of Prohibition. See CANADA under *Foreign Relations*; CRIME; LAW, PROGRESS AND DEVELOPMENTS; ST. PIERRE AND MIQUELON; UNITED STATES under *Congress*; PORTO RICO under *History*.

**PROTACTINIUM.** See CHEMISTRY.

**PROTESTANT EPISCOPAL CHURCH.** A religious body representing the Anglican communion in the United States, of which the Church of England is the parent church, and which was brought to America in 1607.

In 1931 the total number of communicants of the Protestant Episcopal Church, in 8254 parishes and missions, was 1,312,004, an increase of 24,573 over the preceding year. The clergy numbered 6323; 175 priests were ordained during the year, while the 15 theological seminaries of the church reported 488 candidates for orders. In the 5000 church (Sunday) schools 500,782 pupils were enrolled. Baptisms during the year numbered 64,241, and confirmations 63,782. The government of the church centres in a general convention which meets triennially. The affairs of the church between sessions are conducted by a national council.

Operating on a balanced budget, the church in 1930 reported total expenditures amounting to \$3,775,802. Of this sum, the total expenditure for missions, domestic and foreign, was \$2,862,119, divided in practically even amounts between the two fields. The foreign-mission field included Japan, China, Liberia, Mexico, the Philippines, Alaska, Hawaii, Brazil, the Canal Zone, Cuba, Porto Rico, Haiti, the Dominican Republic, the Virgin Islands, and Palestine; in addition, there were establishments in 10 important European centres. Domestic missionary activities included work among the foreign born, Indians, Negroes, mountaineers, mill workers, in addition to a wide range of social service. American missionaries abroad numbered, men and women, respectively, 168 and 213; native staff abroad, 1499 and 918; American missionaries in the United States, 581 and 156, native staff in the United States, 105 and 14, making a total of 3654 persons. During the year, 69 new missionaries were appointed.

The national council is assisted by coöperating agencies, including: the Woman's Auxiliary; the

Brotherhood of St. Andrew; the Church Army; the Daughters of the King; the Guild of St. Barnabas (for nurses); the Girls' Friendly Society in the United States (for girls and young women); the Young People's Fellowship (for young men and women); the Church Mission of Help; the Seamen's Church Institute of America; and the American Church Institute for Negroes. Official periodicals are *The Spirit of Missions*, *Church at Work*, *Findings in Religious Education*, and *Bulletins* of the national council, together with material dealing particularly with each department of the council. Several independently owned publications make an important contribution to the life of the church: *The Living Church*, *The Churchman*, *The Witness*, *The Southern Churchman*, weeklies; *American Church Monthly* and *The Chronicle*, both of which are published monthly.

The year 1931 was marked by the death of four bishops: The Rt. Rev. Richard Henry Nelson, D.D., who had resigned as Bishop of Albany, July 1, 1929; the Rt. Rev. Thomas James Garland, D.D., Bishop of Pennsylvania and a member of the national council, who was succeeded by his coadjutor, the Rt. Rev. Francis M. Taitt, S.T.D.; the Rt. Rev. Theodore Irving Reese, D.D., Bishop of Southern Ohio, who was succeeded by his coadjutor, the Rt. Rev. Henry Wise Hobson, D.D.; and the Rt. Rev. John Poyntz Tyler, D.D., Missionary Bishop of North Dakota. The only bishop who retired during the year was the Rt. Rev. James Ridout Winchester, D.D., Bishop of Arkansas.

New members of the house of bishops consecrated during 1931 included: The Rt. Rev. Wyatt Brown, D.D., Bishop of Harrisburg; the Rt. Rev. Stephen E. Keeler, D.D., Bishop Coadjutor of Minnesota; the Rt. Rev. Frederick G. Budlong, Bishop Coadjutor of Connecticut; the Rt. Rev. Efrain Salinas, Suffragan Bishop of Mexico; the Rt. Rev. John Boyd Bentley, Suffragan Bishop of Alaska; and the Rt. Rev. Frederick B. Bartlett, Missionary Bishop of North Dakota, to succeed the Rt. Rev. Hugh L. Burleson, who was chosen assistant to the presiding bishop.

The fiftieth general convention of the Protestant Episcopal Church was held in Denver, Colo., Sept. 16-30, 1931. It was attended by 114 bishops and 648 clerical and lay deputies. One of the great issues facing this convention was the report of the joint commission on marriage and divorce, which had been studying the problem since 1925. After conference between the house of bishops and the house of deputies, its recommendations were considerably modified and an entirely new canon was adopted. See MARRIAGE AND DIVORCE for significant quotations from the amended Canon 43 on the Solemnization of Holy Matrimony. Three major questions, however, were deferred to the next general convention, viz: the requirement that one of the parties to the marriage must have received Christian baptism; the signing of a declaration as to the sanctity of marriage before it can take place; and the provision in the old canon making possible the remarriage in the church of the innocent party in the case of a divorce granted for adultery.

Another important issue before the convention was that concerning economic conditions not only in the United States but throughout the world. In view of the economic depression, and consequent distress, a resolution was adopted asking President Hoover to set aside, by proclamation,



Sunday, November 8, to be observed nationally as a day of public penitence and prayer. The interest of the convention in the responsibility of the church for the social welfare of the people found expression in the report of a committee appointed to consider national and world problems, including economic dislocation, lawlessness, and world peace. This report conceded to every man "the right to regularity of employment" and urged the necessity of providing security for the workers by some form of unemployment insurance, whether by voluntary arrangement or legal compulsion.

Under the head of lawlessness, which was declared to threaten the social order, the report condemned the lack of sense of social responsibility which marked many who desired for themselves the protection of position and property, and declared that "bootlegging would be no longer profitable were wealthy purchasers less generous in support of the traffic." At the same time, the report recognized widespread and honest differences of opinion, both in the church and the state, "as to the wisdom and desirability of retaining the Eighteenth Amendment and consequent legislation in their present form" and urged a serious effort to discover the deliberate opinion of the people on its retention or amendment. The report also roundly condemned war as a method of settling international disputes and endorsed the principles of the Kellogg Pact. It likewise expressed the opinion that the time had come for the United States to associate itself with the League of Nations.

The problem of church unity was to the fore during the convention. A report of a conference between the Episcopal and Methodist and Presbyterian churches on Christian morality in relation to organic unity was presented. Authority was given to continue the conference and to invite the cooperation of the Lutheran Church, and also to organize a commission on ecclesiastical relations under the national council. The convention approved of the acceptance of a pressing invitation to undertake missionary work in South India, and the department of missions was directed to embark upon the experiment as soon as the necessary funds had been subscribed. The convention also witnessed a great enlargement of the ministry of women in the church. Deaconesses were to be recognized as a distinct order of ministry and provision was made for their ordination.

The canons dealing with the trial of ministers of the Protestant Episcopal Church were codified, but a proposal to create a final court of appeals to deal with heresy trials was defeated. Authority was also given to create a fund of \$5,000,000 for a rural church foundation to foster the work of the church in rural communities.

The Rt. Rev. James DeWolf Perry, D.D., S.T.D., Bishop of Rhode Island, was elected presiding bishop for the ensuing six years. He was also president of the national council, whose headquarters are in the Church Missions House, 281 Fourth Avenue, New York City.

**PROTOZOA.** See Zoölogy.

**PRUSSIA,** prűsh'ă. A constituent republic of the German Reich. Formerly a kingdom of the German Empire, it was proclaimed a republic Nov. 13, 1918. Capital, Berlin. Area, Apr. 1, 1929, 113,129 square miles, as compared with 135,134 square miles before the World War; population, according to the census of 1925, 38,175,989, as

compared with 40,165,219 in 1910. Births in 1929 numbered 725,299, deaths 517,345, marriages 365,221. The chief cities, with their populations in 1925, are Berlin, 4,024,165; Cologne, 700,222; Essen, 629,564; Breslau, 599,770; Frankfurt-on-Main, 540,115; Dortmund, 525,837; Düsseldorf, 464,543; and Hanover, 425,274. Public elementary schools in 1926 enrolled 4,169,481 pupils and the private elementary schools, 13,925. There were 52,683 students in 14 universities in 1929-30, and about 732,700 pupils in various secondary and preparatory schools in 1926.

Agriculture, mining, and manufacturing are the principal industries. The chief crops, with the yields in metric tons, in 1929 were: Wheat, 1,968,913; rye, 6,113,599; barley, 1,752,798; oats, 5,210,640; potatoes, 26,592,134; meadow hay, 9,504,358. Vineyards yielded 10,928,877 gallons of wine, valued at 33,251,545 Reichsmarks (1 Reichsmark equaled \$0.2382 at par). In the fiscal years 1930-31 and 1931-32, the budgets of the Prussian Government were estimated to balance at 4,356,959,020 Reichsmarks and 3,972,694,000 Reichsmarks, respectively. The public debt in 1930 aggregated 531,678,497 Reichsmarks (381,575,995 Reichsmarks in 1929).

The Constitution of Nov. 30, 1920, vests legislative power in a Diet (Landtag) of 450 members, elected by direct suffrage, and a State Council (Staatsrat) elected by the Provincial Assemblies. The Diet elects the Premier, who appoints the members of his Cabinet. The Diet elections of May 20, 1928, returned 137 Social Democrats, 71 Centrists, 82 German Nationalists, 40 German People's party, 56 Communists, 21 Democrats, 21 Economic party, 6 National Socialists, and 16 others. Premier in 1931, Otto Braun (Social Democrat).

**HISTORY.** The tide of political reaction in Germany, which had risen to challenging proportions in the elections to the Reichstag in 1930, showed some recession in the referendum on the dissolution of the Prussian Diet held Aug. 9, 1931. The referendum was instigated by the Steel Helmet War Veterans' League, who in April secured the necessary 5,000,000 signatures to their petition, and was aimed at the overthrow of the Socialist-Centrist-Democratic coalition government headed by Premier Otto Braun. Supported by Adolf Hitler's National Socialists, the German Nationalists under Alfred Hugenberg, the Agrarians, a section of the People's party, and the Communists, the Steel Helmet League rallied 9,703,603 Prussians, or 36.9 per cent of the electorate, to their cause. As 13,200,000 votes—an absolute majority of the Prussian electorate—were required to overthrow the government, the referendum failed by approximately 3,500,000 votes. The State government's victory had an important effect in stabilizing the disturbed political condition of the German Reich (see GERMANY under History).

Drastic economy measures were inaugurated by the Government during the year. On September 9, the budget was reduced by about 208,000,000 Reichsmarks (about \$50,000,000) and on September 14 the membership of the Diet was reduced one-third by decree, to one representative for every 60,000 voters.

**PSYCHIATRY.** See PSYCHOLOGY; CRIME.

**PSYCHICAL RESEARCH.** There occurred very little of permanent significance during the year. There was no serious progress, but on the other hand no serious retrogression. Early in the

year the London Spiritualist Alliance, recognizing that some degree of critical investigation of mediums is necessary, formed a Research Committee. This Committee brought to London a Mrs. Duncan, a physical medium who claimed to be able to produce at a sitting one or more full form materializations. The Committee published a favorable preliminary report, but when the conditions of control were tightened up the medium was discovered in fraud. Before this stage had been reached, however, Harry Price, an independent investigator, had sittings with Mrs. Duncan, although the latter had signed an exclusive contract with the London Spiritualistic Alliance. By means of flashlight photographs and in other ways Mr. Price was able to show that the supposed supernatural ectoplasm produced by the medium was nothing more mysterious than cheese-cloth. As the medium was carefully searched before the sitting, it was not definitely known how she brought the material into the *séance*-room, but it was plausibly suggested that the medium swallowed and regurgitates the substance. Mr. Price has published a full report entitled *Regurgitation and the Duncan Mediumship*.

A still more deplorable exposure was that of George Valiantine. This medium's reputation, such as it was, was largely created by H. Dennis Bradley, who had written two books in which he acclaimed Valiantine, in the most laudatory terms, as the greatest medium of all time. Valiantine produced all sorts of phenomena, but specialized in the direct voice. During his last sittings with Mr. Bradley he went further and tried to give fingerprints. In doing so he was caught cheating and was completely exposed by Mr. Bradley in his book . . . *And After*. Mr. Bradley continued to believe in Valiantine's direct voices, and many supporters retained their faith in the medium, although he had been repeatedly exposed in both Europe and America.

Other notable physical mediumships referred to in previous years were largely quiescent, though their subterranean reverberations resulted in two unfortunate losses of useful workers. J. Malcolm Bird severed his connection with the American Society for Psychical Research for reasons unpublished, so that unfortunately the second installment of his history of the Margery mediumship was not published. Rudolf Lambert was dismissed from his post as assistant-editor of the German *Zeitschrift für Parapsychologie* because of his criticisms of the Millesimo and Silbert mediumships. There remained only two scientific publications devoted to psychical research, the *Proceedings* of the Society for Psychical Research and the *Bulletin* in the Boston Society for Psychic Research (apart from the privately printed *Journal* of the Society for Psychical Research).

On the other hand an important item was to be entered to the credit of the physical phenomena. At the very end of the year Dr. E. Osty, the Director of the Paris Institut Métapsychique, published the first installment of what promised to be a valuable report on the mediumship of Rudi Schneider, employing a new technique.

In the mental phenomena a certain amount of useful work was done. Theodore Besterman, S. G. Soal, and Ina Jephson published in the *Proceedings* of the Society for Psychical Research a report of a series of experiments in clairvoyance conducted under approximately fraud-proof conditions and with the investigators and subjects at

a distance from each other. The technique employed was carefully described and the results analyzed statistically and theoretically. No evidence of clairvoyance was found but much material of psychological value was obtained. Theodore Besterman also published in the *Proceedings* a full account of two series of control experiments in booktests (the supernatural perception of the contents of closed books), which fully demonstrated that the results obtained by the medium Mrs. Leonard were far superior to what chance could obtain even under the most favorable conditions.

In addition to the works mentioned above, there were published during the year 1931 Max Dessoir, *Vom Jenseits Der Seele* (6th edition); T. W. Mitchell (Myers Memorial Lecture) *Beneath the Threshold*; the first installment of an extensive report on *Human Experiences*, by W. F. Prince; a small book on *L'Avenir et la Prémonition* by the veteran Charles Richet; Dame Edith Lyttelton's *Our Superconscious Mind*; and *My Life in Two Worlds* by the medium Mrs. Leonard. Also E. Servadio, *La Ricerca Psichica*; A. A. Friedlander, *Telepathie und Hellsehen*; E. Caillet, *La Prohibition de l'Occulte*; A. M. Muhl, *Automatic Writing*; E. J. Dingwall, *Ghosts and Spirits in the Ancient World*; *An Adventure* (4th edition); and Sir Arthur Conan Doyle's *The Edge of the Unknown*.

**PSYCHO-ANALYSIS.** See PSYCHOLOGY.

**PSYCHOLOGY.** NOTES AND NEWS. The thirty-ninth annual meeting of the American Psychological Association was held at the University of Toronto, Toronto, Ontario, on Sept. 10, 11, and 12, 1931. There was a registered attendance of 448 persons. Fifty papers were read in ten formal sessions and 67 shorter ones were read in eight other sessions. Of the total of 117 papers, 20 were concerned with the problems of learning and 12 with the problems of development and growth. Seventeen papers dealt with animal psychology and fifteen with the phenomena of perception. The remaining 50 or more papers covered a great variety of topics.

The address of the retiring president, W. S. Hunter of Clark University, was on "The Psychological Study of Behavior." The newly elected president to serve during the year 1932 was W. R. Miles, Professor of Psychology at Stanford University. Professor D. G. Paterson, of the University of Minnesota was elected secretary to serve for a period of three years. The by-laws of the association were amended to provide for the regular annual meeting to be held early in September of each year, instead of the latter part of December. Cornell University was chosen as the place for the meeting in 1932.

The seventh Conference Internationale de Psychotechnique was held at Moscow on September 6 to 11. The President was I. Spielrein, and the secretary-general was J. M. Lahy. Over 100 foreign delegates were present from 17 countries, in addition to several hundred Russian workers in the field of psychotechnics.

The twelfth Kongress der Deutschen Gesellschaft für Psychologie was held at Hamburg April 13-17, 1931. There was an attendance of 250 persons and 79 papers were read.

The 35th Anniversary of the establishment of the First Psychological Clinic for the mental analysis and diagnostic and corrective education of human beings was celebrated at the Univer-

sity of Pennsylvania. Dr. Lightner Witmer, who established this clinic in 1906, was presented with a commemorative volume, containing contributions from 27 of his colleagues and students. The 25th anniversary of the founding of the Vineland Laboratory of the Training School at Vineland, New Jersey, was celebrated from September 3 to 5. Formal dedication of the Institute of Human Relations of Yale University occurred on May 9. The Annual Convention of the Society for the Study of Disorders of Speech held at Chicago on Dec. 31, 1930, and Jan. 1, 1931, adopted a nationwide coöperative programme for the study of the problem of stammering.

The French Société de psychologie named the following foreign members during the year 1930: Professors Cassirer, Lewin, and Wirth of Germany; Bartlett and Burt of England; Dwelshauvers and Michotto of Belgium; and Cannon, Dodge, and Yerkes of the United States.

One of the most unique events of the year 1931 was the inauguration by the National Advisory Council on Radio in Education of a series of 15-minute radio talks on "Psychology Today." They were broadcast each Saturday evening beginning October 17, at 8.30 over the WEA network. The opening talk was by President James R. Angell of Yale. This was followed by a set of four talks dealing with problems of human management, learning and forgetting, social attitudes, old prejudices and new schools in psychology. A second group of five talks dealing with child development began on November 21, and included the growth of the infant mind, children's fears, anger: its causes and control, social behavior in infancy, and childhood and adolescence.

A listener's notebook was prepared for each set of five lectures containing a brief introduction and a summary of each talk, and a page for notes and comments. As stated in a foreword, these booklets were an innovation in the United States, although they had been provided for years in England for members of the radio audience who wished to pursue further the subjects which the speakers presented. These booklets were to be distributed through the University of Chicago Press, at a nominal price. The sales far exceeded preliminary estimates, and the comments which were received indicated a widespread and intelligent interest in psychology. It was planned to continue the programme into 1932 with series on Animal Behavior, Educational Psychology, Problems in Personality, and Industrial Applications.

A notable attempt at collective experimental research on the problem of psychological origins in human development was undertaken by the Soviet Union. An expedition was organized by the Uzbek Research Institute of Samarkand and the Moscow Institute of Experimental Psychology under the direction of Prof. Alexander Luria of Moscow. Work was begun with the native population of Uzbekistan in Central Asia, where the people live under primitive nomadic conditions. Reports of the expedition were to be published in a series of *Transactions* and in foreign psychological journals.

Dr. A. P. Weiss (q.v.) Professor of Experimental Psychology at Ohio State University, died at Columbus, Ohio, on April 3. He had just completed a study of the "Psychology of the Highway," having been chairman of a com-

mittee of the National Research Council devoted to that problem. The results of the numerous researches of this committee were published in June by Ohio State University under the title: *Psychological Principles in Automotive Driving*.

The nationwide survey in English usage undertaken by the Psychological Corporation during 1930 was continued into the present year. Nearly 1,000,000 pupils had been tested. National norms of usage in the United States were soon to be completed and ready for distribution.

A British *Journal of Educational Psychology* was inaugurated by the British Psychological Society and the Training College Association. Its editor was C. W. Valentine, and its headquarters were the University of Birmingham, Birmingham, England.

The sixtieth birthday of William Stern, Director of the Psychological Laboratory at the University of Hamburg, was celebrated by the publication of a Festschrift (*Zeitschrift für Angewandte Psychologie*, 1931, Heft 59) containing contributions by his colleagues.

GENERAL AND THEORETICAL PSYCHOLOGY. There has been a general increase in interest in the concept of wholeness as opposed to the concept of summation of elements, with the centre of activity in Germany. The movement goes by varied names, such as Gestalt, Personalism, Structuralism, and Nativism, according to the special interests of its sponsors. The one characteristic which these different movements have in common is that the personality shall not be dissected, but shall be conceived as a unit.

The confusion often created in the mind of the lay reader by these psychological controversies over theoretical problems might be resolved by reading *Contemporary Schools of Psychology*, by R. S. Woodworth (New York, 1931). This is a critical examination of introspection, behaviorism, Gestalt psychology, psychoanalysis and its related schools, and purposivism or hormic psychology. In addition, the background of these disputes is presented together with the point of view of psychologists who prosecute their researches without adherence to any school.

An attempt to evaluate the influence of Freud upon textbooks of psychology published since 1910 (Freudian Influence on Academic Psychology," by D. G. Park, *Psychological Review*, 1931, vol. 38, pp. 73-85) brought forth the conclusion that 92 per cent of the 50 texts examined showed Freudian influence; of the four that ignored Freudianism entirely, two were published before 1912. This influence grew until it reached a maximum in books published between 1924 and 1928. Since that time there has been little change. An examination of revisions of books showed "a decided increase in the amount of Freudian influence; as well as a spread into most of the major categories of psychology."

A somewhat similar but less statistical evaluation of Gestalt psychology in modern systems was made by W. Line ("Gestalt Psychology in Relation to Other Psychological Systems," *Psychological Review*, 1931, vol. 38, pp. 375-391). The roots of Gestalt were readily found in the ideas of earlier systems, although Gestalt was given credit for indicating novel problems and suggesting new approaches to old problems.

Along with the championing of the new and revolutionary in psychology, there were efforts

to defend the older concepts. Thus, H. C. Warren ("In Defense of Some Discarded Concepts," *Psychological Review*, 1931, 38, pp. 392-405) became the defender of the concepts of Sensation and Will. Even Consciousness and the methods of introspection found a champion in L. P. Chambers ("Does Consciousness Exist," *Monist*, 1930, vol. 40, pp. 256-280).

**SOCIAL PSYCHOLOGY.** A striking demonstration of the degree to which the experimental method has found its way into the field of sociology, and particularly social psychology, was furnished by the appearance of two books during the year. One of these, *Experimental Social Psychology* (New York, 1931), is a book of more than 700 pages, by Gardner Murphy and Lois B. Murphy, whose main contribution consists in pointing out problems and suitable methods for their solution. The other is *Methods in Social Science: A Case Book*, edited by Stuart Rice (University of Chicago Press, 1931). It comprises an interpretation by about 50 specialists of the methods employed by investigators in the social sciences. This book of more than 800 pages consists mainly of case histories so selected as to illustrate the salient points of the various research methods. It was prepared under the direction of a special committee of the Social Science Research Council.

An important contribution within the field of Social Psychology appeared in *Psychopathology and Politics*, by H. D. Lacswell (University of Chicago Press, 1930). It represented the most successful attempt thus far to interpret political behavior in psychoanalytic terms, and to show the influence of events in the early life of the individual upon the character of his point of view in regard to the various political problems affecting him.

The experimental study of racial and national prejudices, antipathies, and tolerances showed the great interest of the social psychologist in problems having to do with international relations. Attempts were made not only to discover the reactions of individuals to racial and national groups but to find causes for the growth of prejudiced reactions and to discover means by which they might be prevented or corrected. A typical study of this nature was "Racial Preferences of a Thousand American University Students," by J. P. Guilford (*Journal of Social Psychology*, 1931, vol. 2, pp. 179-202).

Religions were likewise subjected to analysis by the psychologist and the statistician in order to determine their influence upon social growth. Among the problems attacked were the relation between rate of growth of religious sects, the nature of their doctrines, and the intelligence of their followers (see for instance, "Some Notes on the Census of Religious Bodies," by Raymond Pearl, *Journal of Social Psychology*, 1931, vol. 2, 47-430); the relation between scientific standing and religious affiliation (see H. C. Lehman, and P. A. Witte, "Scientific Eminence and Church Membership," *Scientific Monthly* 1931, vol. 33, pp. 544-549); and the relation between the individual's personality and the nature of his religious experience (see "Temperament and Religious Experience," by Keith Sward, *Journal of Social Psychology*, 1931, vol. 2, pp. 374-395).

**EDUCATIONAL PSYCHOLOGY.** The year 1931 saw a revived interest and activity in the analysis of the problems of learning. The attacks made

upon the generally accepted concepts of learning, by the Behaviorists, the Conditioned Reflex psychologists, and the Gestalt psychologists, laid open for reconsideration the whole problem of the laws of learning. Not only were the old laws subjected to reexamination (as in *Human Learning*, by E. L. Thorndike, New York, 1931) but there were numerous attempts to find a more fundamental and substantial basis for the phenomena of learning (as in "The Primary Factors in Learning" by K. F. Muenzinger, *Psychological Review*, 1931, vol. 38, pp. 347-358; "Inhibition, Facilitation, Learning: Summation of Stimuli," by M. N. Chappell, *Psychological Review*, 1931, vol. 38, 317-331; and "The Laws of Association," by H. A. Carr, *Psychological Review*, 1931, vol. 38, 212-228).

The problems of development and growth were receiving an amount of attention almost equal to that of learning. In addition to the educational psychologist's inherent interest in these questions, attention was directed to them through the controversy over the relative influence of learning and maturation, and through the emphasis during the last few years upon the education of the adult. Studies have ranged all the way from the growth of the group reaction in young infants to the mental changes in senescence. Of especial interest was the study of "Perceptual Abilities in the Age Range from Seven to Ninety-Two" (W. R. Miles) and "Psychological Work in Salvaging Old Age" (L. J. Martin). Both these studies and others of the same nature were reported at the 1931 meeting of the American Psychological Association.

Some notion of the influence of the different schools of theoretical psychology upon points of view in educational psychology was provided in *Viewpoints in Educational Psychology: a Book of Selected Readings*, by E. H. Cameron (New York, 1931).

**APPLIED PSYCHOLOGY.** Among the many practical applications of psychology recorded during 1931, none had more practical significance than the study of automobile driving conducted primarily at the Ohio State University under the auspices of the National Research Council ("Psychological Principles in Automotive Driving," by A. P. Weiss and A. R. Lauer, Ohio State University Studies, Psychological Series, No. 11, 1931). Besides the study of accident frequency and the development of a criterion for automotive driving, the influence of various human factors was investigated.

One of the interesting results of the investigations was the extent to which one defect may be compensated for, when it has been detected and proper teaching methods have been employed. Nervousness is a major cause of accidents, especially when coupled with poor coordination. Low vitality from any cause, whether it be due to health, poor home conditions, or worry is conducive to inattention and hence to accidents.

Defects of vision appeared to be of minor importance, except in so far as they created strain and fatigue with consequent inattention. The results were acknowledged to be exploratory in character, but formed the foundation for a more elaborate and systematic programme of investigation.

Besides such specific attacks upon practical problems there were a number of surveys of fields that are of particular interest to those who

are not professional psychologists. For instance, there was *Readings in Industrial Psychology*, by B. V. Moore and G. W. Hartmann (New York, 1931), which presented some 550 pages of extracts from studies dealing with vocational selection and guidance, occupational interests, training the worker, scientific management, fatigue, working conditions, accidents, monotony and satisfaction, labor unrest, leadership, etc.

A *Scientific Approach to Labor Problems* (by A. Ford, New York, 1931) showed the psychological techniques and tools that were available for the solution of the puzzling problems of labor.

Psychological aspects of the law, particularly the problems of crime prevention and the treatment of the criminal, have not received the attention warranted by their importance since the days of Hugo Münsterberg. One of his students, however, made a genuine contribution to this field in 1931 in the form of a résumé of the material contributed by psychologists in the form both of methods of procedure and of results (*Legal Psychology*, by H. E. Burt, New York, 1931). When the data have been thus assembled one gets a perspective which may serve as a guide for future research. The bulk of the labor of many years has been expended upon devices for evaluating evidence and for detecting the presence of guilt. However ingenious the methods and however accurate the results, the great problem of prevention, which is primarily a psychological problem, remains unsolved. This matter has not been entirely neglected, as is shown by chapters on the insane and the mentally defective criminal, and particularly by the chapters on predelinquency, eugenics, and education and crime prevention.

**MENTAL TESTS.** In the field of mental tests there appeared to be a growing interest in the search for fundamentals as contrasted with the haphazard multiplication of tests which had continued for a number of years. Two indications of such a change in attitude may be mentioned. The one emanated from such studies as that of Raymond Dodge, who for many years had been searching for and measuring the basic facts of variability in human behavior (see R. Dodge, *Conditions and Consequences of Human Variability*, Yale University Press, 1931). Differences in behavior were reduced to their lowest terms and measured as effects of differences in refractory phase, of relative fatigue, of susceptibility to faint stimuli, of the development of simple behavior patterns, and their complication by the interaction of neural levels. This mode of attack promised to provide a physiological foundation for the measurement of individual differences.

Another indication arose in the study and analysis of mental organization into its lowest terms. This movement is an outgrowth of the years of controversy over the theories of general and specific factors. (The nature of this controversy is described in Spearman, C. E., *The Abilities of Man*, New York, 1927.) It has led to a search for a certain limited number of fundamental and unique traits in human nature, which, combined in various proportions, would produce the varied individual behavior patterns. The method of attack is primarily one of statistical analysis. Among the unique traits which were at least partially isolated were speed, power, perseveration, suggestibility, number abil-

ity, language ability, memory, and mechanical ability. When behavior had been broken down into such units, the statistical methods of multiple correlation would be applied to determine the relative influence of each factor in determining a given form of response.

In the meantime numerous books and articles were published which were intended to guide the student through the increasing maze of test materials and methods. For instance, an *Introduction to the Use of Standard Tests*, by S. L. and L. C. Pressey (New York, 1931), was recommended as "a reference for busy teachers, supervisors, and superintendents." Covering a somewhat narrower range, was *Educational Measurements in High School* by C. W. Odell (New York, 1930). Of the 641 pages of this book 300 were devoted to the analysis and explanation of available tests in a great variety of school subjects. It contained a full list of publishers of the various tests.

**PUBLIC AFFAIRS, INSTITUTE OF.** An organization inaugurated in 1927 at the University of Virginia for the purpose of advancing the popular understanding of public questions and stimulating in the public mind a more vital interest in public matters, particularly the domestic problems of the United States. The attendance at the 1931 session, held from June 28 to July 11, consisted of 594 registered members and 1184 registered visitors from 37 States, the District of Columbia, Mexico, Porto Rico, Costa Rica, Guatemala, and Nicaragua. Membership in the institute is open to men and women who have taken part in public life and to those who are interested in any phase of public affairs.

The programme of the 1931 session was planned in accordance with the announced purpose of the institute to limit its discussions primarily to a study of governmental problems of national, State, and local concern and to certain economic and social conditions underlying them. It consisted of nine round tables, dealing with the following subjects: "Law Enforcement"; "Our Latin-American Relations"; "The Plight of Southern Agriculture"; Problems of Municipal Administration"; "Religious Education in the Rural Church"; "The Chain Store"; "The New Industrialism of the South"; "Regionalism"; "Unemployment"; and five special conferences on the following topics: "Public Personnel Administration"; "Adult Education"; "The Place of the Child in Public Affairs"; "County Government"; "The Federation of Women's Clubs." The invited speakers, in addition to those who gave evening addresses, numbered 127.

The 1932 session of the institute was to be held from July 3 to 16. The officers of administration in 1931 were: Dr. John Lloyd Newcomb, acting president of the University of Virginia; Dr. Charles G. Maphis, dean of the summer quarter and director of the institute; Eleanor McKenney Gibson, secretary of the institute; and an advisory board composed of 24 prominent educators and recognized leaders in public affairs, selected from all sections of the United States and from the two political parties. Headquarters are at the University of Virginia, Charlottesville, Va.

**PUBLIC FINANCE, UNITED STATES.** As in other branches of national business, so in Public



Finance, the results of the year 1931 continued to be dominated by the effects of the collapse of values in 1929. The lack of coincidence between fiscal and calendar years had masked the shrinkage of revenues which had occurred during 1930 except to those who followed receipts closely from day to day. From the beginning of the calendar year 1931, however, it grew plainer and plainer that the year would be one of great loss of revenue; and this fact, more than ever apparent after the first filing of income tax statements on March 15, was emphasized by the moratorium on foreign debts proclaimed about the beginning of July; and by the continuous losses of foreign trade due in part to the effort of foreign countries to shut out American goods.

The situation was rendered more serious by the adoption by Congress, in February, 1931, of the so-called "bonus certificate" bill which at once entailed an extra expenditure of close to one billion dollars. This represented an outlay, recognized as eventually to be made when the original bonus measure was adopted, but which was not counted as an immediate necessity until the "bonus" measure of 1931 making 50 per cent of the veterans' certificates available at once as a basis for loans. Continuous drafts by the Farm Board upon the moneys already set aside for it further drew down the active bal-

difficulty of collecting installments of income and profits taxes acknowledged and due, but not collectible, owing to bankruptcy or inability on the part of individuals to pay, the shrinkage of income became far more noteworthy as the year proceeded. The later installments of income tax (subsequent to the close of the fiscal year for which the figures just quoted are representative) likewise intensified the unfavorableness of the case and convinced Treasury officials that new sources of income speedily must be sought. By the close of the calendar year, the Treasury foreshadowed a deficit of not less than \$2,150,000,000.

Although the policy of collecting back taxes and of keeping revenues as nearly up to date as practicable was pushed, as had been the case in recent years, the difficulties of collection were multiplying; and the evident fact that the returns of income tax for the coming year would be greatly reduced owing to the falling off of employment, the incurring of severe losses of every description, the growth of bankruptcies and the absence of foreign payments rendered the treasury outlook more and more menacing, and, added to the size of the burden which had been imposed upon the banks by the habit, already firmly fixed in former years, of borrowing at banks to cover the deficit.

## ORDINARY RECEIPTS, FISCAL YEARS 1920 TO 1931

[On basis of daily U. S. Treasury statements (unrevised)]

Year ending June 30—	Customs	Income and profits taxes	Miscellaneous internal revenue	Miscellaneous revenues, including Panama Canal Proceeds from foreign obligations	All other	Total
1920 .....	\$322,902,650	\$3,944,949,288	\$1,480,082,287	\$ 74,296,622	\$892,834,542	\$6,694,565,389
1921 .....	308,564,391	3,208,046,158	1,390,379,823	114,821,206	605,121,383	5,624,932,961
1922 .....	356,443,387	2,068,128,193	1,145,125,064	75,222,068	464,185,439	4,109,104,151
1923 .....	561,928,867	1,678,607,428	945,865,333	232,989,156	587,744,697	4,007,185,481
1924 .....	545,637,504	1,842,144,418	953,012,618	221,774,675	449,475,487	4,012,044,702
1925 .....	547,561,226	1,760,537,823	828,638,068	183,637,677	459,773,890	3,780,148,684
1926 .....	579,430,093	1,982,040,088	855,599,289	194,237,957	351,448,263	3,962,755,690
1927 .....	605,499,983	2,224,992,800	644,421,542	206,089,173	448,390,943	4,129,394,441
1928 .....	569,000,000	2,173,400,000	621,000,000	205,900,000	468,900,000	4,042,300,000
1929 .....	600,810,838	2,331,274,428	608,135,036	199,131,566	293,836,505	4,030,250,225
1930 .....	589,000,903	2,410,986,977	628,308,035	303,870,694	247,725,091	4,177,941,702
1931 .....	378,354,005	1,860,394,295	569,386,721	184,474,622	314,623,856	3,317,233,493

ances of the Treasury, while the continuation of extraordinary outlays for building and construction intended as relief work to mitigate the severities of the panic also added to the great total of outlays. The total ordinary receipts for the year ending June 30, 1930, amounted to \$3,317,233,493 and were thus over \$850,000,000 below those of the preceding fiscal year. Expenditures of \$4,219,950,338, were about \$200,000,000 ahead of the outlays for the preceding year; and, after allowing for transactions in public debt, the ultimate result was a net deficit of \$900,000,000. Shortage of revenue was most marked in income and profits taxes which fell off about \$540,000,000, while customs receded some \$208,000,000 below the preceding year, and miscellaneous revenues were \$40,000,000 lower. As already stated, the situation was thus far more favorable on the surface than was represented by current incomes, owing to the holding over of income tax liabilities from former periods in which business had not reached so low a point of depression.

Conditions during the forepart of the year were far better maintained than was the case during the second six months but with the further collapse of business and the increasing

FEDERAL EXPENDITURES. The total situation in public expenditures has already been noted but the trend and its causes need brief attention. Among the specific causes for enlargement of outlay, in spite of all talk of national economy, particularly observed by the Secretary of the Treasury were additional outlays for Federal highway construction and emergency relief in drought-stricken areas, large payments for rivers and harbors, flood control, the army housing programme, and larger outlay for the air corps. A total of \$953,000,000 spent for payments and loans on veterans' account ("bonus") was the greatest additional draft, while total expenditures from the agricultural marketing fund (farm board) ran to \$190,000,000. A postal deficit of \$145,000,000 and incidental additional outlay in various minor directions made up the total budgetary increases.

In these circumstances, a great change in the formerly flourishing surplus of the nation was to be expected. Although the excess of receipts had been steadily running down from year to year, as extravagance gained ground and as taxes were slowly reduced or remitted to favored classes, it had continued in substantial sums up to the end of the calendar year 1930. With the heavy



outlays for bonus and other items early in 1931, and with preceding reductions of revenue it had wholly disappeared and from the beginning of 1931, the department was on a deficit basis. Reductions of public debt by carrying surpluses of revenues to settlement of bank obligations ceased and in place of it was increased certificate borrowing. The result is exhibited in the accompanying table.

**ORDINARY RECEIPTS, EXPENDITURES CHARGEABLE AGAINST ORDINARY RECEIPTS, AND SURPLUS 1920 TO 1931**

[On basis of daily Treasury statements (unrevised)]

Fiscal year	Total ordinary receipts	Expenditures chargeable against ordinary receipts	Surplus
1920 ...	\$6,694,565,388	\$6,482,090,191	\$212,475,197
1921 ...	5,624,982,960	5,538,209,189	86,773,771
1922 ...	4,109,104,150	3,795,802,499	313,801,651
1923 ...	4,007,135,480	3,697,478,020	309,657,460
1924 ...	4,012,044,701	3,506,877,715	505,366,986
1925 ...	3,780,148,684	3,529,643,446	250,505,238
1926 ...	3,962,755,090	3,584,987,873	377,767,217
1927 ...	4,129,394,441	3,493,584,519	635,809,922
1928 ...	4,042,348,156	3,648,519,875	393,828,281
1929 ...	4,033,250,225	3,848,463,190	184,787,035
1930 ...	4,177,941,702	3,994,152,487	183,789,215
1931 ...	3,317,233,493	4,219,950,338	* 902,716,845

\* Deficit.

**PUBLIC DEBT SITUATION.** The public debt situation was thus greatly altered; and was changed not only in the obvious way indicated by a mere change from surplus revenues to deficits but by alteration in relations with the banks. The Department had for years allowed itself to go on borrowing heavily at banks, justifying this unorthodox plan by the statement that the government was in a highly liquid condition, and could at any time fund its short-term debt into bonds. The unreliable character of any such expectation became plain as soon as the surplus disappeared; for the banks, already weakened by the enormous borrowing from them on the part of the community based upon long-term securities, and frightened by the fact that the Treasury was apparently disposed to ask them to carry the rapidly mounting deficit, were disinclined to bid for short-term certificates as in the past. It became necessary, practically, to insist upon continuation of the bank advances on an increasing scale. This gradual alteration of conditions, and increase in difficulty of management became more and more evident as the year advanced.

The change in public debt situation summarized by the Secretary of the Treasury for 1931 is shown in the accompanying tables, including that on page 690 giving the debt as of December 31.

**TREASURY FINANCE.** In the circumstances already sketched, there could, of course, be no successful operations on the public debt, of the kind that had been characteristic of former years. Reduction of the debt in a formal way would have been absurd, and recognized additions to long-term debt by the conversions of certificates into long-term bonds were not sufficiently urgent to demand action on a large scale, although skillful financiers were of opinion that long-term issues were needed. Two small issues of long-term bonds were placed in the autumn (after the fiscal year covered by the Secretary of the Treasury's report); it was deemed best to make one of the offerings consist in part of regular bonds running 20 years at 3 per cent, but the public response was unsatisfactory, and the issue

immediately went to a discount. Accordingly, the department was confirmed in the policy of relying upon the banks. No general policy or change of front seemed to be in sight up to the actual close of the calendar year 1931.

Absence of the usual debt receipts from foreign countries left open the question, in some minds at least, whether there might not be a renewal of these incomes from outside sources, while still others were of the opinion that payments could never be resumed. The subject continued as a source of question and controversy; and doubtless tended materially to prevent the department from reaching a final decision on policies for the future, so far as funding was concerned. The raising of rates at reserve banks, and the deterioration of government bonds in prices during the later months of the year, of course, brought sharp warning that it would not longer be possible to follow the "easy money" policy of former times.

**BUDGET ESTIMATES.** Secretary Mellon, in his annual report to Congress, at the opening of December in 1931, called sharp attention to the Treasury situation and noted budget estimates indicating a probable deficit for the year ending June 30, 1932, amounting to \$2,122,961,000. He stated:

The foregoing estimates show deficits for the fiscal years 1932 and 1933 in the amounts of \$2,123,000,000 and \$1,417,000,000, respectively. The estimated expenditures include for the retirement of debt in accordance with the provisions of the sinking fund and other statutory requirements, \$412,000,000 for 1932 and \$497,000,000 for 1933. In the absence of other provisions, the amounts of deficits must be financed through borrowing. For the 3-year period 1931-1933 the gross deficits aggregate approximately \$4,440,000,000 and the indicated increase in the public debt approximates \$3,250,000,000. Such a financial situation calls for immediate remedy, notwithstanding the fact that the rapid retirement of our public debt throughout a decade of plenty may be considered to have created something in the nature of a reserve upon which we are justified in drawing during lean years.

On this basis he asked for immediate enlargement of the income tax and for certain other additions to revenue, saying:

**Individual income tax.**—The normal rates to be fixed at 2, 4, and 6 per cent; surtax rates at 1 per cent, beginning with incomes over \$10,000, graduated up to 37 per cent on incomes between \$100,000 and \$200,000, and reaching 40 per cent on incomes in excess of \$500,000 as compared with the present maximum rate of 20 per cent on incomes in excess of \$100,000. Personal exemptions to be fixed at \$1,000 and \$2,500 with a credit of \$400 for each dependent. The earned income provisions of the revenue act of 1928 permitting larger deductions in respect of earned income than were permitted by the act of 1924 should, in my opinion, be continued.

**Corporation income tax.**—The rates to be increased from the present 12 per cent to 12½ per cent.

In addition I recommend that the exemption of \$3,000, at present provided for domestic corporations with net incomes of \$25,000 or less, be eliminated.

It is estimated that this proposal will result in an increase of about \$27,000,000 in corporation income tax receipts during the last half of the fiscal year 1932 and about \$60,000,000 during the full fiscal year 1933.

Accordingly I recommend that additional revenue be provided from the following sources: An increase of one-sixth in the present rates on tobacco manufactures and products except cigars; an increase of 1 cent in the existing stamp tax upon sales or transfers of capital stock; extension of the present tax on admissions through the reduction of the present exemption to 10 cents; a tax on manufacturers' sales of automobiles, trucks, and accessories at 5, 8, and 2½ per cent, respectively; a stamp tax on conveyances of realty of 50 cents for each \$500 of value in excess of \$100; a tax of 5 per cent on manufacturers' sales of radio and phonograph equipment and accessories; a stamp tax of 2 cents on each check and draft; and a tax on telephone, telegraph, cable, and radio messages of 5 cents for charges in the amount of 14 to

**EXPENDITURES AND ORDINARY RECEIPTS**  
(Actual returns for 1931 fiscal year; Treasury estimates for 1932 and 1933)

	1931	1932	1933
<b>GENERAL AND SPECIAL FUNDS COMBINED</b>			
<b>Receipts:</b>			
Internal revenue—			
Income tax .....	\$1,860,394,295.25	\$1,140,000,000.00	\$1,100,000,000.00
Miscellaneous internal revenue .....	569,386,721.07	544,000,000.00	558,000,000.00
Total internal revenue .....	\$2,429,781,016.32	1,684,000,000.00	1,688,000,000.00
Customs (excluding tonnage tax) .....	876,576,392.81	410,000,000.00	480,000,000.00
<b>Miscellaneous receipts—</b>			
Proceeds of Government-owned securities—			
Principal—foreign obligations .....	51,588,133.87	(*)	74,881,881.00
Interest—foreign obligations .....	184,474,622.38	(*)	195,094,690.00
Railroad securities .....	16,767,027.42	2,007,507.00	1,577,500.00
All other .....	11,558,913.62	27,914,965.00	19,545,440.00
Proceeds of sale of surplus property .....	8,641,223.07	13,089,957.00	9,067,236.00
Panama Canal tolls, etc. ....	26,624,253.07	25,137,680.00	25,137,000.00
Other miscellaneous (including tonnage tax) ....	83,627,050.14	76,728,601.00	83,226,455.00
Total general and special fund receipts .....	\$3,189,638,632.20	\$2,238,878,800.00	\$2,576,530,202.00
<b>Expenditures:</b>			
Legislative Establishment .....	23,978,412.68	32,382,800.00	23,243,900.00
Executive Office .....	506,811.30	433,300.00	429,300.00
Veterans' Administration .....	708,609,669.76 <sup>b</sup>	784,442,000.00	830,210,000.00
Shipping Board .....	33,961,996.34	60,800,000.00	21,800,000.00
Other independent offices and commissions .....	50,835,844.74	57,611,800.00	52,003,200.00
Department of Agriculture .....	296,865,944.69	393,547,300.00	215,723,600.00
Department of Commerce .....	61,477,117.63	54,673,600.00	48,343,050.00
Department of the Interior .....	64,542,778.53 <sup>c</sup>	78,344,100.00	71,849,000.00
Department of Justice .....	44,403,497.73	53,708,800.00	53,440,500.00
Department of Labor .....	12,181,471.83	14,129,200.00	14,509,000.00
Navy Department .....	353,768,185.35	378,913,100.00	375,340,600.00
Post Office Department .....	82,297.59	75,000.00	75,000.00
Department of State .....	15,753,493.07	16,564,800.00	14,730,900.00
Treasury Department .....	204,656,704.68	312,854,800.00	279,567,100.00
War Department .....	470,842,697.12 <sup>d</sup>	485,725,000.00	430,038,200.00
Total .....	\$2,348,466,923.04	\$2,662,295,400.00	\$2,431,303,350.00
Add unclassified items .....	182,624.77		
Total .....	\$2,348,649,547.81	\$2,662,295,400.00	\$2,431,303,350.00
<b>Public debt—</b>			
Interest .....	611,559,704.35	605,000,000.00	640,000,000.00
Sinking fund .....	391,680,000.00	411,771,300.00	426,489,800.00
Purchases and retirements from foreign repayments	48,246,950.00		69,138,800.00
Purchases and retirements from franchise tax receipts			
Federal reserve and Federal Intermediate credit banks) .....	91,400.00	75,000.00	1,075,000.00
Forfeitures, gifts, etc. ....	84,650.00	100,000.00	100,000.00
<b>Refunds of receipts—</b>			
Customs .....	21,369,006.78	20,815,500.00	20,010,500.00
Internal revenue <sup>e</sup> .....	69,887,922.92	70,217,600.00	44,389,200.00
Postal deficiency .....	145,643,613.12	195,000,000.00	155,000,000.00
Panama Canal .....	9,299,056.81	11,000,000.00	13,400,000.00
Agricultural marketing fund (net) .....	180,540,854.70	155,000,000.00	15,000,000.00
Adjusted service certificate fund .....	224,000,000.00	200,000,000.00	150,000,000.00
Civil service retirement fund .....	20,850,000.00	20,850,000.00	20,850,000.00
Foreign service retirement fund .....	216,000.00	215,000.00	416,000.00
District of Columbia .....	9,500,000.00 <sup>f</sup>	9,500,000.00	9,500,000.00
Total general and special fund expenditures ..	\$4,091,597,712.49	\$4,361,839,800.00	\$3,996,672,450.00
Excess of expenditures .....	\$ 901,959,080.29	\$2,122,961,000.00	\$1,420,142,248.00
<b>TRUST FUNDS</b>			
Receipts .....	127,594,861.61	120,590,915.00	119,430,300.00
Expenditures .....	128,352,626.39	120,313,600.00	116,237,500.00
Excess of expenditures .....	\$ 757,764.78	\$.....	\$.....
Excess of receipts .....		277,815.00	3,192,800.00
<b>GENERAL, SPECIAL, AND TRUST FUNDS COMBINED</b>			
Receipts .....	3,317,233,493.81	2,359,469,715.00	2,695,960,502.00
Expenditures .....	4,219,950,338.88	4,482,153,400.00	4,112,909,950.00
Excess of expenditures .....	\$ 902,716,845.07	\$2,122,683,685.00	\$1,416,949,448.00

<sup>a</sup> No estimates of amounts payable during the fiscal year 1932 on these accounts are included because of the President's proposal of June 20, 1931, for postponement.

<sup>b</sup> The Veterans' Administration began to function on Aug. 1, 1930, in accordance with Executive order of July 21, 1930. For comparative purposes, the figures shown above for the Veterans' Administration include the expenditures for the entire fiscal year 1931 for the Bureau of Pensions, heretofore under the Department of the Interior, and for the National Homes for Disabled Volunteer Soldiers; payment of annuities under acts of May 23, 1908, and Feb. 28, 1929; and artificial limbs, appliances, and trusses for disabled soldiers, heretofore under the War Department.

<sup>c</sup> Exclusive of the Bureau of Pensions. See note <sup>b</sup>.

<sup>d</sup> Exclusive of National Homes for Disabled Volunteer Soldiers and War accounts referred to in note <sup>b</sup>.

<sup>e</sup> Includes refunds and drawbacks under Bureau of Industrial Alcohol.

<sup>f</sup> Expenditures shown above for the District of Columbia represent the share of the United States charged against the general fund of the Treasury. The expenditures chargeable against the revenues of the District of Columbia under "trust funds" amounted to \$38,868,647.61 for the fiscal year 1931.

## THE UNITED STATES PUBLIC DEBT DECEMBER 31, 1931

[On the basis of daily Treasury statements]

<b>Bonds:</b>		
2% Consols of 1930 .....	\$ 599,724,050.00	
2% Panama's of 1916-36 .....	48,954,180.00	
2% Panama's of 1918-38 .....	25,947,400.00	
3% Panama's of 1961 .....	49,800,000.00	
3% Conversion bonds .....	28,894,500.00	
2½% Postal Savings bonds .....	27,207,900.00	
		\$ 780,528,030.00
<b>First Liberty loan of 1932-47—</b>		
8½% bonds .....	\$1,392,236,850.00	
4% bonds .....	5,002,450.00	
4½% bonds .....	535,985,800.00	
	1,933,225,100.00	
4¼% Fourth Liberty loan of 1933-38 .....	6,268,113,450.00	
		8,201,338,550.00
4¼% Treasury bonds of 1947-52 .....	758,988,300.00	
4% Treasury bonds of 1944-54 .....	1,036,834,500.00	
3¼% Treasury bonds of 1946-56 .....	489,087,100.00	
3% Treasury bonds of 1943-47 .....	476,412,750.00	
3½% Treasury bonds of 1940-43 .....	355,356,450.00	
3% Treasury bonds of 1941-43 .....	577,539,050.00	
3½% Treasury bonds of 1946-49 .....	821,406,000.00	
3% Treasury bonds of 1951-55 .....	800,428,000.00	
		5,316,042,150.00
<b>Total bonds .....</b>		<b>14,297,908,730.00</b>
<b>Treasury Notes:</b>		
8¼% Series 1932, maturing Dec. 15, 1932 .....	600,446,200.00	
4% Civil Service retirement fund, Series 1932 to 1936 .....	190,600,000.00	
4% Foreign Service retirement fund, Series 1933 to 1936 .....	1,611,000.00	
4% Canal Zone retirement fund, Series 1936 .....	1,862,000.00	
		794,519,200.00
<b>Treasury Certificates:</b>		
2% Series TM—1932, maturing Mar. 15, 1932 .....	623,801,500.00	
2¼% Series TJ—1932, maturing June 15, 1932 .....	324,578,500.00	
1¼% Series TS—1932, maturing Sept. 15, 1932 .....	314,279,500.00	
3% Series TS2—1932, maturing Sept. 15, 1932 .....	398,225,000.00	
	1,660,974,500.00	
4% Adjusted Service Certificate Fund Series, maturing Jan. 1, 1932 .....	198,700,000.00	
		1,859,674,500.00
<b>Treasury Bills (maturity value):</b>		
Maturing Jan. 13, 1932 .....	51,641,000.00	
Maturing Jan. 25, 1932 .....	51,338,000.00	
Maturing Feb. 1, 1932 .....	60,921,000.00	
Maturing Feb. 8, 1932 .....	75,173,000.00	
Maturing Feb. 15, 1932 .....	75,410,000.00	
Maturing Feb. 24, 1932 .....	60,082,000.00	
Maturing Mar. 2, 1932 .....	100,490,000.00	
Maturing Mar. 30, 1932 .....	101,332,000.00	
		576,387,000.00
<b>Total interest-bearing debt .....</b>		<b>17,528,489,430.00</b>
<b>Matured debt on which interest has ceased:</b>		
Old debt matured—issued prior to Apr. 1, 1917 .....	1,637,990.26	
Second Liberty loan bonds of 1927-42 .....	3,426,950.00	
Third Liberty loan bonds of 1928 .....	5,707,650.00	
3¼% Victory notes of 1922-23 .....	20,200.00	
4¼% Victory notes of 1922-23 .....	1,150,550.00	
Treasury notes .....	25,664,750.00	
Certificates of indebtedness .....	13,040,500.00	
Treasury bills .....	1,160,000.00	
Treasury savings certificates .....	918,475.00	
		52,727,065.26
<b>Debt bearing no interest:</b>		
United States notes .....	346,681,016.00	
Less gold reserve .....	156,039,088.03	
	190,641,927.97	
Deposits for retirement of national-bank and Federal Reserve bank notes .....	48,166,075.50	
Old demand notes and fractional currency .....	2,042,293.80	
Thrift and Treasury savings stamps, unclassified sales, etc. ....	3,382,960.47	
		244,233,257.74
<b>Total gross debt .....</b>		<b>17,825,449,753.00</b>

50 cents, and 10 cents for charges in amounts in excess of 50 cents.

**LEGISLATIVE PROSPECTS.** Discussion of these Treasury proposals was immediately taken in hand by the new Ways and Means Committee, organized under Democratic control, due to the change which had occurred in the complexion of the House of Representatives at the preceding elections. See UNITED STATES under *Administration* and *Congress* for subsequent developments.

**PUBLIC LANDS.** See LANDS, PUBLIC.  
**PUBLIC RELIEF.** See UNEMPLOYMENT.  
**PUBLIC ROADS,** BUREAU OF. See AGRICULTURE, U. S. DEPARTMENT OF.  
**PUBLIC UTILITIES.** See POWER PLANTS; MUNICIPAL OWNERSHIP; FINANCIAL REVIEW.  
**PUBLISHING.** See LITERATURE, ENGLISH AND AMERICAN.  
**PUGILISM.** See BOXING.  
**PULITZER PRIZES.** A series of awards established in 1915 by the will of Joseph Pulitzer,

publisher of the *New York World*, to be presented annually by Columbia University, on recommendation of the advisory board of the Pulitzer School of Journalism, for outstanding achievements in letters and journalism. The value of the prizes in the group devoted to letters is \$1,000, with the exception of that for the best work on the history of the United States which is \$2,000. The value of the prizes in the journalistic group is \$500, with the exception of that for the best example of a reporter's work during the year which is \$1,000.

The recipients in the group devoted to letters in 1931 were: Margaret Ayer Barnes, whose *Years of Grace* was adjudged the American novel which "best presented the wholesome atmosphere of American life"; Susan Glaspell, whose *Alison's House*, presented by the Civic Repertory Theatre, was considered "the original play, performed in New York, which best presented the educational value and power of the stage"; Bernadotte Everly Schmitt, whose *The Coming of the War: 1914* was pronounced the best book of the year upon the history of the United States; Henry James, whose *Charles W. Eliot* won the prize for the best American biography "teaching patriotic and unselfish service to the people, illustrated by an eminent example"; and Robert Frost, whose *Collected Poems* was adjudged the best volume of verse published during the year by an American author.

In the journalistic group, the 1931 gold medal for "the most disinterested and meritorious public service rendered by an American newspaper during the year" was awarded to the Atlanta (Ga.) *Constitution* for its campaign against municipal corruption. The winner of the award for the best example of correspondence was Hubert Renfro Knickerbocker of the *New York Evening Post* and the Philadelphia *Public Ledger*, whose series of articles on the practical working of the Five Year Plan in Russia was adjudged to "make clear the significance of the subject covered in the correspondence." The winner of the award for the best editorial article written during the year was Charles Silcott Ryckman, editor of the Fremont (Neb.) *Tribune*, whose prize-winning editorial, entitled "The Gentleman from Nebraska," was published in his paper on Nov. 7, 1930. The award for the best example of a reporter's work during the year was given to Alexander Black MacDonald of the Kansas City (Mo.) *Star* for his investigation of the so-called "perfect crime" in which A. D. Payne, lawyer, murdered his wife by blowing up the family automobile at Amarillo, Texas, on June 27, 1930. The award for the best cartoon published in any American newspaper during the year was given to Edmund Duffy for the cartoon entitled "An Old Struggle Still Going On," which was published in the Baltimore (Md.) *Sun* on Feb. 27, 1930.

**PULP, PULP-WOOD INDUSTRY.** See FORESTRY; PAPER.

**PURDUE UNIVERSITY.** A State technological institution in Lafayette, Ind., founded in 1869. The main purpose of the institution has been to train men for service in the fields of engineering, agriculture, and applied science, and women in the fields of home economics and general science. The enrollment for the autumn of 1931 was 4655, of whom 3918 were men and 737 women; registration in the 1931 summer session was 833. There were 338 members on the faculty

and in addition 80 assistants. The endowment amounted to \$340,000 and the income for the year was \$3,500,000. During the year the Thomas Duncan Memorial Laboratory, an addition to the electrical engineering building, was completed. The library contained 101,537 volumes. President, Edward C. Elliott, Ph.D., LL.D.

**PYROMETALLURGY.** See METALLURGY.

**QUAKERS.** See FRIENDS, RELIGIOUS SOCIETY OF.

**QUAKES.** See EARTHQUAKES; SEISMOLOGY.

**QUANTUM THEORY.** See ASTRONOMY; PHYSICS.

**QUARANTINE, INSECT.** See ENTOMOLOGY, ECONOMIC.

**QUARANTINE OF PLANTS AND VEGETABLES.** See HORTICULTURE and ENTOMOLOGY, ECONOMIC.

**QUARRY ACCIDENTS.** See WORKMEN'S COMPENSATION.

**QUEBEC**, kwé-bék'. The largest Province in Canada; bounded on the west by Hudson Bay and Ontario, on the north by Hudson Strait, on the east by Labrador, and on the south by New Brunswick, the United States, and southern Ontario. Area, 594,434 square miles; population, according to the census of 1921, 2,361,199, of whom 357,108 were of British origin, and 1,889,277 of French origin. The population at the census of June 1, 1931 numbered 2,874,255, of whom about 1,810,173 resided in urban centres. Farmers numbered only 4.7 per cent of the 1931 population. Populations of the chief cities at the 1931 census: Montreal proper, 810,925; Quebec (the capital), 129,103 (95,193 in 1921); Three Rivers, 35,197 (22,367); Verdun, 60,378 (25,001); Sherbrooke, 28,888 (23,515), and Hull, 40,000. In 1928, there were 8145 schools of all kinds, with 611,783 pupils and 23,742 teachers. There are four universities: McGill (Montreal, Protestant), with 4240 students in 1928-29; Lennoxville (Protestant), 161 students; Laval (Quebec, Roman Catholic), 6890; University of Montreal (Roman Catholic), 8656.

The industries of the Province ranked in importance according to the net value of production in 1928 as follows: Manufacturing, \$562,581,419; agriculture, \$228,209,110; forestry, \$105,949,186; construction, \$101,195,000; mining, \$37,037,420; electric power, \$36,172,736; custom and repair, \$15,725,000. In 1929, there were 7156 manufacturing establishments, with a capital investment of \$1,673,011,000, 212,849 employees, and a value of output of \$1,160,612,992 gross and \$617,372,403 net. Plowed land comprised 36 per cent of the total area of the Province in 1930; in the same year field crops from 7,342,400 acres were valued at \$120,366,000, as compared with \$153,664,000 from 7,051,605 acres in 1929. The wool clip for 1930 was 4,968,000 pounds. With 187,766 square miles of forest, Quebec produced 54 per cent of the wood-pulp output of Canada in 1929. The value of wood-pulp produced was \$69,286,498; of paper (including newsprint), \$107,504,475; of lumber and sawmill products, \$28,342,626.

Mineral production in 1931 was provisionally reported at \$35,639,126, as compared with \$41,158,741 in the previous year. Asbestos, copper, gold, silver, mica, and zinc are the principal mineral products. The asbestos output normally comprises 85 per cent of the world total.

Quebec is governed by a lieutenant-governor and a responsible ministry, assisted by a legislative council, appointed for life by the Lieutenant-

Governor, and a legislative assembly of 90 members elected for five years. Quebec in 1931 was the only Canadian Province in which women did not exercise the franchise. In the Dominion general election of 1930, the Province returned 37 Liberals, 25 Conservatives, and 1 Independent to the House of Commons at Ottawa. Lieutenant-Governor in 1931, Henry George Carroll; Premier, Attorney-General, Minister of Municipal Affairs, and Provincial Treasurer, L. A. Taschereau (Liberal). See CANADA.

**HISTORY.** In the provincial general election held Aug. 24, 1931, the Liberals under Premier Taschereau won 79 and the Conservatives 11 of the 90 seats in the Legislative Assembly. The previous Legislative Assembly consisted of 65 Liberals, 11 Conservatives, four Independent Liberals, and one Laborite. The Liberals, who had been in power in Quebec for 34 years, proved invulnerable to the Conservative attack, despite the spectacular showing of the Conservatives in the Province in the Dominion general election of 1930. With the overthrow of the Liberals by the Conservatives earlier in the year in Prince Edward Island, Quebec remained the only Province in Canada with a Liberal administration. The Conservative leader in the campaign was Camilien Houde, Mayor of Montreal. He failed to receive the undivided support of his own party, the Conservative financial interests of the Province showing a strong preference for Premier Taschereau. The Unemployment Relief Commission of the Province on September 17 voted \$20,088,600 to 1241 municipalities, in addition to \$1,438,000 for direct relief.

For the fiscal year ended Mar. 31, 1931, the Quebec liquor commission reported gross sales of \$22,711,639, or \$5,000,000 less than in the previous year. The commission paid \$8,498,052 for stock, turned over \$7,452,158 to the Federal Government in customs and excise taxes, and the remaining \$6,761,429 went for costs of operation and profits to the Quebec Government. During the commission's ten years of existence, its total revenue was \$215,544,037, of which \$85,509,000 went for stock, \$78,147,203 was paid to the Federal Government, and \$53,000,000 to the Province.

**QUEEN'S-CHICORA COLLEGE.** A college for women in Charlotte, N. C., founded in 1857; nonsectarian in purpose but under the direction of the Presbyterian Church. The enrollment for the autumn term of 1931 was 336. There were 38 members on the faculty. The endowment amounted to \$325,000. The library contained 12,500 volumes. President, William H. Frazer, D.D., Litt.D.

**QUEENSLAND.** A state of the Australian Commonwealth, occupying the northeastern quarter of the continent. With an area of 610,500 square miles, it is second in size among the states of the Commonwealth; the population Jan. 1, 1931, was estimated at 948,195, compared with 755,972 at the census of 1921. In 1930, there were 18,939 births, 7455 deaths, and 6199 marriages. The net immigration of 5840 in 1930 was in contrast to the other five states, all of which showed an excess of emigration over immigration. The total population increase for the year was 17,324. Capital, Brisbane, with 313,251 inhabitants on Jan. 1, 1931.

State primary schools in 1929 numbered 1731, the average daily attendance being 112,489. There were also 187 private schools, with a daily attendance averaging 24,487. The University of

Queensland (Brisbane) had 588 students in 1929. Stock-raising, agriculture, and manufacturing are the leading industries. The area under cultivation (1929-30) was 1,921,675 acres and the value of farm production was £13,803,792. Sugar cane, cotton, wheat, corn, and hay are the principal crops. The 1929-30 wool clip was 161,087,873 pounds from 20,324,000 sheep. Lumbering and fishing are important. Coal and gold are the chief minerals mined; the value of all mineral production in 1930 was £1,263,236, compared with £1,707,179 in 1929.

The value of direct overseas imports in 1929-30 was £11,326,844 and of direct overseas exports £18,821,824; for 1930-31 imports were £5,567,817 and exports £16,754,567. Of the State budgets from the fiscal year 1925-26 to 1929-30 only one (1927-28) showed a surplus. In 1929-30 revenue amounted to £15,997,870 and expenditures to £16,721,055. See AUSTRALIA under *Finance* for 1931-32 budget. The gross public debt on June 30, 1930, stood at £112,623,979 and the net debt at £111,808,975; interest on the debt payable in the year 1929-30 totaled £5,354,237.

Executive power is vested in a governor, who acts through a responsible ministry, and legislative power in a legislative assembly of 72 members elected for three years. Governor in 1931, Sir T. H. J. C. Goodwin; Premier, Chief Secretary, and Vice President of the Executive Council, A. E. Moore, who headed a coalition Government of Nationalists and Country Progressives. See AUSTRALIA.

**QUICKSILVER.** The world production of quicksilver in 1930 was estimated by the U. S. Bureau of Mines at approximately 107,000 flasks of 76 pounds each, or a decline from 161,814 flasks in 1929. In 1930 Italy was the leading producer with 56,069 flasks, followed by the United States with 21,553, Spain with 19,221, and Mexico with 4821. The domestic production for the United States in 1930 was 21,553 flasks, valued at \$2,478,789, a decline of 9 per cent in quantity and 14 per cent in value as compared with 23,682 flasks, valued at \$2,892,038, in 1929. California was the leading quicksilver-producing State, with an output of 11,451 flasks in 1930, followed by Nevada with 3282 flasks and Oregon with 2919 flasks. The production for Texas, Arizona, and Alaska amounted to 2822 flasks in 1930, as compared with 3725 flasks in 1929. Apparent consumption declined 35 per cent and the consumption of imported mercury decreased from 14,917 flasks in 1929 to 3725 flasks in 1930.

The decline in the price of quicksilver, which marked 1930, continued during 1931. In January, 1930, the monthly average price in New York was \$121.192 per flask of 76 pounds, while in December it was \$105.346. The average price in January, 1931, was \$103.00 per flask, from which the price fell until for December the average was \$66.115, making an average for the year of \$87.351 as against \$115.009 for 1930. The imports of quicksilver in 1931 were 356 flasks valued at \$32,649, as against 2943 flasks valued at \$295,829 in 1930, and 14,292 flasks, valued at \$1,447,142, in 1929. Of the total in 1930, 2802 flasks were reported as received from Spain and 141 flasks from Mexico.

**RACE PSYCHOLOGY.** See ANTHROPOLOGY.

**RACE STUDIES.** See ANTHROPOLOGY.

**RACING.** Horse racing in 1931 was a succession of glorious feats, just one great horse after another. The year's champion cannot be picked

fairly out of the group—Top Flight, two-year-old filly, who broke all existing money records for two-year-olds and for mares; Mate, the horse that won the Preakness, American Derby and American Classic; Twenty Grand, Kentucky Derby winner as well as winner of the Wood Memorial, the Travers, the Belmont, Dwyer, Saratoga Cup, Lawrence Realization, the Jockey Club Gold Cup; Sun Beau, six-year-old veteran, who became the world's greatest money winner by winning \$110,925 to amass a total of \$376,744.

Top Flight's achievements were the most sensational. This unprepossessing filly owned by Cornelius Vanderbilt Whitney, trained by Tom Healey, won all seven races in which she was entered and won \$219,000. The former juvenile record had stood at \$170,890 since Domino in 1893 and that Western mare—Princess Doreen—had stood supreme in her sex with a total of \$174,745 in her whole career. In compiling this remarkable record Top Flight won the Clover at Aqueduct, the Lassie at Arlington, the Saratoga Special and the Spinaway at Saratoga, the Matron and the Futurity at Belmont, and the Pimlico Futurity at Pimlico.

Next to Top Flight, Twenty Grand was the leading money winner of the year, with a total of \$218,545. He started his campaign by finishing second to Mate in the Preakness. In the Kentucky Derby, a week later in May, Mrs. Payne Whitney's prize possession walked away from this same Mate as well as from all other opposition.

Sun Beau, six-year-old champion, missed winning the rich Agua Caliente Handicap in March, but came on later with a rush to capture the money winning honors of all time from Gallant Fox, three-year-old champion in 1930. In the Arlington Cup of a mile and a quarter he raced to a new track record of 2.01½. It was his victory in the Arlington Handicap of the same distance—worth \$27,300—that whisked Sun Beau past Gallant Fox in the list of money winners. Other major triumphs of this old trooper, owned by W. S. Kilmer of Binghamton, N. Y., were scored in the Lincoln Handicap, the Hawthorne Gold Cup, and the Philadelphia Handicap.

Cornelius Vanderbilt Whitney headed the list of winning owners with \$419,137, a mark not far behind the record of Harry F. Sinclair's Rancocas Stable in 1923, the year his Zev beat Papyrus in the first international race. Top Flight was mainly responsible in putting Whitney to the fore. Tom Healey, the filly's trainer, led the list of money winning trainers but Lloyd Gentry, mid-West trainer, saddled the most winners, sixty-two. Dr. Freeland and Flying Heels moved into the Silver Circle of \$100,000 winners; Top Flight, Mate, and Twenty Grand found places in the Golden Circle of \$200,000 and Sun Beau flashed into the Diamond Circle of \$300,000 where only Zev and Gallant Fox stood before. J. E. Widener's Mr. Sponge ran the fastest mile of the year when he turned the distance in 1.36. Top Flight went five and a half furlongs in the Lassie at Arlington Park in 1.05½. James Butler's Questionnaire, one of the very best in the handicap division, raced the mile and furlong in 1.49 and Epithet was credited with six furlongs in 1.10 at Arlington Park, known as the fastest racing strip in the country.

Dis Donc and St. Germans were the leading sires of the year, thanks to Top Flight and Twenty Grand, respectively. The steeplechase season was active and excellent with Green Cheese,

owned by Mrs. John Hay Whitney, winning the Grand National Steeplechase at Belmont Park.

Grakle won the Grand National at Aintree, near Liverpool, the prize accomplishment for a thoroughbred.

J. A. Dewar's three-year-old Cameronian was the outstanding horse of the English turf. This sturdy thoroughbred won the Derby at Epsom and then captured the Two Thousand Guineas. In his attempt to gain the Triple Crown, and win the St. Leger in the fall, he finished last, 200 yards behind Sandwich, the winner. Four Course won the Thousand Guineas at Newmarket; Sir Andrew, William Woodward's American-bred horse, the Newmarket Stakes; Noble Star, the Ascot; Trimdon, a gallant five-year-old, the Ascot Gold Cup over the two-and-a-half mile course; Noble Star the Cesarewitch.

Marcel Boussac's Tourbillon won the French Derby at Chantilly in June, but in the Grand Prix, three weeks later this same favorite met with defeat at the hands of Barneveld and Bouillon. Marcel Boussac made up for this loss by later seeing his Brulette, a French-bred filly, win the English Oaks. The French Oaks fell to Miss Diana Esmond's Pearl Cap, which at the end of the season was adjudged the best three-year-old of the French season. This horse won the French One Thousand Guineas, the Prix de Diane and the Prix de l'Arc de Triomphe, the feature of the fall session at Longchamps.

**HARNESS RACING.** Protector did not win the Hambletonian Stakes at Goshen, the greatest individual race of the trotting season, but nevertheless was recognized at the end of the season as the leading three-year-old. Protector only lost one race during the season and defeated Calumet Butler, winner of the rich Hambletonian, both before and after that classic. Protector was not entered in the Hambletonian, but in the second heat of the Kentucky Futurity at Lexington he went a mile in the record time of 1.59¼. This was a world's record for three-year-old trotters and for trotting stallions in a race. Although Protector's achievements were outstanding in the three-year-old classics, the two-year-old trotters formed the most remarkable class of their age that had yet appeared. These colts started making world's records at the Horse Review Futurity at Springfield. The Marchioness, sister to Protector, won the first and fourth heats in 2.04¾, 2.07¼. Calumet Chuck took the second heat in 2.04½, and the Lad, by Truax dam, the two-minute mare, Rose Scott, 1.59¾, won the third in 2.05½, the average time was 2.05½, unheard of. Practically the same field, with the addition of Maid McElwyn, raced at Lexington in the Junior Kentucky Futurity. The Marchioness won the first in 2.04½; Maid McElwyn the second in 2.02¼; Calumet Chuck the third in 2.04 and the fourth in 2.08¼; for the grand average of 2.04¾. Maid McElwyn's mark stands as the world's record for two-year-old trotters. Calumet Butler's unexpected triumph in the Hambletonian, carrying \$50,921, after the breakdown of Nedda Guy (2.03¾), was the surprise of the season.

**RACKETEERING.** See CRIME.

**RACQUETS.** See COURT GAMES.

**RADCLIFFE COLLEGE.** A nonsectarian college for women in Cambridge, Mass., founded in 1879. The enrollment for the autumn of 1931 was 1051, distributed as follows: Regular students, 778; graduate students, 240; special students, 33.



Instruction was given to the students of the college by 300 teachers from Harvard University. The productive funds amounted to \$5,080,470, and the income, including tuition, for college purposes, was \$553,354. The library contained approximately 67,000 volumes, exclusive of pamphlets. In the fall of 1931, as the result of a grant of \$500,000 from the General Education Board, the college began the construction of a laboratory for chemistry and physics, which was to be ready for occupancy in September, 1932. President, Ada Louise Comstock, A.M., Litt.D., L.H.D., L.L.D.

**RADIO.** Commercial radio telephony and telegraphy enlarged the range of their availability very materially, as several new long-distance connections were made. Guatemala, Salvador, and an additional part of Mexico were connected with North America; Brazil, Chile, and Argentina were linked with Europe, and the United States and Australia and New Zealand were brought into the network. The system became capable of bringing into telephonic connection any two of 30,000,000 telephone subscribers. The principal operators of the system were the American Telephone and Telegraph Company and the International Telephone and Telegraph Company.

Some interesting new high-power transmitting stations were put into operation for telephone service between California and Hawaii and for inter-island service in Hawaii. They operate at from 6,000,000 to 15,000,000 cycles and use from 12 to 48 kw. of power. Noteworthy experiments were made in synchronizing two high-power broadcasting stations so that they could send out the same programme on the same wave-length without interference. This was done in some cases by tying the stations together by a wire circuit carrying a synchronizing current, and in others by accuracy of control of frequency by the quartz, crystal frequency setter. Thus WEAf and WTIC were tied together on 660 kilocycles, and WJZ and WRAL on 760 kilocycles.

The Federal Radio Commission in the United States announced, that all broadcasting stations would be required to maintain their frequency constant to within a difference of 50 cycles which is approximately one part in 15,000. It was considered that quartz-crystal control could do this. One of the most powerful broadcasting stations in the world was installed at Prague with a power of 200 kw.

The equipment of airplanes with two-way radio sets both for telegraphy and telephony was proceeding. All U. S. Army and Navy airplanes were so equipped and many of the commercial planes. With a 30-lb. set, it was possible to telegraph 100 to 200 miles and to telephone 25 to 40 miles.

Some new experimental work was the establishment of radio telephone service from Calais to Dover across the English channel on "Short Waves" of 18 cm. or 7 inches wave length corresponding to a frequency of 1,600,000,000 cycles. It has the disadvantage that it is confined to a direct straight line like the line of vision, but opens up a large new field of radio frequency channels making possible the use of nine times as many channels as were formerly considered feasible. Very special electron tubes are required for these very short waves and the internal parts have to be placed very close together and be accurately spaced. The antenna for these 7-inch waves is less than one inch in length.

In broadcast receivers for the home, the trend in style was to use the screen-grid tube, super-

heterodyne connection, and a pentode tube for the output. The push-pull amplifier was also returning to popularity, particularly in the midget sets. Automatic volume control and tone control were being provided in most of the recent sets. A new loud-speaker was developed, using a permanent magnet instead of an electro-magnet, thus doing away with the nuisance of a direct-current supply for the loud-speaker. Elaborate sets had become available combining a radio and a talking machine, the latter being equipped with an automatic record changing device and provision for making records in the home. See *EDUCATION IN THE UNITED STATES* under *Motion Pictures and Radio*; *ROMAN CATHOLIC CHURCH*.

According to the preliminary count of the U. S. Census 12,078,345, or 40.3 per cent of the total of 29,980,146 families in the United States in April, 1930, had radio sets. New York, Pennsylvania, and Illinois each reported more than 1,000,000 families with radio sets, but New Jersey led in the percentage with 63.3 per cent and New York was second with 57.8 per cent. On the other hand, only 5.4 per cent of the families in Mississippi and only 7.6 per cent of the families in South Carolina were supplied with radio receiving apparatus.

**RADIOACTIVE MATERIALS.** See *CHEMISTRY*.

**RADIO BEACONS.** See *LIGHTHOUSES*.

**RADIO CITY.** See *ARCHITECTURE*.

**RADIO COMMUNICATION.** See *CANADA* under *History*.

**RADIUM.** Up to 1926, when the production of radium salts in the United States virtually ceased, there had been produced by American radium factories some 202.5 grams of radium. This covered the period from 1913 and at one time the beginnings of an industry were indicated, but by 1923 Belgian radium came to the United States and from that time imports increased and the native industry ceased to function on a commercial basis. At the end of 1930, the imports which began in 1923 totaled about 85.87 grams so that the United States had about 238 grams of radium without making allowance for broken tubes and other losses but taking into consideration some 20 grams of possible exports. In 1931 this amount increased by 13.41 grams valued at \$731,204 which were imported, there being a decrease from 16.85 grams valued at \$924,852 imported in 1930.

The known production of radium continued to be confined to the Belgian Congo deposits owned by the Union Minière Du Haut Katanga from which it was reported that 944 metric tons of uranium ore were exported in 1929 and 1926 tons in 1930. This company in 1929 and in 1930 sold each year some 60 grams of radium making a total of 270 grams since these Belgian Congo ores were first worked in 1923. The government-owned pitchblende mines at Jachymov in Czechoslovakia in 1930 from 28.23 metric tons of selected ore produced 3,578 grams of radium as against 3,521 grams in 1929 from 33.5 tons of ore. In 1931 radium from the Union Minière Du Haut Katanga was quoted in New York City on a sliding scale at from \$70 per milligram for lots of less than one gram to \$50 per milligram for lots of four grams or more.

**RAILROADS.** See *RAILWAYS*.

**RAILWAY ACCIDENTS.** The U. S. Interstate Commerce Commission, in its annual state-

ment of railroad casualties, reported for 1930 a grand total of 5481 persons killed and 49,430 injured on American railways. Compared with the preceding year, this total represented a decrease of 15.63 per cent in the number of persons killed and of 35.80 per cent in the number of persons injured, all classes, all causes. There also was established a new low record for the number of passengers killed in train accidents, this figure in 1930 being 7 as compared with 10 in 1927. In 1928 and 1929 it was 16 and 36, respectively, while the annual average for the five years preceding 1927 was 77. The number of passengers injured in train accidents was 790, as compared with 1742 in 1929 and 1404 in 1928. In train-service accidents, 43 passengers were killed and 1875 injured, and in non-train accidents 515 were injured. The total number of employees killed in train and train-service accidents in 1930 was 712, while the total number injured was 13,533. In non-train accidents, 223 employees were killed and 21,792 were injured. The casualties for "other persons" totaled 4409 killed and 9364 injured in train and train-service accidents, and 87 killed and 1561 injured in non-train accidents. In the latter category are included passengers carried on contract, such as newsdealers. Casualties at grade crossings numbered 2020 persons killed and 5517 injured in 1930.

Important railway accidents in the United States in 1931 included the following:

January 19. An express train westbound and a local passenger train outbound of the New York, New Haven & Hartford Railroad collided in a blinding snow storm at a crossover at Readville, Mass., and one locomotive and three cars were overturned, resulting in injury to 107 passengers and 11 employees.

February 7. A passenger train of the Grand Trunk Western Railway ran over a misplaced switch at Battle Creek, Mich., and collided with a yard engine standing on a side track. One car was wrecked and 11 persons were injured.

February 25. The *Pan-American* of the Louisville & Nashville Railroad was derailed 18 miles north of Mobile, Ala., when it ran into an open draw over the Mobile River. The first sleeping car, occupied by 18 passengers, was stopped when half way over the end of the fixed span. Four employees were killed.

February 28. The *Olympian* of the Chicago, Milwaukee, St. Paul & Pacific Railway collided with the *Victory* of the Chicago & North Western Railway at the joint passenger station of the two lines at Camp Douglas, Wis. Four cars of the *Olympian* and three of the *Victory* were derailed, as well as the locomotives of both trains. A fireman was killed.

March 6. A passenger train of the Michigan Central Railroad ran over a misplaced facing point switch near Town Line, Mich., and was derailed on the curve of the side track. The locomotive and tender were overturned and the first car destroyed, three employees were injured.

May 27. The *Empire Builder* of the Great Northern Railway was derailed on a low embankment near Moorhead, Minn., when struck by a tornado. One passenger was killed and three others were seriously injured, while 45 passengers and nine employees sustained minor injuries.

July 3. In a collision of passenger trains Nos. 86 and 27 of the New York, New Haven & Hartford Railroad at New Haven, Conn., one passenger was killed and 92 passengers and 22 train employees were injured.

November 22. Four men were killed and 20 were injured when 22 cars of a 62-car train, carrying livestock to the International Livestock Exposition in Chicago, were derailed on the Missouri Pacific Railroad near Lexington, Mo. Nine prize horses also were killed and 24 injured. The train was traveling at about 80 miles an hour, when it broke a rail which had been weakened by a transverse fissure.

Among important railway accidents in other parts of the world in 1931 were the following:

January 3. Three persons were killed and 30 were injured when the engine and four coaches of an express train, en route from Edinburgh to London, was derailed near Carlisle, England.

January 19. Five persons were killed and 41 were in-

jured in a collision at Gdynia, Poland, of a passenger and freight train; the latter was running on the main line contrary to instructions.

February 7. In a collision near Cracow, Poland, of two express trains running between Cracow and Katowitz (Katowice), eight persons were killed and 20 were injured.

March 18. Eight persons were killed and 20 were injured when the rear coach of the Paris-Bordeaux Express was derailed at Etampes, France, striking a train on the adjoining line.

March 22. The *Royal Scot* of the London, Midland & Scottish Railway was derailed at Leighton Buzzard, England, six persons being killed and six badly injured.

March 31. Ten persons were killed and 54 were injured in a collision at the Poletava station, near Chelabinsk, Siberia. A passenger train, which was awaiting repairs to a rear car, instead of being sidetracked was left on the main track, and was telescoped by another train running at full speed, whose engineer had ignored a closed signal. Eight railroad executives and employees were arrested.

April 29. Forty-five persons were killed and 41 were critically injured in the destruction of a passenger train by fire at Benha, Egypt, 30 miles north of Cairo. The accident was caused by a car catching fire from a heated journal, and the train ran a long distance before it was stopped, communication with the locomotive being impossible. Some of the passengers were killed by jumping from the train.

May 27. A woman was killed and 22 persons were injured in a collision between two passenger trains at Fakenham, Norfolk, England.

August 16. Twelve persons were killed and 10 were badly injured when the Rome-Vienna Express crashed into a freight train near Leoben, Austria, the engine of the express train and three of the freight cars being hurled down an embankment.

September 13. Twenty-two passengers were killed and 40 were injured when the Budapest-Vienna Express was wrecked by a Communist bomb at Bia Torbagy, Hungary.

December 2. In a collision between the Lille-Antwerp Express and a local passenger train near Malines, Belgium, four coaches of the express train were overturned, resulting in the deaths of two persons and injury to 17 others.

December 18. Fog was responsible for a collision between a passenger train, en route from London to Tilbury, and a freight train near Dagenham, Essex, England. One passenger and the guard of the freight train were killed, and about 30 passengers were injured. The guard was killed while trying to warn the passenger train of its danger.

December 24. Two passengers were killed and six were injured when the Bologna Express was derailed at Coronato, near Foggia, Italy, three cars being overturned.

**RAILWAYS.** In its annual report to Congress presented in the latter part of 1931 the Interstate Commerce Commission says in regard to the prevailing distrust of railroad investors that this distrust was "natural but quite undue." This was an opinion expressed by men whose experience entitled their opinion to great weight but it was, nevertheless, an expression from political appointees who might be considered to have some responsibility for the financial distrust of railroad securities as a safe and profitable investment.

The Pennsylvania Railroad spent \$49,775,170 for maintenance and repairs of its track and stations in 1931 as compared with \$69,053,618 for like purposes in 1930. The Pennsylvania Railroad operated and maintained 10,878 route miles of railroad in 1930 and 10,914 miles in 1931 so that the maintenance of way expenses were \$4,560 per mile in 1931 and \$6348 per mile in 1930. The New York Central Railroad, operating and maintaining 11,421 route miles of railroad in 1931 and 11,477 in 1930, spent \$4237 per mile for maintenance and repairs of its track and stations in 1931 and \$5648 per mile for like purposes in 1930.

In general the railroad executives' energies were concentrated on maintaining adequately the properties for which they were responsible. There were certain important exceptions to this policy. The Reading Railroad continued the elec-

trification of its suburban passenger service out of Philadelphia. The Delaware, Lackawanna & Western pushed forward the electrification of its line west from New York for all classes of service, while the Pennsylvania was engaged in the electrification of its line from New York City to Washington, D. C. The Pennsylvania's project was on much the largest scale, the estimated cost being \$175,000,000; in 1931 about 6000 men were employed on it. The estimated cost of the Lackawanna electrification was \$16,000,000; of the Reading electrification, over \$23,000,000.

In the Far West, an important new line connecting the Great Northern and Western Pacific systems was completed and opened for freight traffic early in November, 1931. Extending approximately 200 miles, between Klamath Falls, Ore., and Keddie, Calif., the line not only provided a new route from the Northwest into San Francisco, but also provided an outlet to the East from a large area in Oregon and Northern California, previously without railway facilities. The Santa Fe Railroad completed a group of new lines, aggregating more than 225 miles, which opened up new territories in Oklahoma, Texas, and New Mexico.

The Railroad Executives' Association made application in accordance with the methods of procedure prescribed by the Transportation Act to the Interstate Commerce Commission to put into effect a 15 per cent increase in freight rates. The Commission refused to approve a general flat increase of 15 per cent in freight rates but said that if the railroad executives would file tariffs for increased rates of 10 per cent on certain freight—not including wheat—and would pool the revenue derived from these increased rates and give it to the railroad companies in danger of defaulting on their bond interest charges, the Commission would approve such increases. The railroad executives said they would do this but would lend, not give, the money from the pool to companies that failed to earn bond interest. In the course of its opinion the Interstate Commerce Commission called attention to the fact that railroad passenger business was not nearly as profitable as railroad freight business.

The railway executive, in 1931, was in a difficult position. He was, theoretically at least, responsible to his stockholders for the adequate upkeep of the railway of which he was in charge. Along with this responsibility was the necessity of earning enough to pay his coal bill, his labor, and his officers, and his bond interest. Last of all he might conceivably operate the railway in such a way as to also earn some profit for the stockholders. He could not raise his income by increasing his freight rates without the consent of the Interstate Commerce Commission. He had been asked by the President of the United States to refrain from cutting wages of labor. This request was additional to the fact that he had agreements with all classes of railway labor which prohibited him from reducing wages and the consequence of an attempt to reduce wages would quite surely be a strike. Passenger fares would not be raised without the loss of passenger business, to busses. Salaries of officers were reduced, but this afforded very little relief. During 1931 no important reductions were made in railway labor wages.

**CONSOLIDATIONS.** Some progress toward consolidations was made in the East. The careful

and well thought out plan of the Interstate Commerce Commission for five systems of railway between the Atlantic Coast and the Mississippi Valley was disregarded and by agreement between the President of the United States and the presidents of the principal Eastern railways and with the approval of the Interstate Commerce Commission, four systems in the East were set up.

These four systems were: (1) The New York Central Railroad to which was added, the Delaware, Lackawanna & Western, the Ulster & Delaware, the Pittsburgh & Lake Erie, and the New York, Ontario & Western. (2) The Pennsylvania Railroad to which was added the Norfolk & Western, the Wabash, and the Detroit, Toledo & Ironton. (3) The Chesapeake & Ohio, and the New York, Chicago & St. Louis (Nickel Plate) to which were added the Erie Railroad, the Lehigh Valley Railway, the Pere Marquette, and the Chicago & Eastern Illinois. (4) The Baltimore & Ohio to which was added the Reading, the Central of New Jersey, the Buffalo, Rochester & Pittsburgh, the Chicago & Alton, and the Western Maryland.

**REVENUES.** Taken as a whole, gross earnings of railways reflected general conditions beyond the control of railway executives. Wages were fixed and rates were fixed, so the policy toward maintenance and development tells the history of the year 1931 in so far as it was shaped by railway executives. Conditions which railway executives had to meet are reflected in the following figures, taken from the *Railway Age* and from the annual statistical review of the Bureau of Railway Economics.

CONDENSED INCOME ACCOUNT OF CLASS I  
RAILWAYS  
[Millions of dollars]

	1931	1930	1929
Total operating revenues .....	4,237	5,344	6,360
Total operating expenses .....	3,266	3,977	4,561
Taxes .....	308	354	403
Net operating income .....	531	885	1,275

According to a summary of the Bureau of Statistics of the Interstate Commerce Commission, the net income of the Class I railways for 1931, after taxes, rents, interest, and other charges, was \$141,160,935, compared with \$527,704,007 for 1930, a reduction of \$386,543,072 in the amount available for dividends. However, 71 companies listed among Class I railways ended 1931 with deficits below fixed charges, aggregating \$90,745,061 (exclusive of roads in receivership on Dec. 31, 1931).

Declines in railway traffic in 1930 and 1931, measured in net ton-miles and passenger-miles, are shown herewith (figures from the Bureau of Railway Economics, as published in the *Railway Age*, Jan. 2, 1932).

	1931	1930	1929
Net ton-miles * .....	340,148	422,117	492,313
Passenger-miles * .....	21,899	26,823	31,078

\* In millions of miles.

**MAINTENANCE.** It must be remembered that there is a wide margin as to what may be spent for rail renewal, tie renewal, bridge repair, station repair, etc., called "maintenance of way" and defined with nicety by the Interstate Commerce Commission. If a rail is renewed with one of the same weight the entire cost of the renewal

must be charged to "maintenance of way." If on the other hand a rail weighing 90 pounds to the yard is replaced by one weighing 100 pounds to the yard, the cost of 90 pounds to the yard of the new rail must be charged to "maintenance of way" and the cost of 10 pounds to the yard of the new rail to "additions and betterments." Therefore a strictly accurate comparison is made in the statement that "maintenance of way" in 1931 for the Class I railways cost \$553,000,000, in 1930, \$713,000,000, and in 1929, \$865,000,000.

Labor costs were hardly any lower per hour in 1931 than in 1930 and 1929. Material costs were a little lower in 1931, but it was believed that physical inspection would show a big reduction in the amount and standard of maintenance work done in 1931 as compared with 1930.

**NEW CONSTRUCTION.** During 1931 there were 748 miles of railway completed compared with 513 miles completed in 1930 and 865 miles completed in 1929. In 1902 there were 6026 miles of railway completed. At the end of 1931 there were 112 miles under construction. At the end of 1930 there were 596 miles under construction.

**RAILWAYS ABANDONED.** In 1931 the mileage abandoned was 795, in 1930, 694, and in 1929, 575, so the net decrease—excess of railway mileage abandoned over the new mileage built—was in 1931, 47 miles, in 1930, 181, but in 1929, 91 miles less was abandoned than built.

**SPEED OF FREIGHT TRAINS.** The average speed of freight trains in 1931 was 14.8 miles per hour against 13.8 per hour in 1930 and 13.2 miles per hour in 1929. This important element in the changes that were taking place from year to year in the railway situation in the United States is given here between the record of new railway built and the record of cars and locomotives built because it is a factor in those records. Thus a higher average speed for trains means a greater use of the locomotives, the cars and railway track and is analogous (in result—not cost) in the production of transportation, to the building of new railways and putting in use more cars and locomotives.

**NEW EQUIPMENT.** There were 235 locomotives ordered in 1931 in the United States according to the records of the *Railway Age*. This compared with 440 locomotives ordered in 1930 and 1212 ordered in 1929. The number of locomotives built in 1931, again according to the *Railway Age*, was 198; in 1930 it was 1023 and in 1929 it was 1065. The number of freight cars ordered for domestic use in the United States was 10,808 in 1931, 46,360 in 1930, and 111,218 in 1929. For export the number of freight cars ordered in 1931 was 151, in 1930 it was 1200, and in 1929 it was 3023. Freight cars built in the United States in 1931 numbered 13,614, in 1930, 77,097, and in 1929, 85,408. The number of passenger cars ordered for service in the United States in 1931 was 11, in 1930 it was 667, and in 1929 it was 2303. The number ordered for export in 1931 was 21, in 1930 it was 15, and in 1929 it was 33. The number of passenger cars built in 1931 was 198, in 1930 it was 1264, and in 1929, 1254.

**DIVIDEND CHANGES.** In its results over a series of years arrested development of railways with lowered maintenance standards may result in greater loss to the stockholder than a reduction in dividend and threatens the security of principal and interest of the railway creditors. The record, therefore, of maintenance, new construction, and new cars and locomotives put into use

by railways in 1931 is a more fundamental criterion of railway conditions than the dividend record. Railway company dividend payments show payments of \$570,000,000 in 1931 as against \$670,000,000 for 1930.

For purposes of reference dividend changes in 1931 are given in alphabetical order, not order of importance.

The Alabama Great Southern omitted 3 per cent extra in 1931. The 3 per cent extra was paid in 1930.

The Atlanta & West Point reduced its dividend from 8 per cent to 4 per cent.

The Atlantic Coast Line reduced its regular dividend from 7 per cent to 4 per cent and omitted in 1931 the 3 per cent extra, paid in 1930.

The Baltimore & Ohio, which was paying 1½ per cent quarterly in 1930 reduced this to 1¼ per cent quarterly in March, reduced it again to 1 per cent in September, and omitted it altogether in December. This was on the common stock. The regular 4 per cent dividends were being paid on the preferred stock.

The Boston & Maine reduced its dividend on the common stock, from 4 per cent to nothing, and omitted the dividends on all classes of preferred (various rates) except the dividend on the prior preference stock which was continued.

The Buffalo & Susquehanna paid \$4 a share on its common, the first dividend in 6 years.

The Canadian Pacific reduced its quarterly dividend from 2½ per cent to 1¼ per cent.

The Central Railroad of New Jersey omitted the regular quarterly dividend of \$2 in November.

The Chicago & North Western paid the regular 7 per cent on the preferred stock, and 2 per cent quarterly on the common, in the first half of 1931 but in November omitted both the dividend on the common and preferred stocks.

The Chicago Great Western paid a first quarterly dividend of \$1 a share in the first quarter of 1931. Fifty cents a share was paid quarterly in April, July, and October.

The Chicago, Indianapolis & Louisville omitted the semi-annual dividend of \$3.50 a share on the common stock and \$2 a share on the preferred stock in June 1931.

The Chicago, Rock Island & Pacific reduced its quarterly dividend on the common stock from \$1.25 to \$1 in the first quarter of 1931, omitted all common dividends for the last three quarters and omitted the quarterly dividend on the preferred stock also in December.

The Cincinnati, New Orleans & Texas Pacific paid its regular 8 per cent dividend on the common, and 5 per cent on the preferred but only paid \$3 extra on the common in 1931 as against \$50 in 1930.

The Colorado & Southern omitted the \$3 dividend on the common stock.

The Delaware, Lackawanna & Western which paid \$6 regular and \$1 extra in 1930, reduced the regular \$1.50 quarterly dividend to \$1 and then, in September, again reduced the quarterly dividend to 50 cents a share.

The Erie omitted the dividends on the 1st and 2d preferred stocks.

The Great Northern which had been paying \$5 a share on the so-called preferred stock—it has no common outstanding—paid only \$2.50 in 1931.

The Gulf, Mobile & Northern omitted the \$6 dividend on its 6 per cent cumulative preferred stock in February, 1931.

The Illinois Central reduced its dividend from \$7 to \$4 in May, 1931, and to nothing in October.

The Kansas City Southern reduced the dividend on its common stock from \$5 to \$2 to nothing.

The Kansas, Oklahoma & Gulf reduced its non-cumulative preferred stock dividend from \$6 to \$3.

The Lehigh Valley reduced its dividend from a rate of 7 per cent to a rate of 5 per cent in the first half of 1931 and omitted it entirely in the second half of the same year.

The Maine Central reduced its quarterly dividend from \$1.25 to nothing.

The Missouri, Kansas & Texas omitted the \$1 quarterly dividend on the common stock, and in December omitted the \$1.75 quarterly dividend on the preferred stock.

The Missouri Pacific omitted the \$1.25 quarterly dividend on the preferred stock in December, 1931.

The Mobile & Ohio, which in 1930 paid \$7 regular dividend and \$15 extra, omitted the regular and extra dividend in July, 1931.

The Nashville, Chattanooga & St. Louis reduced its semi-annual dividend from \$2.50 to \$1.50, in July, 1931.

The New York Central reduced its dividend rate from 8 per cent to 4 per cent, and in the latter part of 1931 omitted the dividend entirely.

The New York, Chicago & St. Louis (Nickel Plate),

in August, omitted the regular \$1.50 quarterly dividend on both the common and preferred stocks.

The New York, New Haven & Hartford reduced its dividend rate on the common stock from 6 per cent to 4 per cent and then omitted it entirely.

The Northern Pacific reduced its quarterly dividend from \$1.25 to 75 cents.

The Pennsylvania Railroad reduced its dividend rate from 8 per cent (\$4 on \$50 par value share) to 6 per cent and then to 4 per cent (\$2 on \$50 par value share).

The Pere Marquette which had been paying 6 per cent regular on the common and 2 per cent extra, omitted all common dividends and omitted the preferred dividend in September.

The Pittsburgh & Western Virginia which was paying 6 per cent, reduced the rate to nothing.

The St. Louis-San Francisco reduced the annual rate of dividends from 8 per cent to nothing.

The Southern Railway paid 6 per cent on the common stock in 1931 (mostly earned and declared in 1930), and omitted the preferred dividend in December.

The Southern Pacific reduced its dividend rate from 6 per cent to 4 per cent.

The Texas & Pacific reduced its dividend rate from 5 per cent to nothing.

The Wheeling & Lake Erie reduced the amount paid on the prior lien stock from 19½ per cent to 14 per cent.

The Wabash, which later went into the receiver's hands, omitted the dividend on both classes of preferred stock in January, 1931.

**RECEIVERSHIPS.** There were 19 railway companies put into the receiver's hands in 1931, operating 5195 miles of railway and having outstanding \$432,151,526 face value of stock and bonds. The two most important railway companies were the Wabash, operating 2524 miles of railway, and the Florida East Coast Railway, operating 865 miles of railway.

**FORECLOSURE SALES.** There were only 2 foreclosure sales of railways during 1931. One was the Chicago, Springfield & St. Louis, operating 87 miles of railway, and the other was the Kansas & Oklahoma, operating 15 miles. Since foreclosure sale of a railway is in the majority of cases one of the first steps looking to the organization of a new company it was to be expected that there would be few receivership sales in 1931.

**RAILWAY SECURITIES SOLD.** According to the *Wall Street Journal* (New York) the total amount of railway securities sold to the public during 1931 was \$559,033,000 compared with \$1,006,667,600 in 1930. The three most important sales during 1931 were: The New York Central Railroad sale of \$75,000,000 4½ per cent bonds due in 2013 sold to the company's bankers, J. P. Morgan & Co., at 97¾ per cent of par and by the bankers to the public at par, a commission to the bankers of 2¼ per cent.

The Pennsylvania Railroad sold to its bankers, Kuhn Loeb & Co., \$50,000,000 4¼ per cent bonds due 1981. The price which the railway company got from the bankers was 94 per cent. The price for which the bankers sold the bonds to the public was 96½ per cent of par, a commission to the bankers of 2¼ per cent.

The Southern Pacific Co. sold to its bankers, Kuhn Loeb & Co., \$50,000,000 4½ per cent bonds due in 1981. The price to the bankers was 94¼ per cent of par, and to the public 96¾ per cent of par, a commission to the bankers of 2½ per cent.

See UNITED STATES under Administration.

**RAINFALL.** See METEOROLOGY.

**RAMDOHRITE.** See MINERALOGY.

**RANDOLPH-MACON WOMAN'S COLLEGE.** An institution for the higher education of women in Lynchburg, Va., under the auspices of the Methodist Episcopal Church, South, founded in 1893. The enrollment for the autumn of 1931 was 642. The faculty numbered 69. The

endowment amounted to \$1,203,565, while the income for the year was \$558,671. The library contained over 37,000 volumes. Acting President, N. A. Pattillo, A.M., Ph.D.

**RAPID TRANSIT.** NEW YORK. The first bids on the Sixth Ave. section, the final link in the new independent municipal subway, were received on May 19 by the Board of Transportation. This will complete the 55 route miles of new subway undertaken in 1925 and includes almost 200 miles of track, at a total cost of over \$500,000,000. Starting this work was delayed pending a decision as to the disposal of the Sixth Ave., Elevated Railroad. Because of existing subways, the elevated line, the Hudson & Manhattan tubes, and the Catskill Aqueduct distribution tunnel, all of which occupy portions of Sixth Ave., and the character of the ground to be encountered, this last link would be one of the most difficult pieces of subway work ever undertaken. A further delay of two years before construction would begin was announced by the Board. The fear that blasting on the new work might possibly cause trouble with the Catskill distribution tunnel, which would critically affect the water supply of Brooklyn, Queens, and Richmond, led to this decision. The summer of 1931 having been one of particularly low water supply, this consideration further added to the risk. In two years, or less, the new distribution tunnel No. 2 would be completed and this possible danger removed.

**PHILADELPHIA.** Construction was ordered resumed in March on the new Market Street subway, after two delays of nearly a year each had held up this project since the contract was awarded in 1929. The two single-track lines looping around the City Hall were to be replaced by a single double-track line passing directly under the old building. A dispute between the contractor and the Department of Rapid Transit as to the methods to be used in this work was responsible for the last delay. A Board of Arbitration advised changes in the underpinning which were estimated to cost \$200,000 additional but which were accepted by the Department.

**BUENOS AIRES.** The second section of the La Croze subway, 1.7 kilometers long, was scheduled for completion in 1931. The first section was completed and put in operation in 1930. It was 4.6 miles long and was built in 20 months by American engineers and contractors. The new section is more than a normal subway line, for it provides access to the heart of the city for the Central R. R. of Buenos Aires and its connections, the Entre Rios, Central of Paraguay and the Northeastern Argentina. The two terminal stations, also, were designed to accommodate railroad trains. See TUNNELS.

**RASKOB, JOHN J.** See UNITED STATES; PROHIBITION.

**RATIONALIZATION.** See GREAT BRITAIN under Industry and Shipping.

**RAYON.** Unlike most manufacturing productions in the United States the domestic output of rayon in 1931 reached a new high mark of 143,900,000 pounds, an increase of 31 per cent over 1930. Of the 1931 production 87.8 per cent was viscose rayon and 12.2 per cent was rayon made by other processes, comparable figures for 1930 being 85.3 per cent and 14.7 per cent respectively. The consumption of rayon also reached a new high peak of 150,100,000 pounds, an increase of 43 per cent over 1930. At the end



of the year the rayon stocks were in a sound position with about a seven-week supply in sight, or essentially the same position in regard to sales as obtained at the end of 1929. The accompanying table, compiled by the *Textile Organon* of the Tubize Chatillon Corporation, indicates the production and consumption of rayon for a number of years:

ANNUAL RAYON PRODUCTION AND CONSUMPTION

[Units are thousands of pounds]

Year	Domestic production	Imports	Exports	Est. chg. in dom. stocks prev. Dec. to current Dec.	Domestic consumption
1921	15,000	3,276	Not	.....	18,250
1922	24,400	2,116	re-	+ 500	26,000
1923	36,000	3,029	port-	+ 1,500	37,500
1924	38,500	1,712	ed	+ 2,000	38,200
1925	51,902	7,001	148	+ 4,000	54,750
1926	63,600	10,063	400	+ 7,000	66,250
1927	75,556	18,236	401	+ 9,000	100,400
1928	97,900	12,734	196	+ 6,000	104,500
1929	119,500	15,950	223	+ 8,000	132,250
1930	110,000	5,649	345	+10,000	105,800
1931	143,900	1,531	314	- 5,000	150,100

The use of rayon in the textile industry is indicated in the accompanying tabulation:

DISTRIBUTION BY TRADES \*

[In per cent]

	1929	1930	1931
Hosiery .....	19	17	14
Underwear .....	32	40	32
Other knit goods .....	4	5	1
Total knit goods .....	55	62	47
Cotton .....	21	18	27
Silk .....			
Broad .....	13	9	15
Narrow .....	(*)	(*)	2
Wool .....	1	1	..
Brands .....	5	5	1
Miscellaneous .....	5	5	8
Total .....	100	100	100

\* From the *Textile Organon*.

† Included in broad silks before 1931.

**RAYS, RADITION.** See PHYSICS.

**READ, CARVETH.** A British metaphysician, died in London, Dec. 8, 1931. He was born in Falmouth Mar. 16, 1848, and attended Christ's College, Cambridge, and the Universities of Leipzig and Heidelberg. From 1903 to 1911 he was Grote professor of philosophy in the University of London, and from 1911 to 1921 lecturer on comparative psychology at University College, London. His works include: *A Theory of Logic* (1878); *Logic Deductive and Inductive* (1898); *The Metaphysics of Nature* (1905); *Natural and Social Morals* (1909); and *The Origin of Man and of His Superstitions* (1920).

**REALISM.** See PHILOSOPHY.

**REAL WAGES.** See STATISTICS.

**REAPPORTIONMENT.** See LAW, PROGRESS OF.

**RECALL.** See MUNICIPAL GOVERNMENT.

**RECLAMATION.** UNITED STATES. In an address Dr. Ellwood Mead, U. S. Commissioner of Reclamation, made some important suggestions and comments on the vast but largely financially unproductive work of the Bureau. "The era of reclamation as a creative activity," said Dr. Mead, after noting the virtual disappearance of unproductive desert land, "would appear to be

about over, and future reclamation will be more exclusively salvage work involving the rehabilitation that many districts need if they are to be saved from ruin and the construction of new canals and reservoirs to provide a thoroughly dependable water supply." He was particularly emphatic in stating that it is only through a broad Federal control that the full conservation of western streams, with practically the complete capture of flood waters which is essential to the future water supply of the West, can be effected. Water power, flood control, and other constructions all play a part in this work but must be properly coordinated to be effective.

From the financial viewpoint the Commissioner noted a method of financial rehabilitation was before the seventy-first Congress and would probably be reintroduced in the succeeding Congress. This was a plan to set up a revolving fund for purchasing the outstanding bonds of districts that could not meet their obligations and thus refund these bonds at a lower interest rate as a debt to the Government. "The original principles of the Reclamation Law are not adapted," the Commissioner stated, "to the change of function (in connection with future activities of the Bureau) and a new law is in order."

The whole reclamation policy was forced to the front more strongly than ever before due to the fact that a large number of the government projects would fail to meet expenses in 1932. Representatives of 23 projects in nine States proposed a blanket moratorium for three years without interest, to which Dr. Mead made a counter-proposal of extending relief only to the individuals on each project actually in need of assistance. "If the Bureau were to forego the revenue (about \$5,000,000 a year) for three years," said Dr. Mead, "it would be obliged to postpone work on most of its projects." An allotment by Congress of a \$5,000,000 emergency fund for the Bureau in 1931 was permitting work to proceed on many of these projects.

Among the non-federal undertakings difficulties have also been experienced. The Merced Irrigation District in California defaulted on its bonds and it was proposed to place the risk of decreased power revenue, which was largely responsible for the difficulty, on the bondholders instead of the taxpayers. Voters of the Nevada Irrigation District planned to refund their 8½ per cent bonds by the simple expedient of issuing new bonds at the reduced interest rate of 4 per cent. On the other hand, the Salt River Valley Water Users Association, Phoenix, Ariz., was authorized to increase their indebtedness to \$22,000,000 and conditions were reported as the best in five years.

**DALLAS, TEXAS.** The work of straightening Trinity River through the heart of Dallas progressed rapidly and was nearing completion. The cost of this \$20,570,000 project was divided among city, county, railroad, utilities, and private owners.

**NILE DELTA.** The Egyptian government has recently undertaken a vast drainage project with the object of reclaiming those lands of the Nile Delta unsuited to agriculture because of the high salinity of the soil. These banks lie in a belt 10 to 25 miles wide stretching across the northern part of the delta for 100 miles from Alexandria toward Port Said. It was proposed to wash out the salt by flooding the lands with fresh Nile water and draining them by using a canal system with low lift pumping stations.



**RECONSTRUCTION FINANCE CORPORATION.** See BANKS AND BANKING; UNITED STATES under *Administration*.

**RED CROSS, AMERICAN NATIONAL.** A semi-governmental organization, chartered by Congress in January, 1905. The charter designates its obligations as follows: "To furnish volunteer aid to the sick and wounded of armies in time of war . . . to perform all duties devolved upon a national society by each nation which has acceded to the treaty of Geneva . . . to act in matters of voluntary relief and in accord with the military and naval authorities as a medium of communication between the people of the United States and their Army and Navy . . . to continue and carry on a system of national and international relief in time of peace and to apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods, and other great national calamities, and to devise and carry on measures for preventing same."

The year of 1931 gave the Red Cross an opportunity for the greatest peace-time relief operation in its history. The previous year had been marked by a drought which exceeded all others in the history of the U. S. Weather Bureau, both in length and extent, besides being accompanied by economic depression. The full effect of this disaster was felt with the winter, when the scant store of home-grown food was exhausted and wild game scarce. In February and March, 1931, the relief work reached its peak, beginning to decline with the coming of vegetable gardens and new pastures in the spring. Among the needy, these vegetables were raised from seed donations by the Red Cross. In the fall of 1930, the Red Cross gave seed to 70,083 families to raise vegetable crops and pasturage before the freezing weather set in.

A summary of the work done shows that the Red Cross gave direct aid to about 2,765,000 drought sufferers in the form of food, seed, and clothing. In addition, it provided lunches to 3524 schools, furnishing a nourishing meal on school days to some 184,000 children. It also provided powdered yeast to 18,302 pellagra sufferers, since yeast supplies a needed element in the alleviation of that disease. The retail value of the vegetables grown from Red Cross seed has been estimated by an agricultural economist at \$20,000,000. The relief fund amounted to \$15,589,780, of which \$5,000,000 was donated from the National Red Cross treasury. Donated supplies amounted to nearly \$1,000,000 in addition.

By June 30, 1931, the end of the fiscal year, the drought sufferers still being aided had dropped to about 75,000; and this number diminished rapidly with the coming of splendid crops in the central, southern, and eastern drought areas. But a new drought situation, requiring Red Cross aid, then arose in Montana and North Dakota. The relief work done there in the summer and fall of 1931, and planned to extend through the winter of 1931-32, involved an estimated cost of \$1,500,000.

During the fiscal year of 1930-31, the Red Cross gave aid in a total of 78 disasters, including drought, storms, fires, floods, mine explosions, and tornados. Of these, 51 occurred in the United States and 20 in insular territory, with seven foreign disasters to which were sent donations of money. The most important disasters apart from drought, were the Bethany (Okla.) tornado, which destroyed or damaged 782 buildings, and

the Nogales (Ariz.) flood, which destroyed or damaged 690 buildings. On March 31, an earthquake destroyed Managua, capital of Nicaragua. To the scene the Red Cross sent a representative by airplane, who helped to organize the relief work. In aid of the refugees, the American society sent from its treasury a donation of \$100,000.

The Red Cross nursing service maintains a reserve of enrolled Red Cross nurses for the Army and Navy and other government departments, as well as for Red Cross service. This reserve numbered 37,574, not including nurses in government service or located in foreign countries. Another Red Cross nursing service is engaged in the field of public health. During the year these public health nurses paid 1,338,252 visits to individuals and inspected over 1,000,000 school children.

At the close of its fiscal year, the Red Cross had a membership of 4,075,049 adults, distributed among 3603 chapters in the United States and its insular possessions. In addition, the Junior Red Cross numbered 7,016,288 children enrolled in the schools.

On May 21, 1931, the society observed the fiftieth anniversary of its founding by Clara Barton. Although the International Red Cross was founded at Geneva, Switzerland, in 1864, the organization of an American society was delayed until 1881 because of the opposition of the United States Government to signing the Red Cross international treaty. The event was observed by various chapters throughout the United States and by a dinner given at Washington, where addresses by distinguished speakers were broadcast on a national hookup. These speakers were: President Hoover, who is president of the society; John Barton Payne, its chairman; Miss Mabel T. Boardman, its secretary; and Judge Max Iluber of Geneva, Switzerland, president of the International Committee of the Red Cross. Chief Justice Charles Evans Hughes presided.

National headquarters of the American Red Cross are at 17th and D Streets, N. W., Washington, D. C., with branch administrative offices in St. Louis and San Francisco.

**REED COLLEGE.** A nonsectarian, liberal college of arts and sciences for men and women in Portland, Ore., founded in 1911. The enrollment for the autumn term of 1931 totaled 418 students. The faculty numbered 36, with 12 graduate assistants. The productive funds for 1930-31 amounted to \$1,877,829, while the net income as of Aug. 31, 1931 was \$90,843. The library contained approximately 40,000 volumes. President, Norman Frank Coleman, LL.D.

**REFERENCE WORKS.** See PHILOLOGY, MODERN; LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE, GERMAN LITERATURE; ETC. **REFINING OF METALS.** See METALLURGY.

**REFORMED CHURCHES THROUGHOUT THE WORLD HOLDING THE PRESBYTERIAN SYSTEM, ALLIANCE OF.** An organization formed in London, England, in 1875 with the one great purpose, to encourage comity, cooperation, and efficiency in the accomplishment of Christian work. In 1931 there were 106 churches connected with the alliance. The members and adherents of the Presbyterian and Reformed churches throughout the world numbered about 60,000,000, including members of the Evangelical Church in Germany. The general secretary in 1931 was the Rev. W. H. Hamilton of Edinburgh, Scotland, and the American secretary was the Rev. Henry B. Master,

D.D., whose offices are at 1012 Witherspoon Building, Philadelphia. A general council of the alliance was to be held in Belfast, North Ireland, in 1933.

**REFORMED CHURCH IN AMERICA.** Composed originally of settlers from Holland, and known until 1867 as the Reformed Protestant Dutch Church in North America, the denomination has since become largely intermixed with elements from many other nationalities. It adheres to the doctrines of the Belgic Confession and the Heidelberg Catechism and in 1839 endorsed the Westminster Catechism. The form of government is of the Presbyterian type.

In 1931 the Reformed Church in America reported 733 churches, 850 ministers, 87,862 families, 159,030 communicants, and, approximately, 200 foreign and 235 domestic missionaries. The value of property used for worship was placed at more than \$38,000,000 in the Federal census of religious bodies of 1928. There are foreign missions in China, India, Japan, Arabia, and Mesopotamia, the last named being a joint enterprise with the Presbyterian Church in the United States of America and the Reformed Church in the United States. There is also a mission in the State of Chiapas, Mexico, administered by the boards of domestic missions. Missions to the American Indians are located in Nebraska, Oklahoma, and New Mexico. Schools are maintained among the mountain people of Jackson County, Ky., and for the Negroes in Brewton, Ala.

There are theological seminaries in New Brunswick, N. J., and Holland, Mich. The church colleges are Hope, at Holland, Mich.; Central, at Pella, Iowa; and the Northwestern Junior College, at Orange City, Iowa. Rutgers University in New Brunswick, N. J., is historically affiliated with the denomination, although entirely independent of ecclesiastical control. The official periodical of the denomination is the *Christian Intelligencer*. At the session of the general synod in June, 1931, the Rev. Frank Barrows Seeley, D.D., of Kingston, N. Y., was elected president.

**REFORMED EPISCOPAL CHURCH.** A denomination formed in December, 1873, by clergymen and laymen who had withdrawn from the Protestant Episcopal Church. The denomination maintains a seminary in Philadelphia, Pa., and issues a periodical, the *Episcopal Recorder*. The latest available statistics gave: Churches, 86; ministers, 91; church members, 25,300; and Sunday school enrollment, 26,000. The triennial general council of the denomination was held in Philadelphia, May 21-23, 1930. The Rev. Frank C. Cloak, D.D., was elected a bishop at a special meeting of the general council in Atlantic City, N. J., Oct 22, 1931, with jurisdiction in Ohio and Illinois. Bishop Robert Westly Peach, D.D., of Philadelphia, was presiding bishop.

**REFUGEE COMMISSION.** See GREECE under *History*.

**REFUSE DISPOSAL.** See GARBAGE AND REFUSE DISPOSAL.

**REGIONAL PLANNING.** See CITY AND REGIONAL PLANNING.

**REICHERT, EDWARD TYSON.** An American physiologist, died in St. Petersburg, Fla., Dec. 25, 1931. He was born in Philadelphia, Pa., Feb. 5, 1855, and was graduated from the University of Pennsylvania with the M.D. degree in 1879, later attending the Universities of Berlin, Leipzig, and Geneva. He was connected with the University of Pennsylvania as demonstrator in ex-

perimental therapy from 1879 to 1884, as demonstrator in physiology from 1884 to 1886, and as professor of physiology from 1886 until his retirement in 1920. His researches ranged from studies in the toxic principles of serpent venoms (on which he assisted Dr. S. Weir Mitchell) to the crystallization of hæmoglobins and the differentiation and specificity of corresponding vital substances in relation to genera and organic evolution. He also determined a biochemic basis for the study of problems of taxonomy, heredity, sex, species, and organic evolution.

**REID, ELISABETH MILLS.** An American philanthropist, died in Cap Ferrat, near Nice, France, Apr. 29, 1931. She was born in New York City, Jan. 6, 1858, the only daughter of Darius Ogden Mills, the financier. In 1881 she was married to Whitelaw Reid, later publisher of the New York *Tribune*, minister to France from 1889 to 1892 and ambassador to Great Britain from 1905 to 1912. Her important philanthropic projects included the American Art Students' Club in Paris, which she converted during the War into a hospital for French and American officers, and the Trudeau Sanitarium at Saranac Lake, N. Y., which she helped found and at which she later established the D. O. Mills Training School and Home for Nurses.

**REINDEER.** See ALASKA.

**RELATIVITY.** See PHILOSOPHY; PHYSICS.

**RELIEF AGENCIES.** See FOOD AND NUTRITION.

**RELIGION.** See LITERATURE, ENGLISH AND AMERICAN; PHILOLOGY, MODERN.

**RELIGIOUS DENOMINATIONS.** See articles on respective Churches and denominations.

**RENAISSANCE LITERATURE.** See PHILOLOGY, MODERN.

**RENSSELAER POLYTECHNIC INSTITUTE.** A nonsectarian institution for the technical training of men in Troy, N. Y., founded in 1824. In 1931 there were 1653 students enrolled. The teaching staff numbered 138. The productive funds amounted to \$5,857,500, and the income for the year to \$759,600. The total value of the property of the institute, including market value of securities and value of buildings and equipment, was more than \$10,000,000. The gifts for endowment during the year amounted to \$251,654. The library contained 22,468 bound volumes and 23,093 pamphlets. During 1931 eight dormitories and a club house were under construction at a cost of about \$650,000. President, Palmer C. Ricketts, E.D., LL.D.

**REORGANIZED CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS.** See LATTER-DAY SAINTS, REORGANIZED CHURCH OF JESUS CHRIST OF.

**REPARATIONS AND WAR DEBTS.** In accordance with the proposal of President Hoover made June 20, 1931, and approved with modifications by France on July 6, payments of conditional reparations and of all inter-governmental war debts were postponed from July 1, 1931, to June 30, 1932.

President Hoover's original proposal follows in part:

The American Government proposes the postponement during one year of all payments on inter-governmental debts, both principal and interest, of course not including obligations of governments held by private parties. Subject to confirmation by Congress, the American Government will postpone all payments upon the debts of foreign governments to the American Government payable during the fiscal year beginning July 1, next, conditional on

a like postponement for one year of all payments on inter-governmental debts owing the important creditor powers.

The purpose of his action, Mr. Hoover announced, was "to give the forthcoming year to the economic recovery of the world and to help free the recuperative forces already in motion in the United States from retarding influences from abroad. . . ." He made it plain that he did "not approve in any remote sense of the cancellation of the debts to us." The moratorium was intended to check the German financial crisis by relieving that country for one year of the necessity of paying reparation in accordance with the Young Plan (see GERMANY under History).

The Hoover proposal was approved without reservation by all of the principal powers concerned except France and Yugoslavia. France demanded that the moratorium on German reparation should be brought in line with the procedure outlined in the Young Plan (see FRANCE under History for a full discussion). After two weeks of delicate negotiation, a compromise agreement was approved by the French Government on the evening of July 6, the moratorium going simultaneously into effect. The text of the accord of July 6 follows:

After an exchange of views the French Government states that it is in agreement with the United States on the essential principle of President Hoover's proposal and on the following propositions, which may be expressed thus:

1. The payment of inter-governmental debts is postponed from July 1, 1931, to June 30, 1932.

2. However, the Reich will pay the amount of unconditional annuity. The French Government agrees, in so far as it is concerned, that the payments thus made by the Reich shall be placed by the Bank for International Settlements in guaranteed bonds of the German railroads.

3. All suspended payments shall be subject to interest in accordance with the conditions suggested by the American Government, payable in ten annual instalments beginning with July 1, 1933.

4. The same conditions shall apply to the bonds to be issued by the German railroads. On the three points which it is recognized do not directly concern the American Government the French Government makes the following observations:

(A) A common action by the principal central banks acting through the medium of the Bank for International Settlements shall be organized to assist the countries of Europe which would be particularly affected by the postponement of the payment as proposed.

(B) A preliminary understanding should take place between France and the Bank for International Settlements in order that France shall not supply the guarantee fund provided for in the Young Plan in the event of a moratorium except by monthly payments in accordance with the needs of the Bank for International Settlements after actual transfer of payments by Germany.

(C) The question of deliveries in kind and the various modifications which will become necessary as a result of the application of the American proposal and the present agreement shall be studied by a committee of experts named by the interested powers, which shall reconcile the material necessities with the spirit of President Hoover's proposal. France reserves the right to request of the German Government indispensable assurances concerning the utilization for exclusively economic purposes of the sums freed to the Reich budget.

The British Government immediately invited the committee of experts mentioned in the Franco-American agreement to meet in London to consider the incidental questions not disposed of in the agreement. The committee consisted of experts appointed by the Governments of Belgium, France, Great Britain and Northern Ireland, Germany, Italy, and Japan. A representative of the United States attended. A formal protocol giving effect to the experts' recommendations was signed at London August 11 on behalf of the respective governments, with the endorsement of

Australia, Canada, Czechoslovakia, Greece, India, New Zealand, Portugal, Poland, Rumania, and South Africa.

A separate agreement was concluded by Germany and Belgium covering German payments under the German-Belgian agreement of 1920. Negotiations concerning the suspension of reparation payments by Bulgaria to Greece and the suspension of Yugoslav reparation receipts were not completed at the date of the signature of the protocol. On August 14, Yugoslavia notified the American Government that it was unable to participate in the moratorium agreement, as it would involve a proportionately heavy loss to the Yugoslav treasury of about \$16,000,000 for the year (see YUGOSLAVIA under History).

Another agreement reached in principle called for the suspension during the year of Hungarian reparation payments under the Paris agreement of April 28, 1930, and of Bulgarian payments under The Hague agreement of January, 1930. Adjustments were required in both these cases, however, to provide for the continuation of payments to individuals. Agreement was also reached on a plan for the suspension for the year of the Czechoslovak annuities due the principal allied Governments in accordance with The Hague settlement of January, 1930.

Under the modified Hoover Plan Germany was relieved of the necessity of meeting reparation payments for the period July 1, 1931, to June 30, 1932, amounting to approximately 1,650,000,000 reichsmarks (1 reichsmark or mark equals \$0.2382 at par). The continued payment of the unconditional reparation annuities to the Bank for International Settlements was in a technical sense only, as these funds, amounting to about 700,000,000 marks, were immediately returned to the German Government through the medium of the German Railway Company.

The accompanying table from *Europa* (London) shows receipts and payments postponed during 1931-32 under the Hoover moratorium agreement by the various countries affected. Figures are in pounds sterling of \$4.8665 par value, conversions from other currencies having been made at former pars of exchange.

#### RECEIPTS AND PAYMENTS POSTPONED UNDER THE HOOVER PLAN

[In thousands of pounds sterling]

Country	Receipts	Payments	Net loss (-) or gain (+)
United States . . . . .	53,600	.....	- 53,600
Great Britain . . . . .	42,500	32,800	- 9,700
France . . . . .	39,700	23,600	- 16,100
Italy . . . . .	9,200	7,400	- 1,800
Belgium . . . . .	5,100	2,700	- 2,400
Rumania . . . . .	700	750	+ 50
Yugoslavia . . . . .	3,900	600	- 3,300
Portugal . . . . .	800	350	- 250
Japan . . . . .	800	.....	- 800
Greece . . . . .	1,000	650	- 350
Canada . . . . .	900	.....	- 900
Australia . . . . .	800	3,900	+ 3,100
New Zealand . . . . .	330	1,750	+ 1,420
South Africa . . . . .	110	840	+ 110
Egypt . . . . .	90	.....	- 90
Germany . . . . .	.....	77,000	+ 77,000
Hungary . . . . .	.....	350	+ 350
Czechoslovakia . . . . .	10	1,190	+ 1,180
Bulgaria . . . . .	150	400	+ 250
Austria . . . . .	.....	800	+ 800

\* South Africa continued payments on her war debt to Great Britain.

The Hoover moratorium was approved by the House of Representatives of the U. S. Congress

on Dec. 18, 1931, by a vote of 317 to 100, and was subsequently passed by the Senate. However, the action of Congress was taken subject to a declaration that it was contrary to the policy of Congress to reduce or cancel the foreign obligations due the United States. The accompanying table for the New York Times of Jan. 24, 1932, shows the status of the war debts, including interest, owing to the United States at the time of the inauguration of the Hoover moratorium on July 6, 1931:

**WAR DEBTS DUE THE UNITED STATES**  
[In millions of dollars]

	<i>Borrowed</i>	<i>To pay</i>	<i>Paid</i>
England .....	\$ 4,277	\$11,106	\$1,912
France .....	8,404	6,848	486
Italy .....	1,648	2,407	97
All others .....	1,009	1,827	133
<b>Total .....</b>	<b>\$10,338</b>	<b>\$22,188</b>	<b>\$2,628</b>

According to a statement by Chancellor of the Exchequer Snowden in the House of Commons June 15, 1931, Germany's aggregate reparation payments to that date, including deliveries in kind and state properties, amounted to \$5,131,500,000. Austria had paid \$4,210,000 by deliveries in kind, Bulgaria \$13,200,000 in cash, and Turkey nothing.

BANK FOR INTERNATIONAL SETTLEMENTS. Under the provisions of the Young Plan and in accordance with the charter granted by the Swiss Government, the Bank for International Settlements was opened at Basel, Switzerland, in May, 1930. The functions of the International Bank are outlined in its statutes as follows: "to promote the cooperation of central banks and to provide additional facilities for international financial operations; and to act as trustee or agent in regard to international financial settlements entrusted to it under agreements with the parties concerned." The principal task entrusted to it at the outset was the distribution of German reparation payments in accordance with the Young Plan.

The bank had a capital of 500,000,000 Swiss francs (about \$96,500,000), subscribed by central banks or individuals in ten countries. Officials in 1931 included: Gates McGarrah, an American, president; Pierre Quesnay, France, general manager; Dr. Ernst Hueelse, Germany, deputy general manager; Sir Charles Addis of Great Britain and Dr. Melchior of Germany, vice presidents; Signor Pilotti of Italy, general secretary; Paul van Zeeland, Belgium, head of the investment department; and Leon Fraser, deputy to President McGarrah and second American director on the board.

The report of the bank covering its activities from its inception to Mar. 31, 1931, stated that this period had been one of steady development in each of the institution's spheres of action. It had aided the development of cooperation between the various central banks and provided additional facilities for international financial operations and capital movement. Deposits during the period had increased from 220,000,000 Swiss francs to 1,780,000,000, 43 per cent of the latter sum representing deposits made by central banks on their own account. The collaboration of the central banks had enabled the B.I.S. to become a reserve centre for the foreign exchange holdings of those agencies in the respective countries charged

with the duty of maintaining exchange stability.

The balance statement of the Bank for International Settlements, giving its condition on Dec. 31, 1931, was as follows. Figures are in Swiss gold francs of \$0.193 par value.

**STATEMENT OF BANK FOR INTERNATIONAL SETTLEMENTS**

	<i>Dec. 31, 1931</i>
<b>Assets</b>	
I. Cash on hand and on current account with banks .....	15,398,887.47
II. Funds employed at sight .....	143,081,501.41
III. Rediscountable bills and acceptances at cost—	
(1) Commercial bills and bankers' acceptances .....	856,350,162.16
(2) Treasury bills .....	95,950,084.52
<b>Total .....</b>	<b>452,300,246.68</b>
IV. Time funds at interest—	
(1) Not exceeding three months ..	240,849,015.01
(2) Between three and six months ..	.....
<b>Total .....</b>	<b>240,849,015.01</b>
V. Investments at cost—	
(1) Maturing within six months ..	164,827,741.18
(2) Maturing between six months and one year .....	12,246,042.49
(3) Maturing in over one year ..	888,044.98
<b>Total .....</b>	<b>177,406,828.65</b>
VI. Other assets .....	11,794,848.97
<b>Total assets .....</b>	<b>1,040,830,828.19</b>
<b>Liabilities</b>	
I. Paid-up capital .....	108,500,000.00
II. Reserves—	
(1) Legal reserve fund .....	559,328.10
(2) Dividend reserve fund .....	1,084,189.17
(3) General reserve fund .....	2,188,878.55
<b>Total .....</b>	<b>3,841,893.62</b>
III. Long-term deposits—	
(1) Annuity trust account .....	153,768,617.50
(2) German Government deposit ..	76,884,308.75
(3) French Government guarantee fund .....	68,648,520.43
<b>Total .....</b>	<b>299,301,446.68</b>
IV. Short-term and sight deposits—	
(1) Central banks for own accounts—	
(a) Between three and six months .....	166,180,014.48
(b) Not exceeding three mos. ..	297,365,679.96
(c) Sight .....	.....
<b>Total .....</b>	<b>463,545,694.44</b>
(2) Central banks for account of others—	
(a) Between three and six months .....	84,167,806.18
(b) Not exceeding three mos. ..	101,878,187.97
(c) Sight .....	.....
<b>Total .....</b>	<b>185,546,994.15</b>
(3) Other depositors—	
(a) Not exceeding three mos. ..	3,385,986.71
(b) Sight .....	.....
<b>Total .....</b>	<b>3,385,986.71</b>
V. Profits for distribution—	
(1) Dividend .....	.....
(2) Participation of long-term depositors .....	.....
<b>Total .....</b>	<b>26,708,812.59</b>
VI. Miscellaneous items .....	.....
<b>Total liabilities .....</b>	<b>1,040,830,828.19</b>

THE WIGGIN REPORT. The Bank for International Settlements played an important rôle in connection with the financial arrangements for the inauguration of the Hoover moratorium plan. It also served as a focus for the international efforts to check the withdrawal of short-term credits from Germany during the crisis of the sum-

mer. At the request of the Seven-Power Financial Conference held in London in July (see *GREAT BRITAIN and GERMANY under History*), the board of directors of the International Bank appointed a committee of financial experts nominated by the central banks of ten nations, and headed by Albert H. Wiggin, an American banker. The committee met at Basel August 8 to consider the immediate and further credit needs of Germany and to study the possibilities of converting a portion of her short-term credits into long-term credits. Its conclusions were set forth in a report issued August 19.

On the same day the Wiggin report was issued, a consortium of Germany's foreign creditors, meeting with German bankers in Basel under the committee's auspices, signed an agreement extending for six months short-term credits totaling about \$1,200,000,000, which would otherwise have been in greater part withdrawn.

**ADVISORY COMMITTEE CONVOKED.** The German Government on Nov. 10, 1931, asked the Bank for International Settlements to convoke the Special Advisory Committee, provided for in the Young Plan, to determine Germany's capacity to continue reparation payments at the expiration of the moratorium. The Government asserted that it was convinced that "Germany's exchange and economic life might be seriously endangered by the transfer in part or in full of the postponable part of the annuities." The Advisory Committee, also known as the Basel Committee, which met at Basel, December 8, consisted of Alberto Beneduce (Italy), chairman; Dr. Rudolf G. Bindschedler (Switzerland); H. Colijn (Netherlands); G. D. Jouritch (Yugoslavia); E. Franquet (Belgium); Walter T. Layton (Great Britain); C. Melchior (Germany); D. Nohara (Japan); Charles Rist (France); O. Rydbeck (Sweden); and Walter W. Stewart (United States).

The committee's report, issued December 23, stressed the need of prompt adjustment of both reparation and war debts if Germany was to be saved from disaster. It found adequate justification for the German contention that payment of conditional annuities could not be resumed in July, 1932, and intimated that even the unconditional annuities could not be paid in 1932, thus raising the question whether the Young Plan could be maintained. The report pointed out that the difficulties facing Germany were so fundamental that even an additional two-year moratorium, such as provided for under the Young Plan, might not be sufficient to stave off disaster.

On December 22 Hungary declared a one-year moratorium on the transfer of payments on her foreign debts. Spurred by these evidences of the need for quick action, the British Government on December 30 took the initiative in summoning a conference on German reparations at Lausanne, Switzerland, for early in 1932.

Reparations and war debts are discussed also in the articles on GERMANY, FRANCE, GREAT BRITAIN, UNITED STATES, BELGIUM, ITALY, YUGOSLAVIA, GREECE, etc. under *History*; BANKS AND BANKING, under *Federal Reserve Banks and International Relations*.

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**REPTILIA.** See ZOOLOGY.

**RESEARCH COUNCIL.** NATIONAL. See NATIONAL RESEARCH COUNCIL.

**RESERVE BANKS.** See BANKS AND BANKING; FINANCIAL REVIEW.

**RÉUNION, rā'u'nyōn'.** An island colony of France in the Indian Ocean, situated 420 miles east of Madagascar. Area, 970 square miles; population at the census of 1926, 186,637, of whom 180,694 were French citizens. St. Denis, population 23,390 in 1926, is the capital and Pointe des Galets, the chief port. The island sends one representative to the French Senate and two to the Chamber of Deputies. Governor in 1931, M. J. Repiquet.

**REVELL, FLEMING HEWITT.** An American publisher, died in Yonkers, N. Y., Oct. 11, 1931. He was born in Chicago, Ill., Dec. 11, 1849, and was educated in that city. In 1869 he entered upon independent editorial and publishing work, and coming to New York City was president after 1890 of the Fleming H. Revell Company, publishers, who made a specialty of religious books.

**REVOLUTION, AMERICAN, ANNIVERSARY OF.** See CELEBRATIONS.

**RHENIUM.** See CHEMISTRY; CHEMISTRY, INDUSTRIAL.

**RHINELAND, EVACUATION OF.** See GERMANY and FRANCE under *History*.

**RHODE ISLAND. POPULATION.** According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 687,479, in 1920 it was 604,397. The native whites numbered 506,302 (1930), 420,481 (1920). The foreign-born whites, 170,714 (1930), 173,499 (1920). Negroes, 9913 (1930), 10,036 (1920). Among the minor groups, the chief in 1930, was 318 Indians. The population was urban to an overwhelming extent, dwellers in communities of at least 2500 numbering 635,429 (1930), 589,180 (1920). A reclassification of some localities formerly classed as urban resulted, however in a sharp apparent gain of the rural population, to 52,058 (1930), from 15,217 (1920).

Of the 297,168 persons listed in 1930 as in gainful occupations, 163,857 were in the manufacturing and mechanical industries; 45,240, in trade; 26,303, in domestic or personal service; 19,185, in professional service; 18,878, in transportation; 8873, in agriculture. Providence, the capital and most populous city, had 252,981 inhabitants (1930), 237,595 (1920); Pawtucket, 77,149 (1930), 64,248 (1920).

**AGRICULTURE.** The table on page 705 shows the acreage, production, and value of the principal crops in 1931 and 1930.

**MINERAL PRODUCTION.** The total value of the mineral production of the State was \$939,602 for 1929; for 1928, \$830,742. The chief of the components of these totals was the production of stone, to the quantity of 141,290 short tons

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame	1931	34,000	44,000*	\$554,000
	1930	35,000	41,000*	527,000
Corn	1931	8,000	844,000	206,000
	1930	9,000	878,000	416,000
Potatoes	1931	2,000	800,000	195,000
	1930	2,000	880,000	437,000

\* Tons.

for 1929 and of 149,130 for 1928; by value, \$590,627 for 1929 and \$707,257 for 1928. There was a substantial industrial coking activity, dependent on coal imported from outside the State, of which the totals were not included in the State's mineral aggregate.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 1693 (13.3 per cent more than the number for 1927). These establishments employed 124,838 wage earners (4 per cent more than had been employed in 1927). Wages paid in the manufacturing industries amounted to \$142,340,508 (2.7 per cent in excess of the total for 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$342,078,164 (about 9 per cent higher than the cost for 1927). The manufactured product was valued at \$664,216,174 (exceeding the corresponding value for 1927 by 12.2 per cent). Providence had 930 establishments, 47,194 wage earners, a wage total of \$55,197,341, and a product of \$240,549,196. Pawtucket had 221 establishments, 21,184 wage earners, a wage total of \$23,857,967, and a product of \$112,467,353.

**FINANCE.** State expenditures of the year ended June 30, 1930, as reported to the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$7,600,610 (of which \$519,516 was for local education); for interest on debt, \$855,139; for permanent improvements, \$5,747,674; total, \$14,223,878 (of which \$5,364,583 was for highways, \$1,061,934 being for maintenance and \$4,302,640 for construction). Revenues were \$17,128,132. Of these, property and special taxes formed 59.2 per cent; departmental earnings and remuneration to the State for officers' services, 3.6; sale of licenses, 31 (including gasoline sale taxes amounting to \$1,631,902). The State's funded debt outstanding on June 30, 1930, was \$21,904,500. Net of sinking-fund assets, it was \$17,280,386. On a property valuation of \$1,419,219,663 were levied in the year State taxes of \$1,177,012.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 190.65. During the year preceding, there had been added 0.33 miles to total under operation, but 5.45 miles had been abandoned. No building of new line or main trackage in 1931 was reported.

**EDUCATION.** The number of the State's inhabitants of school age in January, 1931, was stated as 211,124. There were enrolled, in 1931, 117,217 pupils in public schools, 29,769 in parochial schools, and 4238 in private schools. Those enrolled in the public day schools were thus classed: pre-elementary, 8424; elementary, 55,457; junior high, 14,220; senior high, 11,474; primary, 14,162; grammar, 11,959; mixed schools, 1705; four-year high, 3960; special schools, 1639; vocational schools, 697. Expenditures of the academic year 1930-31 for public school education

totalled \$9,962,661. Salaries of teachers, principals and supervisors, by the year, averaged \$1705.72.

The municipal appropriations for public schools, according to State Superintendent Ranger, were well maintained despite the economic depression of 1931, and the movement for the development of junior high schools made further progress. A charter was granted by the Legislature for a new institution of higher learning, Roger Williams University, which was to have a department of practical arts, a law school, and a medical school.

**LEGISLATION.** Among the acts of the year's session of the Legislature the most conspicuous was that removing the Police and Fire departments of Providence and its Public Service Department from municipal control and placing them under the authority of a State Public Service Commission created for the purpose. The ostensible motive behind this action was the laxity of the enforcement of law in Rhode Island; opponents attributed the enactment to Republican dismay at the gains of Democratic Anti-Prohibition sentiment. A city charter was granted to Warwick, subject to adoption by the local vote in a referendum. As a measure of financial assistance, Central Falls was authorized to issue \$500,000 of bonds for refunding purposes. The Legislature petitioned the Federal Congress to institute a constitutional convention for the repeal of the Eighteenth Amendment. The incorporation of an osteopathic hospital was authorized. The law on life insurance policies was recodified. Public camps, bathing beaches and places of outdoor amusement were made subject to State inspection by the Public Health Commission. A commission was created to study the liquor laws of the States, with a view to recommending measures to liberalize those of Rhode Island. The State Board of Roads was put under budgetary control.

**SPECIAL SESSION.** Called in session on November 24 by Governor Case to enact means for the local relief of the destitute, the Legislature passed a law to permit municipalities to borrow from State funds, unto 0.1 per cent of their several assessed valuations without reference to their fixed borrowing capacities under other statutes. An unpaid ex-officio commission was created to supervise expenditures for relief. Local relief officers were authorized to dispense the funds thus secured for each locality, but it was required that dispensations should be to residents of two years' standing and at rates not over \$15 a week, if money should represent wages for actual work, nor over \$1 a day for each independent individual and 50 cents addition for each dependent in a family, in case of grants for sustenance.

**POLITICAL AND OTHER EVENTS.** The State-created Providence Board of Public Safety began its work in April by removing from office the city's public service engineer and other Democratic holders of posts. The city government took legal steps to contest the validity of the law depriving it of the control of its own fire and police services. In Warwick the taxpayers, at a special election held on April 21 approved by 1045 to 930 the adoption of the city form of government, as provided by a charter act of the Legislature, to become operative on Jan. 1, 1933.

**OFFICERS.** Governor, Norman S. Case; Lieutenant-Governor, James G. Connolly; Secretary



of State, Ernest L. Sprague; Treasurer, George C. Clark; Comptroller, Albert E. Godfrey; Attorney-General, Benjamin M. McLyman.

**JUDICIARY.** Supreme Court: Chief Justice, Charles F. Stearns; Associate Justices, Elmer J. Rathbun, John W. Sweeney, John S. Murdoch, J. Jerome Hahn.

**RHODESIA**, rō-dē'zhī-ā or -zī-ā. A British territory in south central Africa, extending northward from the Transvaal to the borders of the Belgian Congo and Tanganyika Territory. It is divided into Northern Rhodesia and Southern Rhodesia by the Zambezi River; Southern Rhodesia comprises Matabeleland and Mashonaland.

**NORTHERN RHODESIA.** This territory was taken over by the British Crown from the British South Africa Company on Feb. 20, 1924. With an area of 287,950 square miles, mostly high plateau country, it had a permanent European population at the census of May, 1931, of 13,630, as compared with the estimate of 9981 for December, 1929, and a native population estimated Jan. 1, 1928, at 1,298,651. Capital, Livingstone, with 1596 Europeans in 1931. Mining is the primary occupation, the total value of mineral production in 1929 being £1,097,846; (zinc, £547,964; copper, £408,258); for 1930 the total value was about £806,000. Discovered copper-ore deposits are estimated at 400,000,000 tons, containing some 16,000,000 tons of pure copper. Gold, lead, vanadium, mica, iron, and manganese are mined on a small scale and coal has been discovered. Tobacco, wheat, fruits, and maize are the chief agricultural crops. Imports in 1929 were valued at £3,602,417 and exports at £899,736. Government revenue in 1929-30 totaled £672,289 and expenditure was estimated at £554,000. A shorter outlet for the copper and other ores of Rhodesia to the west coast at Lobito Bay (Angola) was provided with the completion in March, 1931, of the Benguela Railway extension to join with the Katanga Railway in the Belgian Congo. The territory is administered by a Governor, assisted by a nominated Executive Council and by a Legislative Council. The Governor in 1931 was Sir James Crawford Maxwell, who had been appointed in 1927.

**SOUTHERN RHODESIA.** Formally annexed by the British Crown from the British South Africa Company in October, 1923, Southern Rhodesia has an area of 149,000 square miles and a population estimated on June 30, 1930, at 1,092,400, including 48,400 Europeans (49,904 at the census of May 5, 1931), 4000 Asiatics, and 1,060,000 natives. Capital, Salisbury, with about 27,000 inhabitants (including 7213 Europeans at the 1931 census). Bulawayo, with 25,000 inhabitants (10,580 Europeans), ranks second in size.

The country is well suited to agriculture and European settlement. In 1929, the acreage devoted to the chief crops was: Maize, 325,300; tobacco, 17,800; ground-nuts, 9700; legumes and fodders, 29,300. Exports of oranges and lemons increased from 53,000 boxes in 1923-24 to 159,000 boxes in 1929. Livestock in 1929 included 2,398,000 cattle, 353,800 sheep, and 61,300 swine. The mineral output for 1930 was valued at £4,518,000; gold, chrome ore, asbestos, and copper are the chief minerals exploited. Several minor industries have been established. Imports in 1930 were valued at £7,346,000 and exports at £7,320,000 (including reexports).

Revenue for the year ended Mar. 31, 1930, totaled £2,489,000, compared with £2,333,000 in

1928-29, and expenditure amounted to £2,967,800 (£2,930,600 in 1928-29). The net public debt Mar. 31, 1930, was £6,142,479. Railways provide through communication with Beira on the east coast, Capetown on the south, and Lobito Bay on the West coast. There is a highway motor service system covering 1357 miles. Executive power is vested in a governor, aided by an executive council; legislative power in an elected legislative assembly. Governor and Commander-in-Chief in 1931, Sir Cecil H. Rodwell, appointed 1928. Premier and Secretary for Native Affairs, H. U. Moffat. For the development of the British Government's native policy in Africa in 1931, see KENYA. Both Northern Rhodesia and Southern Rhodesia on Oct. 12, 1931, followed the example of Great Britain and abandoned the gold standard.

**RHODES SCHOLARSHIPS.** See UNIVERSITIES AND COLLEGES.

**RICE.** The rice production of the crop year 1931-1932 of the countries reporting to the International Institute of Agriculture not including the United States was estimated as follows: Japan, 487,514,000 bushels; Java, 230,747,000 bushels; Korea, 140,968,000 bushels; Formosa, 32,164,000 bushels; Italy, 31,721,000 bushels; Madura, 20,576,000 bushels; Manchuria, 15,560,000 bushels, and Bulgaria, 645,000 bushels. India ranked first in acreage with 77,429,000 acres; Japan second with 7,952,000 acres, and Java third with 7,742,000 acres. Manchuria reported an acreage of 495,000 acres. While no complete data on Chinese production were available a reduction of the crop, from 15 per cent to 20 per cent below the average was reported.

In the United States according to estimates published by the Department of Agriculture rice production in 1931 in the four States growing nearly all the crop was 45,014,000 bushels of 45 pound each as compared with 44,299,000 bushels in 1930. In these States 970,000 acres were harvested in 1931 and 959,000 acres in the preceding year. The increase in the 1931 over the 1930 crop was due to a larger production in California where 8,000,000 bushels were harvested from 125,000 acres in 1931 compared with 7,271,000 bushels harvested from 110,000 acres in 1930. The 1931 rice production in Arkansas, Louisiana, and Texas was reported as 37,014,000 bushels, while in 1930 it was 37,028,000 bushels and in 1929, 34,391,000 bushels. The average farm price on Dec. 1, 1931, was 60.9 cents per bushel, the lowest for many years, and on this basis the total value of the crop was \$27,402,000 the lowest since 1915.

**RICE INSTITUTE.** A coeducational institution for higher education in Houston, Texas, opened in 1912. The enrollment in the autumn of 1931 was 1454, and the faculty numbered 99. The plant equipment and productive funds of the institution were estimated at \$15,000,000, and the income from endowment for the fiscal year 1930-31 was in excess of \$600,000. The library contained approximately 87,000 volumes. President, Edgar Odell Lovett, Ph.D., Sc.D., LL.D.

**RICKETTS.** See FOOD AND NUTRITION.

**RICKETTS, CHARLES.** A British painter, sculptor, engraver, stage designer, and author, died in London, Oct. 7, 1931. He was born in Geneva, Switzerland, Oct. 2, 1866, and was educated in France. From 1889 to 1897 he was joint editor with Charles Shannon of the *Dial*. He then founded the Vale Press and until 1904 was de-

signer and publisher of the Vale books and other publications, becoming noted as a craftsman in the book field. In 1906 he became a theatre costume and scenery designer. He was elected an Associate of the Royal Academy in 1922 and an Academician in 1928. His principal pictures are "The Death of Don Juan" (in the National Gallery, Millbank); "The Plague" (in the Luxembourg Museum, Paris); and "Montezuma" (in the Manchester Gallery). He was the author of *The Art of the Prado* (1907); *Titian* (1910); and *Pages on Art* (1913).

**RIFLE SHOOTING.** See SHOOTING.

**RIO GRANDE RIVER.** See MEXICO under History.

**ROAD CONSTRUCTION.** See AGRICULTURE, UNITED STATES DEPARTMENT OF.

**ROADS AND STREETS.** State highway construction with Federal-aid, the States contributing at least as much money as the United States, was speeded up by the desire to relieve unemployment. During the fiscal year ending June 30, 1931, nearly \$158,000,000 of Federal-aid funds were obligated and \$133,000,000 actually paid to the States for work on the Federal-aid highway system. In the previous year, \$102,000,000 were obligated. Some of the excess was paid from emergency advance funds authorized by Congress and to be charged against the normal \$125,000,000 appropriation over a period of five years. The Federal-aid road mileage completed and paid for in 1930-31, including money for stage construction (partial improvement) and for reconstruction, totaled 11,033, against 8682 miles in 1929-30. Even more significant is the 16,480 miles under construction on June 30, 1931, compared with 9916 a year earlier. The average number of persons employed on Federal-aid road construction increased from 54,852 in March to 154,453 in June. The Federal-aid highway system, as revised to June 30, totaled nearly 200,000 miles of which nearly half had been completed or put under construction. The 88,715 miles of Federal-aid roads on which some degrees of improvement had been completed by June 30, 1931, included 11,248 miles that had been graded and drained only; 35,530 miles of either sand-clay or gravel; 2345 of macadam; 1574 of low-cost bituminous mix; 4196 of bituminous concrete; 28,001 miles of Portland cement concrete; 994 miles of block; and 390 miles of bridges and approaches. See annual reports, Bureau of Public Roads, for extensive details, both for the country and by States.

The Federal-aid highway system comprises only 7 per cent of the roads in the rural districts of the United States, which exceed 3,000,000 miles. State highway systems, including the nearly 200,000 miles of Federal-aid roads, totaled 324,496 miles at the beginning of 1931, of which 226,221 were surfaced with some grade of material according to figures gathered by the U. S. Bureau of Public Roads. The total expenditures by State highway departments, including Federal-aid funds, were \$980,000,000 in 1930, of which \$713,000,000 was for construction, \$191,000,000 for maintenance and the remainder for equipment, interest on bonds and miscellaneous purposes. The chief source of funds for State highway expenditures were gasoline taxes and motor-vehicle licenses, 36 and 26 per cent or 62 per cent together. Two States made radical changes in road administration. In North Carolina, the State took over the entire

highway system formerly administered by counties and special highway districts—all highways outside incorporated places. In Michigan, a law was passed for the transfer of all township roads to counties, at the rate of 20 per cent a year, beginning in 1932. (For details of the Michigan change, see *Engineering News-Record*, Nov. 19, 1931; the same journal devoted to local highway problems most of its issue of Dec. 3, 1931; while the issue of Nov. 11, 1931, took up the important and complicated problem of the design of highway intersection so as to lessen traffic dangers and delays.)

**NORWAY.** An extensive highway improvement plan for Norway, involving an ultimate expenditure of about \$253,000,000, was outlined in United States *Commerce Reports* for July 27, 1931, as having been "recently completed by the 'Vie Direktoratet'" (Bureau of Public Roads) and accepted by the Storthing (National Congress). Execution of the programme was to be delayed because of financial conditions. The programme is divided into periods, the first of which, involving expenditures of about \$40,000,000, covers twenty years. Of a total of 18,391 miles, the state will carry out 2964 at a cost of \$53,000,000, aided by subsidies from counties; counties would execute 7634 miles at a cost of \$128,800,000, and communes 7793 miles at a cost of \$78,500,000, both the counties and the communes being aided by subsidies from the state. There is an allotment of nearly \$12,000,000 to repair existing roads and of over \$1,000,000 to ferries. The total state road expenditures in Norway were about \$4,800,000 in 1929-30. The budget for 1930-31 was a little over \$5,000,000 and the proposed budget for 1931-32 was \$5,800,000. Of the latter about \$2,435,000 was contributed by the federal government and \$3,330,000 came from various taxes, the principal of which was a road tax. On Jan. 1, 1931, the government put into effect a gasoline tax of 3.2 cents per gallon, collected in gross on importations.

A new book dealing with highways is Johansson, *Highway Economics* (New York). See AUTOMOBILES.

**ROANOKE COLONY ANNIVERSARY.** See CELEBRATIONS.

**ROBBINS, SIR ALFRED (FARTHING).** A British journalist and playwright, died in London, Mar. 10, 1931. He was born in Launceston, Cornwall, Aug. 1, 1856. Engaging in journalism in 1871, he served as London correspondent for the *Birmingham Post* from 1888 to 1923. He was prominent as a Freemason, visiting the United States in 1924 and Argentina, Uruguay, and Brazil in 1927 on behalf of the British Grand Lodge. He was knighted in 1917. His works include *Five Years of Tory Rule* (1879); *William Edward Forster, the Man and His Policy* (1882); *The Marquis of Salisbury, a Personal and Political Sketch* (1882); *Practical Politics, or the Liberalism of Today* (1888); *The Early Public Life of William Ewart Gladstone* (1894); *Parnell, the Last Five Years* (1926); *The Press* (1928); and *English-speaking Freemasonry* (1930). He was also noted as a playwright.

**ROBINSON, EDWARD.** An American archaeologist and museum director, died in New York City, Apr. 18, 1931. He was born in Boston, Mass., Nov. 1, 1858, and was graduated from Harvard University in 1879. After five years' study in Europe, especially in Greece and at the

University of Berlin, he became curator of classical antiquities in the Boston Museum of Fine Arts, holding that post until 1902 when he was appointed director of the museum. He was also lecturer on classical archaeology at Harvard during 1893-94 and during 1898-1902. In 1905 he was appointed assistant director of the Metropolitan Museum of Art in New York City, and succeeded Sir Caspar Purdon Clarke as director in 1910. Mr. Robinson retained the curatorship of the Metropolitan Museum's classical department until 1925 and also arranged collections of classical antiquities and casts in various museums throughout the United States. His publications consisted of catalogues and articles on archaeological subjects in the *Bulletin of the Metropolitan Museum* and leading magazines.

**ROCHESTER, ENGLAND, BIMILLENNIUM.** See CELEBRATIONS.

**ROCHESTER, UNIVERSITY OF.** A nonsectarian institution of higher education for men and women in Rochester, N. Y., founded in 1850. It consists of three schools—the college of arts and sciences, composed of a college for men and a college for women; the Eastman School of Music; and the school of medicine and dentistry. A school of nursing is also maintained in conjunction with the Strong Memorial Hospital, the property of the university. The enrollment for the autumn session of 1931, exclusive of extension division and special music students, totaled 1833, distributed as follows: Arts and science, 1229, of whom 741 were men and 488 women; music, 432; medicine and dentistry, 172. For the summer session, 790 were enrolled in the arts college and 410 in the music school. There were 1039 in the extension division. The faculty had 390 members. The productive funds as of June 30, 1931, amounted to \$29,082,941, and the total resources, including land, buildings, equipment, and endowment, were approximately \$50,000,000. President, Rush Rhees, D.D., LL.D.

**ROCKEFELLER FOUNDATION, THE.** An institution chartered in 1913 "to promote the well-being of mankind throughout the world," and in 1929 merged with the Laura Spelman Rockefeller Memorial, forming a new organization which received from the two consolidating corporations all their assets and assumed all their obligations. Its plan of work provides for coöperation toward the advancement of knowledge in the fields of public health, the medical sciences, the natural sciences, the social sciences, and the humanities. During the year 1931 approximately \$17,500,000 was expended by the foundation for work in the five fields in which its interests lie.

In addition to the new grants made during 1931, enumerated below, the foundation continued to make payments toward many projects initiated in 1930 or earlier years, where support or assistance over a period of years was specified in the original appropriations.

**INTERNATIONAL HEALTH DIVISION.** The governments of 36 States of the United States and 47 foreign countries were assisted in projects for improving public health conditions. This aid included participation in studies of yellow fever, malaria, hookworm disease, undulant fever, anaemia, tuberculosis, and respiratory diseases; in campaigns for the reduction of yellow fever in Brazil; in demonstrations of malaria and hookworm disease control and of local health work; in the organization or maintenance of essential

services of State and national health departments, and in coöperation in the development of schools and institutes of hygiene and public health or public-health nursing. Assistance was also given toward the advancement of the work of the Health Organization of the League of Nations, and special provision was made for epidemiological investigations in Mexico and several States of the United States. Fellowships in public health were provided for approximately 215 persons from 30 countries.

**THE MEDICAL SCIENCES.** Grants for the advancement of medical education were made in the form of endowments or contributions toward construction programmes or development of departments, or toward maintenance, of a number of institutions, including the following: Albany Medical College, Albany, N. Y.; Chulalongkorn University, Bangkok, Siam; Peiping Union Medical College, Peiping, China, through a grant to the China Medical Board, Inc.; Queen's University, Belfast, Northern Ireland; Trinity College, Dublin, Irish Free State; University College, Dublin, Irish Free State; University of Brussels, Belgium; University of Edinburgh, Scotland; University of Montreal, Canada; and the University of Szeged, Hungary.

A number of grants for general research funds or special research projects in medical schools were made to individuals, groups, or departments engaged in research important to the advancement of medical knowledge. Among the institutions receiving such aid were the following: Columbia University, New York City (studies of the common cold); Institute for Psychiatry, Munich, Germany (research in neurohistology, serology, and biochemistry); Henry Phipps Institute, University of Pennsylvania, Philadelphia (development and testing of new stereo-fluoroscope); Institute of Anatomy, University of Turin, Italy (problems of growth); Medical Research Council of Great Britain (research in puerperal fever at Queen Charlotte's Maternity Hospital, London); National Research Council, Washington, D. C. (work of Committee for Research in Problems of Sex); Institute of Histology and Embryology, University of Padua, Italy; Institute of Physiological Chemistry, University of Leipzig, Germany; University of Rochester, N. Y. (research in dental pathology); Yale University, New Haven, Conn. (research in dental pathology).

The Rockefeller Foundation granted and itself administered approximately 155 fellowships in medicine for graduate students to enable them to study in countries other than their own. In addition, payments were made to the National Research Council, Washington, the Medical Research Council of Great Britain, the *Notgemeinschaft der Deutschen Wissenschaft*, and the Hungarian Scholarship Council for the support of fellows in medicine, of their own selection. A new volume of *Methods and Problems of Medical Education* (Series XIX) appeared in 1931.

**THE NATURAL SCIENCES.** In the field of the natural sciences contributions toward endowments, building programmes, apparatus and equipment, maintenance, or general development were made to the following universities and scientific institutions: Apia Observatory, Western Samoa (geophysical station); Bermuda Biological Station for Research; Biological Laboratory, Cold Springs Harbor, Long Island,

N. Y.; Hungarian Biological Research Institute, Tihany; Marine Biological Laboratory, Plymouth, England; University of Geneva, Switzerland (Station of Experimental Zoölogy); University of Oslo, Norway (Institute of Theoretical Astrophysics); University of Stockholm, Sweden (departments of biochemistry and plant physiology); University of Szeged, Hungary; University of Warsaw, Poland (Institute of Physics).

In addition, contributions toward the advancement of knowledge in the field of the natural sciences were made through specific appropriations for research to the following institutions and organizations: American Institute of Mining and Metallurgical Engineers, New York City (mineral inquiry); American Society of Civil Engineers, New York City (seismological report); Iowa State College, Ames (general research fund); Massachusetts Institute of Technology, Cambridge (general research fund); Institute of Physics, University of Munich, Germany (study of electron movements); University of Szeged, Hungary (research in specified departments).

Other projects included the provision of scientific instruments for the Wilkins-Ellsworth Transpolar Submarine Expedition (through the Woods Hole Oceanographic Institution), support of the Marine Institute of Biology held at Amoy, China, under the auspices of the Marine Biological Association of China during the summer of 1931, and a grant to the National Academy of Sciences for the work of its committee in aid of research publications.

Approximately 120 fellowships for graduate study in the natural sciences were supported and administered directly through the foundation during 1931. Funds were also contributed to the National Research Council, Washington, for the support of fellowships in the physical and biological sciences, including forestry and agriculture.

**THE SOCIAL SCIENCES.** Contributions were made toward endowments, buildings, apparatus and equipment, or maintenance, in the following universities, institutions, or organizations: East Harlem Nursing and Health Service, New York City; Jean Jacques Rousseau Institute, Geneva; International Institute of Public Law, Paris; Institute of Pacific Relations, Honolulu; International Institute of African Languages and Cultures, London; Joint Vocational Service, New York City; London School of Economics and Political Science; National Catholic School of Social Service, Washington, D. C.; National Institute of Public Administration, New York City; New Education Fellowship, London; Orthological Institute, London; Psychological Institute, University of Vienna, Austria; Royal Anthropological Institute, London; University of Chicago (development of faculty of social science, and graduate school of social service administration); University of Denver (bureau of business and social research); University of Stockholm, Sweden; Welfare Council of New York City.

Research programmes were aided in the following institutions or organizations: American University of Beirut, Syria; American Law Institute (law administration in Federal courts); Australian National Research Council (anthropological research); Behavior Research Fund, Chicago; Dutch Economic Institute, Rotterdam;

Fisk University, Nashville, Tenn.; Harvard University, Cambridge (anthropology); Industrial Relations Counselors, New York City (administrative procedure of employment exchanges, unemployment insurance studies); Institute for International Economics and Maritime Trade, University of Kiel, Germany; Johns Hopkins University, Baltimore (civil justice); Massachusetts Department of Mental Diseases (statistical and record study of the insane in Massachusetts institutions); Rumanian Institute of Social Science, Bucharest; University of Hawaii (racial problems); University of Minnesota, Minneapolis (unemployment studies).

In addition to the above, contributions were made to the Association of Community Chests and Councils, New York City (development and coördination of effective local relief measures in the unemployment crisis); to the Emergency Unemployment Relief Committee, New York City; to President Hoover's Emergency Committee for Employment (demonstration of a plan for family food production in connection with industrial employment); to the Social Science Research Council, New York City, for a summer conference, 1931, and for maintenance of a programme of research planning in the field of international relations.

The foundation administered directly 125 fellowships in the field of the social sciences and made a grant to the Social Science Research Council for its fellowship programme.

**THE HUMANITIES.** In this field the Rockefeller Foundation made grants to the following universities and institutions: American Council of Learned Societies, Washington (fellowships and grants in aid of research); American Library Association, Chicago; American Library in Paris; American School of Classical Studies, Athens, Greece (contribution toward cost of government museum at Lesbos); Columbia University, New York City (general research fund); Tulane University of Louisiana, New Orleans (support of department of Middle American research); University of Pennsylvania, Philadelphia (excavations at Ur of the Chaldees, in collaboration with the British Museum); Yale University, New Haven, Conn. (support of excavations at Jerash and Dura-Europos, Syria).

**ROCKS.** See **GEOLOGY**.

**ROGUE RIVER, BRIDGE AT.** See **BRIDGES**.

**ROLLINS COLLEGE.** A nonsectarian, coeducational institution of higher learning in Winter Park, Fla., founded in 1885. The enrollment for the fall term of 1931-32 was 500, the limit specified by the trustees. The full-time faculty members numbered 49 and part-time members about 25. The productive endowment amounted to \$1,300,000 yielding an annual income of about \$67,000. The income from other sources amounted to approximately \$209,000. The library contained 33,000 volumes, in addition to 4500 public documents.

During the year 1931 the Knowles Memorial Chapel and the Annie Russell Theatre were under construction. There also was inaugurated in the fall of 1931 a new curriculum plan, by which the work of the college was divided into upper and lower divisions. Degrees were to be evaluated no longer in terms of courses, grades, hours, points, or terms of residence, but were to depend upon the acquisition of a specified broad fundamental training and mastery in a field of specialization. President, Hamilton Holt, LLtT.D., LL.H.D., LL.D.

**ROLVAAG, OLE EDVART.** An American educator and author, died in Northfield, Minn., Nov. 5, 1931. He was born in Rolvaag, Helgeland, Norway, Apr. 22, 1876, and went to the United States at the age of 20. He attended Augustana College in Canton, S. D., and St. Olaf College in Northfield, Minn., receiving the B.A. degree from the latter in 1905. After spending a year at the University of Norway he became in 1906 professor of Norwegian language and literature at St. Olaf College, and after 1916 was head of that department. He was the author of *Laengselens Batt* (1921); *I De Dage* (1924); *Riket Grundlaegges* (1925); and *Norsk Laesebok* (3 vols., 1919-25). Translations in English include the novels *Giants in the Earth* (1927), *Peder Victorious* (1929), and *Their Fathers' God* (1931), all of which give a vital picture of frontier life among the Norwegian immigrants of the Northwest.

**ROMAN CATHOLIC CHURCH.** The year 1931 was notable for the series of important Encyclicals and Apostolic Letters promulgated by the Pope, and for his use of the radio world-wide broadcast. From the new Vatican City radio station, HVJ, on February 12, Pope Pius XI delivered a message of peace and benediction to the whole world. He wished the peace of Christ to all and gave his apostolic blessing to the listening nations. He spoke in Latin. Translations of his message were broadcast successively in English, French, German, Polish, and Spanish. The programme was received in the United States by more than 100 stations. The Pope's voice was heard over the radio again on May 15 when, during the celebration of the fortieth anniversary of Pope Leo's "Rerum Novarum," he addressed a great throng of labor pilgrims, who with their Bishops came from almost every country in the world. The American group was led by Bishop O'Hara of Great Falls, Mont.

The first Encyclical was issued on January 8 and reiterated the strict Catholic doctrine on marriage and warned the world to turn from its mad pace back to the paths of Divine law. It severely attacked modern marital theories and birth control (See MARRIAGE AND DIVORCE). This was followed by the Encyclical on the Reconstruction of the Social Order, on May 23; and on Catholic Action, on July 4. The Apostolic Letter on the world's economic troubles, pleading for Christian unity and a return of the world to the veneration of the Virgin Mary, was issued December 26.

On April 24 the Pope caused surprise when he appeared at the inauguration of the new college for the Congregation of the Propagation of the Faith. Only twice before had he set foot outside the Vatican. He blessed the new college buildings and then returned to the church to address the gathering assembled there for the formal opening. In his speech he paid high tribute to Cardinal Mundelein of Chicago, who financed the construction of the new college.

For the first time in history a microphone was placed near the high altar in St. Peter's when the Pope on December 27 officiated at High Mass, Benediction of the Blessed Sacrament, and the chanting of a Te Deum. Only portions of the latter ceremonies were broadcast, the Pope declining to permit the Mass to be transmitted.

The pilgrimage sponsored by the International Catholic Federation of Catholic Alumnae, petitioning the canonization of Mother Elizabeth Ann Seton, foundress of the Sisters of Charity in the

United States, was received in audience by the Pope on July 23. The United States and Canada are represented by seven and nine names, respectively, in the new catalogue of Causes for Beatification and Canonization pending in 1931, published by the Sacred Congregation of Rites. The catalogue contained a list of 551 causes. The process for the canonization of the Indian maid, Catherine Tekakwitha, "the Lily of the Mohawks," was begun at Albany, N. Y. on May 18. A Bull, dated December 16, proclaimed Albertus Magnus a Doctor of the Church and a Saint without the usual formalities.

The Roman Rota had 64 matrimonial cases during the year. Of these, 54 were applications for a decree of nullity. Only in 13 cases was the contract found to be null and void. Rome never annuls a valid consummated marriage.

A census of the Vatican City in 1931 put the population at 639, of whom 550 were residents. Non-resident citizens included all Cardinals living in Rome.

**THE CARDINALS.** Four Cardinals died during the year: Pietro Maffi, Archbishop of Pisa, March 17; Basilio Pompili, the Pope's Vicar-General, May 5; Felix Raymond Rouleau, Archbishop of Quebec, May 31; and Francesco Ragonesi, Prefect of the Tribunal of the Segnatura, September 14. Former Cardinal Louis Billot, S.J., who resigned in 1927, died on December 18 at a Jesuit novitiate where he had retired to spend his last days. No new Cardinals were created during the year. The membership of the Sacred College at the end of 1931 was 55.

**THE HIERARCHY.** The 1931 edition of the *Anuario Pontificio*, showed that there were at that time 1604 residential Sees, 36 Nunciatures and Inter-Nunciatures, and 21 Apostolic Delegations without diplomatic character. Thirty-five nations had diplomatic representations at the Holy See. The Ceremonial Congregation of the Holy See decided that in future all Archbishops and Bishops should be officially styled "Your Excellency." Both Bishops and Archbishops were to be addressed as "Most Reverend" thereafter.

In the jurisdiction of the Propaganda Fide the Pope, through this world headquarters of Catholic missions, erected 17 new ecclesiastical territories and named 21 new ordinaries. China was given two native Bishops, one in the north and one in the south. In the Vicariate of Paoingfu, Fr. Joseph Chow, C. M., was named Vicar Apostolic. Bishop Fourquet of Canton was given an auxiliary in the person of one of the Chinese secular priests of his vicariate, Fr. Boniface Yeung. These two nominations raise the total of Chinese Bishops chosen by Pope Pius XI to thirteen.

The Pope instituted an Apostolic Delegation to Bulgaria at Sofia, appointing Archbishop Angelo Roncalli as Apostolic Delegate. Archbishop Roncalli had resided in Bulgaria since 1925, as Apostolic Visitor. Father Peter Kierkels, head of the Passionists in Holland, was appointed Apostolic Delegate to India, to succeed Archbishop Edward Mooney, who has been transferred to Tokyo. Archbishop Mooney is a native of Mount Savage, Md., and his appointment as Apostolic Delegate marked the first time that an American ecclesiastic had been given such an office. Official statistics showed that there were 46,170 Catholic missionaries working in various parts of the world. This number was made up of 12,959 priests, 5112 Brothers, and 28,099 Sisters. Of



these, 4304 priests, 1315 Brothers and 11,899 Sisters were native missionaries. Missionaries working in the apostolate for more than 30 years numbered 3852.

Changes in the hierarchy of the United States were the death on August 6 of Bishop George A. Guertin of Manchester, N. H.; the appointment of Bishop John G. Murray of Portland, Me., to be Archbishop of St. Paul, Minn.; and the resignations of Bishops J. H. Tihen of Denver, January 12, and James A. Duffy of Grand Island, Neb., July 6. To succeed the former the Rt. Rev. Urban Vehr of Cincinnati was appointed, and the Rev. Stanislas Bona of Chicago for the latter. A new Diocese, embracing the State of Nevada, was created and the Rev. Dr. Thomas K. Gorman of Los Angeles, Calif., appointed its first Bishop. The Rev. Dr. Karl Alter was named Bishop of Toledo, Ohio.

**STATISTICS.** According to population statistics published by *Het Schied*, Dutch Catholic monthly publication, the total population of the world was estimated at 1,850,174,334 and the total number of Catholics 351,839,065, or 19 per cent. The estimates of continents were: Europe, 42.9 per cent; the Americas, 52.1; Australia, 3.2, Africa, 3.8; Asia, 1.7. The 1931 issue of the *Annuaire Pontifical* estimated that in Europe there were 208,882,000 Catholics; in America, 109,097,000; in Asia, 16,536,000; in Africa, 5,330,000, and in Oceania, 1,585,000. In the United States, there is one priest for 800 Catholics and 3900 non-Catholics, and in India one for 860 Catholics and 100,000 non-Catholics.

The Catholic population of the United States proper was 20,091,593, according to *The Official Catholic Directory* for 1931, an increase of 13,391. The number of converts reported was 39,528, a gain of 1296 over the previous year. The priesthood increased by 939, there being 27,854 priests, 8552 of whom were members of religious Orders. There were 4 Cardinals, 16 Archbishops (including the Cardinals), and 104 Bishops, the Bishops being increased by two. Sixty-two new parishes were established, the total number being 12,475. There were 5743 mission churches where services were held. Ten new theological seminaries were established in 1931, the total number being 145, with 17,616 students for the priesthood attending, an increase of 1316. In the educational field, 222 colleges for boys and 725 academies for girls were reported; 7387 free parish schools with an enrollment of 2,283,084, an increase of 162 in the number of schools and 39,463 in enrollment. Six new orphan asylums were established, the total being 335. They cared for 52,328 orphans, 805 more than the previous year. There were 15 more homes for the aged, the total being 157. In hospitalization work there were 18 new hospitals, bringing the total to 642. It was estimated that these institutions were caring for more than 100,000 patients daily.

Fully half of the Catholic population of the United States was in the New England and Middle Atlantic States. Three provinces, Boston, embracing the New England States, New York, including New York and New Jersey, and Philadelphia, comprising the Dioceses of Pennsylvania, accounted for half of the total Catholic population or about 10,000,000. Nearly 3,000,000 were to be found in the New England States, over 4,000,000 in New York and New Jersey, and the balance in Pennsylvania. The last named province had shown the greatest gain among these three in

this 20-year period. The remaining 10,000,000 Catholics lived in the Middle West, the South, and the Far West.

According to *Canada Ecclesiastique* for 1931, the Dominion had 3,997,171 Catholics in 4153 parishes and missions, served by 6807 priests in 45 ecclesiastical divisions: 11 archdioceses, 24 dioceses, six vicariates, one prefecture, and one abbey. The growth was 216,723 in 1930 or 456,835 since 1929. There are five Catholic universities, 12 seminaries, 52 preparatory seminaries, 47 colleges, 1427 academies, 357 hospitals, 51 monasteries, and 96 convents with 35,800 religious.

The *English Catholic Directory* for 1932 gave the Catholic population of England and Wales as 2,235,237, a gain of 29,993. The 4581 priests showed a gain of 97 and the churches of 46. There were 384,129 pupils in the Catholic schools, a gain of 4845. The converts in 10 years numbered 121,372. There were 24 Catholics in the House of Commons.

Despite the unsettled conditions in parts of China, the Catholic population rose from 2,472,619 in June, 1929, to 2,490,392, in June, 1930, a gain of 17,773. The number of foreign priests rose from 2011 to 2092, a gain of 81, and the Chinese priests from 1371 to 1446, a gain of 75. The actual converts totaled 50,109. The young Chinese studying to become priests in the preparatory seminaries totaled 1463; in the minor seminaries, 2745 (as against 2465 in 1929); and those in the major seminaries, 921 (as against 838 in 1929), the total increase in students for the priesthood being 346.

The Sisters of Mercy throughout the world celebrated the centenary of their congregation which was founded on Dec. 12, 1831, in Dublin, Ireland, by Mother Mary Catherine McAuley. The world membership in 1931 was more than 20,000. The Sisters were introduced into the United States in 1843, their number in 1931 being more than 9000.

The Jesuits in the United States increased 214 in the year 1930. The total number was 4231. Of this number, 1101 belonged to the Maryland-New York province, an increase of 38 over the previous year; 798 to the Missouri province, an increase of 35; 716 to the California province, an increase of 52; 646 to the Chicago province, an increase of 41; 621 to the New England province, an increase of 32; and 349 to the New Orleans province, an increase of 16. Although the Jesuits in the United States aggregated only about one-fifth of the total number of Jesuits in the world, their increase in the year was 214, or almost half of the total increase of Jesuits in the world, which was about 450. The total number of Jesuits throughout the world was 22,337. Of this number the Italian assistancy had 1879; the German, 3069; the French, 2953; the Spanish, 5269; the English, 3639; the American, 4231; and the Slavic, 1297. The Society's largest membership was really in the United States, as the Spanish assistancy included Portugal, Mexico, and some of the South American countries.

The conflict between the governments and the Church in Spain and in Mexico broke out again with extreme violence as the year ended. In Mexico, however, thousands of pilgrims from all parts of the country flocked to the Basilica of Our Lady of Guadalupe, on the outskirts of Mexico City, for the celebrations, held from December 1 to 12, 1931, to commemorate the fourth centenary of the Apparition of Our Lady of Guadalupe.



**EDUCATION.** A total of 2,662,000 students began the 1931-32 scholastic year in 10,588 Catholic institutions of learning in the United States, according to an estimate made by the department of education of the National Catholic Welfare Conference. There were approximately 2,258,000 pupils in the 7912 Catholic elementary schools; 260,000 students in 2254 Catholic high schools; 10,000 students in 67 normal schools; 114,000 students in 167 colleges; and 20,000 students in 188 Catholic seminaries. These Catholic schools had a total of 89,981 instructors. These figures represented about one-eleventh of all those attending schools in the United States in 1930-31, if the figures of the Federal Office of Education are accepted.

A total of 18,906 students were enrolled in the major and preparatory seminaries of the United States in the school year ended in June, 1930, an increase of more than 1500 students. "Major seminaries" are institutions of collegiate rank. In 1930, there were 98 Junior seminaries preparing students for the priesthood, 59 for the various Religious Orders, 26 for secular priests, and 13 for both fields of religious work. The 98 major seminaries had 860 instructors, and the total number of students was 7633, of whom 2959 were studying for Religious Orders and 4674 for the secular priesthood. The total number of ordinations reported by the 98 major seminaries in 1930 was 902. The 90 preparatory seminaries had 1089 instructors and were attended by 11,273 students. These seminaries graduated 1453 students, of whom 940 entered major seminaries.

**CONVENTIONS AND MEETINGS.** At the annual general meeting of the Bishops of the United States at the Catholic University, Washington, November 12-13, there were present two Cardinals, eight Archbishops, and 68 Bishops. The "unbridled race for armament" and the "avarice of human nature" were denounced as contributing causes of unemployment in a statement by the Bishops.

International group meetings for the discussion of religion were more frequent, and in November the National Commission on Better Understanding between Jews and Christians in America honored Archbishop Hanna of San Francisco by conferring upon him the American Hebrew Medal, awarded to the "Christian who has done most during the past year towards establishing better understanding between various denominations in the United States." The national conventions and conferences—including the National Council of Catholic Men meeting in Rochester in conjunction with the Catholic Conference on Industrial Problems, the National Council of Catholic Women gathering in Washington October 4-7, the Rural Life Conference in Wichita, October 20-22, the Catholic Central Verein in Baltimore, in August, the Franciscan Tertiaries, in San Francisco, August 9-12, the Laymen's Retreat movement in Latrobe, Pa., the Catholic Educational Association in Philadelphia June 22-25, and the National Catholic Alumni Federation in Chicago April 24-26, all indicated Catholic virility throughout the United States. At St. Louis, Mo., the application of Catholic principles to the improvement of the economic and social condition of the colored population in the United States formed the subject of illuminating papers and discussions at the seventh annual convention of the Federated Colored Catholics of the United States, September 5-7.

The total amount expended for charity by the Society of St. Vincent de Paul in the United States in the year ended September 30 was \$3,331,290. There are in the United States 15 provinces, nine Metropolitan Central councils, six Diocesan Central councils, 69 Particular councils, and approximately 1600 conferences of the Society, with an estimated active membership of 20,000. See VATICAN CITY; KNIGHTS OF COLUMBUS; SPAIN, MEXICO, LITHUANIA, IRISH FREE STATE, BOLIVIA under *History*.

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**ROMANCE LANGUAGES AND LITERATURES.** See PHILOLOGY, MODERN; FRENCH LITERATURE; ITALIAN LITERATURE, ETC.

**ROME, ANCIENT.** See ARCHAEOLOGY.

**ROME, FOUNDING OF.** See CELEBRATIONS.

**ROOSEVELT, Gov. FRANKLIN D.** See NEW YORK.

**ROSE, WICKLIFFE.** An American medical and educational administrator, died near Port Alberni, B. C., Canada, Sept. 5, 1931. He was born in Saulsbury, Tenn., Nov. 10, 1862, and was graduated from the University of Nashville in 1889. After acting as instructor in history and mathematics at the Peabody Normal College during 1891-92, he was appointed professor of philosophy at that institution and the University of Nashville, and in 1902 accepted the chair of history and philosophy of education at the University of Tennessee. He was dean of Peabody College and the University of Nashville during 1904-07, general agent of the Peabody Educational Fund during 1907-15, and executive secretary of the Southern Education Board during 1909-13. He also served during 1910-15 as administrative secretary of the Rockefeller Sanitary Commission. From 1913 to 1928 he was a member of the Rockefeller Foundation, acting as general director of the International Health Board (through which the Foundation assists various public health projects throughout the world) during 1913-23 and as president of that division and of the General Education Board during 1923-28.

**ROTARY CLUBS.** Organizations established for the purpose of developing the highest ideal of unselfish service; of making practical application of that ideal to the business and professional life of the individual members, to organizations of which they may be members, and to the communities and nations in which they live; and of advancing international peace and goodwill through a fellowship of business and professional men of all nations united in the ideal of service.

Membership in the clubs is limited to one representative of each business, profession, or institution in a community.

The twenty-second annual convention of Rotary International was held June 22-26, 1931, in Vienna, Austria. There were 4288 Rotarians and members of their families present, representing Rotary clubs in 57 countries. The 1932 convention was to be held in Seattle, Wash., June 20-24.

On Nov. 1, 1931, Rotary International consisted of 3472 clubs, with an approximate membership of 157,000. There were 2439 clubs in the United States, 110 in Canada, 355 in Great Britain and Ireland, and 568 in other parts of the world. Officers for 1931-32 were: President, Sydney W. Pascall, London, England; first vice president, Robert E. Heun, Richmond, Ind.; second vice president, Biagio Borriello, Naples, Italy; third vice president, John Nelson, Montreal, Quebec, Canada; secretary, Chesley R. Perry, Chicago, Ill.; treasurer, Rufus F. Chapin, Chicago. Headquarters of Rotary International are at 211 West Wacker Drive, Chicago, Ill., with a branch office at 74 Bahnhofstrasse, Zurich, Switzerland.

**ROUMANIA.** See RUMANIA.

**ROUND-TABLE CONFERENCE ON INDIA.** See INDIA under *History*.

**ROUSSEAU, HENRI, PAINTINGS OF.** See ART EXHIBITIONS.

**ROWING.** A fighting Navy crew swept down the river at Poughkeepsie to win the collegiate rowing title over that gruelling four-mile course. Washington, Columbia, Cornell, and Syracuse had come to Poughkeepsie undefeated and with California that had only been nosed out by Washington for the Pacific Coast title were favorites in the nine-shell field. Navy had lost all except one of its early season races. Following Washington down the first three miles Navy jumped the Westerners and with Cornell second and Washington third the race ended. California, Syracuse, Pennsylvania, Columbia, Wisconsin, and M.I.T. followed over the rain-swept course.

A powerful Harvard crew, the only unbeaten one of the year, swept home ahead of Yale at New London winning by two and a half lengths. The big Crimson boat, stroked by Gerard Cassedy, pulled away in the early part of the race and easily staved off the exhausting last-mile challenge by the Blue. The Harvard crew, coached by Charles Whiteside, was the first undefeated Crimson boatload since 1908. The Yale 150-pound crew was the leading and undefeated lightweight crew, winner of the American Henley (the Wright Cup), and traveled to Seattle to outrow the University of Washington lightweight boatload by three and a half lengths.

Columbia, a disappointment at Poughkeepsie, won the Blackwell Cup on the Harlem, defeating Yale and Pennsylvania. The Blue and White also won the Childs Cup for the fourth time in the annual race with Princeton and Pennsylvania. Cornell, 1930 champion, and hailed as the best boat of the year until the Navy triumphed at Poughkeepsie, won the Carnegie Cup in the annual Derby Day regatta on the Housatonic from Yale and Princeton. Early in the season Harvard won a triangular race with M.I.T. and Princeton, and later defeated Navy and Pennsylvania on the Charles. Navy also succumbed to Syracuse in an early race on the Severn.

The Penn Athletic Club senior eight, a crew that had been rowing together for three years, easily took senior honors on the Schuylkill, and

this crew, stroked by Chester Turner, loomed as a serious contender for Olympic honors in 1932. It also took honors at the annual regatta of the National Association of Amateur Oarsmen. The senior four-oared championship was won by the Bachelors' Barge Club. William G. Miller of the Bachelors' won the national sculling title, with Kenneth Myers, former champion, second, and Russell Codman, Jr., of Boston, third. Ted Phelps of England captured the world's professional championship and Bobby Pearce, of Hamilton, Ontario, won the Diamond Sculls at Henley. The No. 1 crew of the London Rowing Club won the Grand Challenge Cup. Cambridge won the Oxford-Cambridge race in March.

**RUANDI-URUNDI.** See CONGO, BELGIAN.

**RUBBER.** With continuing large production and diminished consumption of rubber in 1931, the price of crude rubber declined during the year to a new low point for all time, reaching 4.1 cents a pound in New York early in December. The excess of production over consumption resulted in a gain in world stocks, as shown in the accompanying table.

PRINCIPAL WORLD RUBBER STOCKS  
[Long Tons]

	Dec. 31, 1930	Dec. 31, 1931
Malay States .....	25,837	30,083
Straits Settlements Dealers .....	39,610	50,721
Other Malay Dealers .....	15,082	21,136
Malay Ports .....	5,569	4,737
	86,098	96,677
London .....	78,013	69,516
Liverpool .....	40,549	57,633
	118,562	127,149
United States Inventory ..	201,000	326,065
Afloat for United States ..	55,288	53,940
Afloat for Europe .....	25,980	20,140
	81,268	74,080
Total .....	486,928	623,971

The world production based on the net exports from the leading rubber producing countries of the world in 1931 is indicated below.

WORLD RUBBER PRODUCTION, 1931  
[Long Tons]

British Malaya .....	894,284
Ceylon .....	61,766
India and Burma .....	8,470
Sarawak .....	10,451
British North Borneo .....	6,097
Siam .....	4,218
Java and Madoera .....	75,952
Other Netherland East Indies .....	116,009
French Indo-China .....	11,696
Amazon Valley .....	12,121
Other America .....	222
Africa .....	3,072
Total .....	792,055

According to *Commerce Reports*, the production for the Malayan states in 1931 was maintained close to the level of the two preceding years in the case of estates of over 100 acres, while the native estates showed about the same output as in the previous year. In Ceylon it was estimated that the large estates had cut their production about 50 per cent since 1929, while in Java and Sumatra there was a somewhat higher rate of production in 1931 than in previous years. In British India there was a sharply declining output during 1931, while French Indo-China ex-

ported more rubber for that year than for 1930.

Strenuous efforts were being made to develop some form of restriction of production in the Far East so as to secure a basis at which the plantations could operate. Any such plan must include the Dutch as well as the British producers, as previously the failure to include owners of plantations in the Netherland East Indies led to the lack of success of the so-called Stevenson plan which was in force from 1922 to 1928. It was realized in the meetings of the liaison committee of the British and Dutch growers that the native producer was the source of the greatest difficulty in arranging any scheme, and it was believed that some form of export tax might be developed which would bear on him as well as on the other plantation owners. However, up to the end of 1931 no agreement had been reached between the British and Dutch governments.

During 1931 the world consumption of rubber declined, although Japan and Czechoslovakia increased their takings on account of the development of the rubber footwear industry, while Soviet Russia imported 30,671 tons as against 12,229 tons in 1930. Australia increased its takings, as did Austria and Argentina, but France showed a decline as did Germany, Canada, Italy, and the Scandinavian countries.

Consumption (in long tons) by countries in 1931 is indicated in the accompanying tabulation of the U. S. Department of Commerce.

Consumption	1931 Long tons
United States .....	352,047
United Kingdom .....	76,583
<i>Net Imports.</i>	
Australia .....	7,649
Austria .....	2,970
Belgium .....	11,009
Canada .....	25,261
Czechoslovakia .....	7,717
Denmark .....	971
Finland .....	781
France .....	46,466
Germany .....	89,688
Italy .....	10,149
Japan .....	43,483
Netherlands .....	2,220
Norway .....	820
Spain .....	2,605
Sweden .....	3,788
Switzerland .....	848
Union of Soviet Socialist Republics ..	30,671
Others .....	9,600
Total .....	675,326
Minus United States Consumption ..	352,047
Foreign .....	323,279

The production of pneumatic casings, tubes, and solid tires in 1931, compiled by the statistical department of the Rubber Manufacturers' Association and comprising returns from 80 per cent of the industry, indicated a considerable decrease in output from 1930. This is shown in the following tabulation for production and shipments covering the two years:

#### PNEUMATIC CASINGS, TUBES, SOLID TIRES

	Production		Shipments	
	1931	1930	1931	1930
Balloon Casings .....	83,445,806	83,878,514	84,084,198	84,989,030
High Pressure Casings .....	5,546,914	6,908,864	5,964,854	7,974,078
Total Casings .....	88,992,220	40,782,378	40,048,552	42,913,108
Balloon Inner Tubes .....	31,352,440	32,077,485	32,112,341	38,847,719
High Pressure Inner Tubes .....	7,313,986	8,858,573	7,904,834	10,104,515
Total Inner Tubes .....	38,666,376	41,936,008	40,017,175	43,952,234
Solids and Cushions .....	186,261	204,280	167,556	250,798

The foreign commerce of the United States in rubber and rubber manufactures materially decreased in 1931, the exports falling from \$58,906,299 in 1930 to \$36,710,910 in 1931. As usual, pneumatic tires for trucks, busses, and other automobiles, amounting in all to \$19,676,519, supplied over half of the exports. The dollar value of these shipments declined from \$29,444,527, in 1930, while the amount suffered a decrease of 27 per cent or from 2,680,573 casings for 1930 to 1,954,865 in 1931.

Likewise, the imports of rubber and rubber manufactures fell on the basis of value from \$144,297,899 in 1930 to \$76,373,699 in 1931. Of this amount, crude rubber represented the greater amount, having a value in 1930 of \$140,641,834, which declined to \$73,803,304 in 1931. When it is stated that the quantity in 1931 was 1,124,003,278 pounds or 501,341 tons, a greater amount than 1,089,920,700 pounds or 487,317 tons in 1930, the shrinkage in value is apparent.

The United States led in the export of automobile casings in 1931 when the total exports were estimated at 6,298,834, as compared with 8,301,451 in 1930 and 9,533,948 in 1929. Other leading countries in 1931, in the order of their foreign shipments, were: the United Kingdom, 1,166,792; France, 1,020,490; Canada, 741,804; Belgium, 498,179; Germany, 190,871, and Japan, 155,100.

The total importations of crude rubber into the United States during the calendar year 1931 totaled 495,163 long tons as against 488,343 tons in 1930 and 561,454 tons in 1929. Of this amount, 489,351 tons was plantation rubber, 5615 Paras, 196 African, and 1 centrals.

Along with the increased imports went a gradual decline in prices throughout the year with but a few recoveries. Ribbed, marked sheets closed the year 1931 around 4½ cents a pound as against 8½ cents at the end of 1930. For other grades the spread was practically the same, No. 1 thin latex being 5⅞ cents against 9 cents; No. 2 amber, 4¾ cents as against 7¾ cents; No. 1 brown 4¾ cents as against 7¾ cents, and Up-River fine para 5½ cents against 11½ cents. For purposes of comparison it may be stated that in July, 1925, similar grades sold from 78 cents to \$1.23 a pound.

The consumption of crude rubber in the United States in 1931 amounted to 352,047 tons, showing a decrease from 375,980 tons, or some 6½ per cent from 1930. See PHYSICS; CHEMISTRY, INDUSTRIAL.

**RUBIO, ORTIZ.** See MEXICO under *History*.

**RUINS.** See ARCHÆOLOGY.

**RUMANIA.** A constitutional monarchy of southeastern Europe; bounded on the south by the Danube River and Bulgaria; on the east by the Soviet Union and the Black Sea; on the north by Poland, Czechoslovakia, and Hungary, and on the west by Yugoslavia. Capital, Bucharest; reigning sovereign in 1931, Carol II.

**AREA AND POPULATION.** Before the World War

Rumania had an area of 53,242 square miles and an estimated population of 7,904,104 (1915). New territories acquired by the peace treaties of 1919 increased the area to 122,282 square miles and the population to 17,393,140. The estimated population in 1930 was 18,326,000. For the five-year period 1924-28, births averaged 612,649 and deaths 372,487 annually. The chief cities, with their populations in 1927, are Bucharest, 875,000; Chişinău (Kishinev), 175,000; Cernăuți (Czernewitz), 175,000; Galaţi, 130,000; Ploesti, 115,000; Timisoara, 110,000; Iaşi (Jassy) and Cluj (Klausenburg), 110,000 each.

**EDUCATION.** Education is nominally free and compulsory, but in many districts there are no schools. In the fiscal year 1927-28, there were 14,123 elementary schools, with 1,600,098 pupils; 924 secondary schools, with 185,780 pupils; and 15 higher educational institutions, with 30,892 pupils. There were in addition four universities at Bucharest (7532 students), Iaşi (3584 students), Cluj (about 2000 students), and Cernăuți.

**PRODUCTION.** Rumania is primarily an agricultural country, with three-fourths of the population deriving a livelihood from the soil. Arable land in 1929 comprised 32,150,000 acres, or 44 per cent of the total area; there were 10,019,000 acres of permanent meadow and pasture; 1,516,000 acres of trees, shrubs, and bushes; and 17,851,000 acres of woods and forests. About 38 per cent of the entire area was planted to cereals. The 1930 yield of the five principal cereals was 11 per cent below the unusually good crop of 1929, but 33 per cent above the five-year average of 1923-27. Low prices for agricultural products and high interest rates made the condition of Rumanian peasants increasingly critical in 1930 and 1931. The chief crops were wheat, rye, barley, oats, corn, potatoes, beet sugar, wine, and tobacco. See AGRICULTURE under *World Agriculture*; UNEMPLOYMENT.

Rumania in 1930 ranked second to Russia among the oil-producing countries of Europe and fifth among the countries of the world. Production in 1930 was estimated at 41,680,000 barrels (34,689,000 barrels in 1929). An agreement reached in July, 1930, for the restriction of the crude-oil output was terminated at the end of the year due to friction between producers and refiners. The exploitation of natural-gas resources was made a state monopoly during 1930. Production of other minerals in 1929 was: Lignite, 2,675,000 metric tons; coal, 371,000 tons; salt, 708,779,000 pounds; iron ore, 90,014 metric tons; pig iron, 72,346 metric tons; copper, 316,294 pounds; steel, 144,000 metric tons (1928); gold, 71,149 troy ounces; silver, 90,729 troy ounces.

The lumber industry of Rumania, which has some 17,844,000 acres of forest lands, is the third important source of income. It was badly depressed in 1930, due chiefly to Russian competition. Flour milling, distilling and brewing, textile manufacture, and metallurgy are the leading industries.

**COMMERCE.** Rumania's foreign trade for 1930 returned a relatively large favorable balance of \$35,608,000, with imports totaling \$134,119,000 (22,540,929,000 lei) as compared with exports of \$169,727,000 (28,525,585,000 lei). Comparative figures for 1929 were: Imports, \$175,207,000 (29,397,216,000 lei); exports, \$172,528,000 (28,947,619,000 lei). There was an adverse balance in 1929 of \$2,698,000 (449,597,000 lei). The

favorable balance of 1930 was due to a 24 per cent drop in the value of imports. Exports declined less than 2 per cent in value, although the volume was 30 per cent greater than in the previous year.

The five leading export items in 1930 in millions of lei, with figures for 1929 in parentheses, were: Petroleum products, 10,437.8 (9628.7); cereals, 9992.3 (8866); wood products, 3094.7 (4679.4); live animals, 1878.4 (1993.6); edible animal products, 1068.2 (891.2).

**FINANCE.** As published in the *Official Monitor* of Dec. 31, 1930, the Rumanian budget for the fiscal calendar year 1931 balanced tentatively at 35,305,954,000 lei (about \$211,835,724 at par). This represented a reduction of 2,144,046,000 lei from the budget estimates for 1930, which included, however, an item of 1,768,520,000 lei for the payment of past-due claims.

On the basis of 1930 budget operations, a deficit of 3,426,000,000 lei was anticipated for 1931. Provision was made to cover this by reductions in salaries of Government officials amounting to the same sum. The 1931 appropriation for national defense was higher than the 1930 appropriation by 1,111,330,000 lei, or 11 per cent.

Actual receipts in 1930 totaled 30,846,996,000 lei (about \$185,081,976), or 6,603,004,000 lei (\$39,618,000) below the budget estimate for the year of 37,450,000,000 lei. While no figures for actual expenditure were available, the deficit for the year was officially estimated at 2,000,000,000 lei (\$12,000,000). This was partly offset by an advance of \$8,000,000 received from the International Telephone and Telegraph Company in return for the transfer of the state-owned telephone system to the company in January, 1931. In April, 1931, the second installment of a stabilization loan for the nominal amount of \$53,000,000 was obtained from a foreign banking syndicate, in which French interests predominated. The loan was guaranteed by the revenues of the Autonomous Monopolies Institute. The nominal proceeds of the loan amounted to \$42,000,000, most of which was earmarked for the organization of a central agricultural mortgage bank and of a short and medium-term credit bank to relieve financial stringency among the farmers. According to the official budget statement, the public debt on Jan. 1, 1930, totaled \$1,021,690,000, of which \$917,176,000 was external. The debt due the U. S. Government amounted to \$64,561,000 on Dec. 31, 1930.

**COMMUNICATIONS.** All Rumanian railway lines, except a few unimportant ones, chiefly in Transylvania, are state owned and operated. In 1929, there were 6915 miles of state railways, which carried 37,199,000 passengers and 21,557,000 metric tons of freight, with gross receipts equivalent to \$65,118,000. In accordance with the financial stabilization programme adopted in 1929, some 850 miles of track were relaid in 1930, more than 200 miles were double-tracked, and various other extensions as well as the reform of administrative and accounting systems were undertaken.

In January, 1931, the state-owned telephone system was transferred to the International Telephone and Telegraph Company under a concession granted the company on July 3, 1930. The system comprised over 80,000 miles of line connecting more than 50,000 telephones.

**GOVERNMENT.** Under the constitution of Mar. 28, 1923, which nationalized all forests and sub-

soil, executive power is vested in the King and a council of ministers, the King having a suspensive veto over the laws passed by parliament; and legislative power is vested in a senate, consisting in 1931 of 199 elected and various *ex officio* and appointed members, and a lower chamber, with 387 members. The composition of the Lower House following the election of December, 1928, was as follows: National Peasant party, 324; Hungarian group, 16; National Liberals, 13; Social Democrats, 9; German group, 9; Jewish groups, 3; minor parties, 13. The Senate consisted of 199 elected members, divided as follows: National Peasants, 160; National Liberals, 26; Hungarian group, 6; Jews, 5; Independents, 2. The Cabinet formed by George G. Mironescu (National Peasant) on Oct. 10, 1930, was in office at the beginning of 1931. The Cabinet formed Apr. 19, 1931 (see below under *History*), was composed of: Prime Minister and Minister of Education, Nicholas Jorga; Finance and Internal Affairs, Dr. Constantine Argetoniu; Foreign Affairs, Prince Demetre Ghyka; Justice, Dr. C. Hamangiu; Public Health, Dr. Cantacuzino; Commerce and Industry, M. Manolescu; Transport, M. Valcovici; Agriculture, Ionescu Sisesti; War, M. Stefanescu-Amza.

### HISTORY

Rumanian political history in 1931 was marked by the emergence of King Carol II as the most powerful factor in the country. Displaying unsuspected initiative and a shrewd opportunism, he not only divested himself of the political tutelage of the National Peasant party leaders, but he drove from power the strong peasant organization to which he owed his throne. Within a year after his spectacular return to Bucharest on June 6, 1930, he had established a puppet government headed by his former tutor, Professor Nicholas Jorga, and laid the foundations for the establishment of a dictatorship on the Yugoslav model.

**MIRONESCU FORCED OUT.** The circumstances which brought George Mironescu to the head of the Government in October, 1930, in succession to Premier Julius Maniu, leader of the National Peasant party, were largely the same as those which forced his resignation on Apr. 4, 1931. The National Liberal party leaders, who controlled the economic life of the old Kingdom, had taken advantage of the economic depression and their ownership of the banks to manoeuvre Maniu into a critical parliamentary position. Rumanians of the old Kingdom, including the King, resented the influence in the Cabinet of men from Transylvania and the other provinces acquired by the peace treaties. And finally, dissensions among his own followers and the refusal of Carol to accept a reconciliation with Queen Helen except on his own terms made Premier Maniu's position untenable.

The National Peasant party, however, held an overwhelming majority in the National Assembly and Carol was not yet ready to put into effect his plans for a personal government. Accordingly he called upon Mironescu, Minister of Foreign Affairs in the Maniu Cabinet, to form a new Ministry. At Carol's request, Mironescu included in his Cabinet as Minister of Industry one of the King's close adherents, Mihai Manolescu. Confronted by the identical forces which had vanquished Maniu, Mironescu was soon on the defensive. With great difficulty he secured Par-

liament's approval of a \$53,000,000 loan from France, the contract for which was signed at Paris, March 10. On April 4 came the opportunity for which the King had apparently been waiting. M. Manolescu introduced a measure providing for government participation in a Transylvanian explosives factory, which was rejected by the National Assembly. Urging Manolescu not to withdraw his resignation, the King rejected all the candidates proposed by Premier Mironescu to fill the vacant post. The entire Cabinet was thus forced to resign.

The King then summoned Nicholas Titulescu, Minister to the Court of St. James's, and instructed him to form a Ministry embracing representatives of all parties. If this should prove impossible, Titulescu was authorized to organize a "ministry of personalities" without reference to parties, which meant a dictatorship. To the surprise of the King, M. Titulescu won the support of both the National Peasants and the National Liberals, the two most powerful and mutually antagonistic parties in the country. On April 17, Carol approved M. Titulescu's list of Ministers, but withdrew his approval the following day because Titulescu refused a last-minute demand from the King to include in the Cabinet, C. Argetoniu, a well-known advocate of dictatorship. The King then summoned Professor Jorga, who in a few hours presented a Cabinet which included a number of the King's partisans but no Transylvanians or members of the National Peasant party (see under *Government* above).

**THE JORGA RÉGIME.** While Carol's adherents among the army officers were promoted to key posts and military men were gradually introduced into civil administrative positions, Premier Jorga proceeded to destroy the National Peasant party majority in Parliament. On April 30, he dissolved Parliament by Royal decree, without giving it an opportunity to vote upon his Cabinet or allowing Opposition leaders to speak. New elections for the Chamber were announced for June 1 and for the Senate for June 4. Jorga's pronouncement in favor of the administrative reorganization of the government on a basis of centralism and his statement that rights of the Crown withdrawn in preceding years would be fully restored aroused fears of absolutism and dictatorship.

In the elections of June 1 and 4 the Jorga Government supporters secured 291 seats out of the 387 seats in the National Assembly and won all except two mandates in the Senatorial district elections. The victory was due partly to the manipulation of the election machinery and partly to a peculiar election law, which gave 75 per cent of all seats to the party polling at least 40 per cent of the votes. The Jorga bloc secured about 48 per cent of the votes cast, the National Peasant party about 15 per cent, or 27 seats, and the remainder were divided among nine other parties. The Government built up a "national union" combination, selecting 60 per cent of its candidates from professional organizations and other nominally non-political supporters and naming the other candidates from persons making an electoral agreement with the Government. The Liberal party entered the coalition on the promise of 80 seats in the Assembly and 20 in the Senate regardless of the voting. The German party and various Jewish organizations were enlisted on a similar basis. In addition, Government decrees forbade campaigning except on Sun-

day and then written permission of Government officials was required. Many Peasant party leaders were arrested and the Government was accused of wholesale frauds.

In his speech from the throne at the opening of the new Parliament June 16, Carol sharply criticized the previous Peasant party governments and stated frankly that the election had given him a much-desired opportunity to play a greater part in the government. The resignation of Emil Haciegan, Minister for Transylvania, on June 17 and the withdrawal of his 11 followers from the Government bloc destroyed Premier Jorga's majority in the National Assembly. The Premier retrieved the situation by declaring invalid the mandates of the five Communist deputies, the pretext being that one of the five was a Hungarian subject, and dividing the vacant mandates among his own and other parties. Angered by their treatment at the hands of the King and the Government and the dominance of a small court clique, former Premier Maniu, General Averescu, and several other Opposition leaders announced their retirement to private life. The National Peasant party executive committee, meeting at Cluj on July 5, declined to accept Dr. Maniu's resignation as leader.

Faced with an economic crisis probably more severe than that of Austria or Hungary, and a budget deficit estimated at \$72,000,000, the King in September abandoned the economic system based on a high protective tariff for Rumanian industries and undertook the reduction of wage levels, retail prices, rents, and transportation costs. In preparation for this move, he appointed his right-hand man, Minister of Commerce Manoilescu, to the presidency of the National Bank on July 14, the ministerial post being filled by Vasilescu Carpen. The King entrusted his new programme to Premier Jorga and Finance Minister Argetoianu. The Premier, however, declined to play the subordinate rôle selected for him by the King and friction developed which was believed to presage the fall of his Ministry. The seriousness of the economic situation was indicated by a run on Marmarosch, Blank & Co., Rumania's largest bank, which was forced to close its doors on October 21 for five days. On December 4, the King summarily removed M. Manoilescu from the presidency of the National Bank. On Dec. 28, 1931, it was learned that the National Bank had received a credit of \$10,000,000 from the Bank of France.

Political unrest increased along with the economic depression, and in well-informed quarters Carol's throne was considered in danger. Toward the end of July a number of railway trains were bombed and 200 suspected Communists were arrested in a general police roundup.

**THE ROYAL FAMILY.** The long uncertainty over the status of Carol's divorced wife, Queen Helen, mother of Prince Michael, was ended on July 17, when she left Bucharest for London to join her mother, Dowager Queen Sophie of Greece. All members of the royal family except Carol and her son were at the station to bid her farewell. Helen had previously renounced the title of Queen, and was thereafter known as Princess Helen of Rumania. An adequate income was said to have been assured her by the Government. It was reported that Carol was much under the influence of Mme. Magda Lupescu, his companion during his exile, who had returned to Bucharest despite the strong opposition of influential Rumanian

opinion. Subsequent to Princess Helen's departure, the King announced that their divorce was final and that there was no possibility of a reconciliation. Princess Ileana, the King's youngest sister, was married to Archduke Anton of Hapsburg at Sinaia on July 26, having first embraced the Roman Catholic faith. Her husband was a distant relative of ex-King Alfonso of Spain.

On November 9, the Associated Press reported that Carol's younger brother, Prince Nicholas, had eloped with Mme. Jana Lucia Deletj, the divorced wife of a country lawyer, and had been married by the Mayor of Tohan. King Carol was said to be greatly displeased and two days later Government officials ordered the destruction of the marriage register at Tohan.

**FOREIGN RELATIONS.** Rumania under King Carol became increasingly bound to France by financial and political ties, much to the dissatisfaction of National Peasant party leaders, who had sought to make the country more independent of foreign guidance. It was officially confirmed on June 17 that negotiations with the Soviet Union for a settlement of the Bessarabian question were again proceeding. Discussions regarding Russia's claim to the Province were opened under French auspices in the autumn of 1930 but were abandoned when Rumania demanded recognition of her title to Bessarabia as a condition to the resumption of diplomatic relations. A commercial agreement between Rumania and Germany was signed June 26, 1931, by which Germany granted tariff reductions of 50 and 60 per cent on Rumanian corn and barley, respectively, in return for lower Rumanian import duties on over 300 manufactured products imported principally from Germany. For the Balkan Conference, in which Rumania participated, see **TURKEY** under *History*. See also **FRANCE** under *History*; **LITTLE ENTENTE**.

**RUM ROW, RUM RUNNING.** See **PROHIBITION**.

**RURAL HYGIENE.** See **AGRICULTURE**.

**RUSINOL Y PRATS, SANTIAGO.** A Spanish author and painter, died in Aranjuez, Spain, June 13, 1931. Born in Barcelona in 1861, he studied sculpture and painting under Clarassó, Canudas, Utrillo, and Zuloaga. His paintings won awards in Paris, Chicago, Barcelona, Rome, and Venice. Commencing his literary career in 1890 with the monologue *L'home de orga*, he published the plays *L'aligria que passa* (1898, staged in 1901); *I Llibertat! La mare; La bona gent; El mistic*. Also the prose works *Anant el mon* (1896); *Oracions* (1897); *Fulls de la vida* (1898). Written in Catalan, these were translated into Spanish, French, and other languages.

**RUSSELL SAGE FOUNDATION.** An institution created by Mrs. Russell Sage as a memorial to her husband, and incorporated by the Legislature of the State of New York in 1907 for the improvement of social and living conditions in the United States. Its initial endowment was \$10,000,000, to which \$5,000,000 was added by Mrs. Sage's will.

The charity organization department studies and publishes in the field of social case work and family welfare. Two important pamphlets published during 1931 were *Emergency Relief in Times of Unemployment* and *Community Planning in Unemployment Emergencies*. The industrial studies department cooperated especially during 1931 in efforts to improve current statistics of employment and to develop uniform pro-



cedure in the United States. The department of recreation studied during the year the changing phenomena brought about by the increase of individual free time and planned for filling such time with wholesome and constructive recreation. The department of surveys and exhibits is concerned with community fact-finding and with the spread of information about social problems and social work.

The department of remedial loans during 1931 concerned itself largely in survey and consultant work in connection with the 215 bills affecting small loans introduced in the Legislatures of 40 States. The department of statistics provided a unique and nearly complete record of monthly relief expenditures through its plan of current monthly collection and study of relief statistics covering 81 cities of over 100,000 population in the United States and Canada. The foundation also published during the year the *Social Work Year Book* (vol. i) and *Labor Agreements in Coal Mines* and issued bibliographies on such subjects as "Social Surveys," "Cost of Medical Care," "Unemployment," "Child Welfare," "Interviewing and Case Recording," and "Crippled Children."

The trustees of the foundation in 1931 were: Lawson Purdy, vice president and treasurer; John M. Glenn, secretary; Johnston de Forest; Frederic A. Delano; John H. Finley; Mrs. Frederic S. Lee; Mrs. Finley J. Shepard; and Harold T. White. Shelby M. Harrison was general director. Headquarters are at 130 East Twenty-second Street, New York City.

**RUSSIA.** See UNION OF SOVIET SOCIALIST REPUBLICS.

**RUSSIAN LITERATURE.** See PHILOLOGY, MODERN.

**RUTGERS UNIVERSITY.** A nonsectarian institution of higher learning in New Brunswick, N. J., founded under the name of Queen's College in 1766. The university consists of the following schools and colleges: Arts and sciences, engineering, agriculture, pharmacy, chemistry, education, and New Jersey College for Women. The registration for the autumn of 1931 was 2778, of whom 1084 were registered at the college for women. Enrollment in the 1931 summer session was 2026. Of the 297 members of the faculty, 176 were professors and 121 instructors. The endowment funds amounted to \$4,350,000, and the income for the year, exclusive of the State agricultural experiment station, amounted to \$2,873,000. Lands, buildings, and endowments had a total valuation of more than \$17,600,000. The library contained 173,000 volumes. In June, 1931, a division of physical education, which included the departments of physical education, inter-collegiate athletics, and student health, was established. A gymnasium, erected at a cost of \$700,000, was opened in December of that year. Acting President, Philip M. Brett, LL.D.

**RUTHENIA.** A Province of Czechoslovakia. See CZECHOSLOVAKIA under *Area and Population*.

**RYDBERG,** ríd'bërg, PËR AXEL. An American botanist, died in New York City, July 25, 1931. He was born in Odh, Sweden, July 6, 1860, and was graduated from the Royal Gymnasium in Skara in 1881 and from the University of Nebraska in 1891, later receiving the Ph.D. degree from Columbia University in 1898. He became assistant curator in 1899 and curator in 1907 of the New York Botanical Gardens. His publications include monographs on *Physalis*, *Potentil-*

*les*, *Saxifraga*, *Rosacæ*, *Carduacæ*, and *Fabacæ*; *Catalogue of the Flora of Montana and the Yellowstone National Park* (1900); *Flora of Colorado* (1906); *Flora of the Rocky Mountains and Adjacent Plains* (1917); and *Key to the Rocky Mountain Flora* (1919).

**RYE.** The world's rye production in 1931 was reported as one of the lowest in the past 10 years due to a reduction in area of about 3,000,000 acres and to a loss in yield in many of the larger European producing countries as a result of bad weather during ripening and harvest time. The production of 24 countries, not including the Soviet Republics but including the 1931-32 crop of Argentina, according to estimates published by the International Institute of Agriculture was 802,947,000 bushels as compared with 980,031,000 bushels in 1930, a reduction of 18.1 per cent and less by 13 per cent than the average crop for the five years 1925-1929. The area in these countries was reduced from 48,155,000 acres in 1930 to 45,358,000 acres in 1931. In Europe production as compared with the preceding year diminished by about 164,000,000 bushels and by approximately 115,000,000 bushels in comparison with the five-year average. The production of the leading countries in 1931 exclusive of the United States was reported as follows: Germany, 202,982,000 bushels; Poland, 222,826,000 bushels; Czechoslovakia, 50,498,000 bushels; France, 31,013,000 bushels; Hungary, 21,574,000 bushels; and Belgium, 21,135,000 bushels. The average yield for the five-year period of the Soviet Republics was reported as 873,285,000 bushels produced on the corresponding acreage of 66,620,000 acres. In the southern hemisphere where about 8,000,000 bushels are produced annually, Argentina, the leading country, recorded a yield of 4,724,000 bushels in the crop year 1930-31 and reported an estimate of 9,055,000 bushels for the crop year 1931-32. The Canadian crop of 1931 was estimated at only 5,888,000 bushels in comparison with 22,018,000 bushels produced in 1930, a reduction of 73.3 per cent and of 54.5 per cent below the average yield of the five years 1925-1929.

The rye crop of the United States in 1931 as estimated by the Department of Agriculture was 32,746,000 bushels which was about 28 per cent less than that of 1930 but only about 2,000,000 bushels less than in 1929. At the average farm price on Dec. 1, 1931, of 38 7 cents per bushel the total value of the crop was \$12,673,000 as compared with \$17,419,000, the value of the preceding crop.

**SAAR BASIN.** A section of the German Rhineland, which, under Article 45 of the Versailles Treaty, was awarded to France for exploitation of its coal fields, as compensation for the destruction of the coal fields in northern France by the German armies. Area, 737 square miles; population (1927), 770,030. The Saar is administered by a commission appointed by the League of Nations, pending a plebiscite in 1935 to determine its future. There is an advisory assembly (Landesrat) of 30 members. Mineral production in metric tons, in 1930 was: Coal, 13,236,000 (13,582,000 in 1929); pig iron, 1,908,000 (2,100,000); steel, 1,972,000 (2,208,000).

**SAFETY AT SEA.** The passing on plans of hulls and boilers by a staff of experts at the central office in Washington of the U. S. Steamboat Inspection Service, in lieu of the existing system of examination of the completed work by field

inspectors, was urged by Supervising Inspector General D. N. Hoover, in his annual report. A high standard of ship construction, Mr. Hoover pointed out, was adopted at the Conference of Safety at Sea in London in 1929, but this convention had yet to be ratified by the U. S. Senate. If the London convention is not ratified, it will become necessary for the U. S. Steamboat Inspection Service to formulate regulations that will obtain the highest standard of construction in the subdivision of ships. In either event, it will be necessary to have stationed in the central office technically qualified men to work out the regulations formulated, and to check their application. Modern developments, having made necessary from time to time the amendment of the existing statutes covering boiler construction and inspection, a new code was being formulated which should be completed before the end of the 1932 fiscal year.

During the fiscal year, 1930-31, 6526 vessels were inspected by the U. S. Steamboat Inspection Service and more than 100,000 tests were made in connection with marine boilers. In addition large numbers of life-preservers and other apparatus were inspected, 24,000 ships officers were licensed and certificates issued to more than 6000 able seamen.

How well the safety of passengers by sea is safeguarded in this modern era is indicated by the striking fact brought out in the report that during the fiscal year there were 305,219,538 passengers on vessels required to report the number of passengers carried; dividing this number by 71 (the total number of passengers lost) shows that for every life lost 4,298,866 passengers were safely carried. The total number of lives lost from all causes, both passenger and crew, was 295, a decrease of 196 over the previous year. Of the lives lost, 184 were from suicide, accidental drowning, and other causes beyond the power of the service to prevent. The total number of accidents resulting in loss of life was 24, a decrease of 147 from the previous year.

The U. S. Coast Guard reported that during the fiscal year 665 American merchant vessels sustained casualties involving a loss of \$300 or more in the case of each vessel. These 665 vessels were valued at \$141,190,555 and their cargoes at \$37,596,115, the total value of property endangered being \$178,786,670. The losses to vessels amounted to \$12,152,815 and to cargoes \$1,816,268, making the aggregate property loss \$13,969,083. The number of vessels totally lost was 220. Of the vessels involved in disasters, 54 foundered, 154 stranded, 152 were in collisions, and 305 sustained miscellaneous casualties. These foundering, strandings, collisions, and miscellaneous casualties were distributed by coasts and localities as follows: On the Atlantic and Gulf coast, 204; on the Pacific coast, 156; on the Great Lakes, 45; on United States rivers, 128; at sea and in foreign waters, 132. A total of 22,539 persons were on board the 665 vessels, 7019 being passengers and 15,520 crew members; 139 lives were lost, 135 being crew members and four passengers.

Among notable accidents recorded in 1931 the following are of chief interest:

January 20. The Russian steamer *Javaria* was sunk in a storm in the Black Sea, 50 lives being lost.

February 9. The Japanese coastal vessel *Kikurui Maru* was rammed and sunk by the French steamer *Portheos* in a snow storm off the coast of Japan, 50 lives being lost.

February 16. More than 100 Chinese were drowned when the steamer, aboard which they were celebrating

the Chinese New Year, struck a rock in the Pearl River and sank.

March 11. The Chinese steamer *Taochi* sank in the Yangtze River, following a blast; 800 lives were lost.

March 15. In an explosion on the sealer *Viking*, chartered to make a film of the sealing industry, off Horse Island in White Bay, east of Newfoundland, 28 persons were killed and scores of others out of the 155 aboard were injured.

March 16. The French steamer *Chang Kiang* was sunk in the China Sea off Amoy, 250 of the 800 passengers being reported drowned.

March 17. The British steamer *Otrine*, from Glasgow, struck rocks off the Isle of Man and sank, 10 persons being drowned.

April 1. The British aircraft carrier *Glorious* collided in a dense fog off the coast of Malaga, Spain, with the French immigrant liner *Florida*, 40 passengers on the latter vessel being killed.

May 22. Submarine No. 9 of the Soviet Navy was sunk in manoeuvres in the Gulf of Finland, the crew of 35 being lost.

June 9. The British submarine *Poseidon*, one of the latest type, was rammed and sunk by the Chinese merchant vessel *Yuts* 21 miles north of Wei-hai-wei, China, with a loss of 20 lives.

June 14. The French excursion steamer *St. Philibert*, carrying 842 passengers and a crew of seven on its return trip from Nourmoutier's Island, capsized in a gale off the mouth of the Loire River, only eight persons being saved. Most of the passengers were members of Nantes and St. Nazaire (workingmen's) cooperative societies, with their families.

August 9. The British cargo steamer *Kwong Sang* foundered in a typhoon in the China Sea, six British officers and 50 Chinese being drowned.

December 24. In a collision of the Japanese steamers *Yaeyamba Maru* and *Kansai Maru* in the Kurushima Channel of the Inland Sea, six passengers were drowned and 13 were missing.

**SAFETY COUNCIL, NATIONAL; SAFETY, INDUSTRIAL.** See NATIONAL SAFETY COUNCIL.

**SAFETY MOVEMENTS.** See NATIONAL SAFETY COUNCIL.

**SAGHALIEN.** See SAKHALIN.

**ST. CHRISTOPHER** or **ST. KITTS.** See LEeward ISLANDS.

**ST. HELENA.** An island of volcanic origin in the South Atlantic, about 1200 miles from the west coast of Africa, belonging to Great Britain. Area, 47 square miles; population, according to the census of 1921, 3747; estimated civil population, Dec. 31, 1929, 3846. Capital and seaport, Jamestown. Attached to the colony of St. Helena is Ascension, a volcanic island 34 square miles in area situated 700 miles to the northwest. Governor in 1931, Sir Charles Harper.

**ST. JOHN'S COLLEGE.** A college of liberal arts and sciences for men in Annapolis, Md., founded as King William's School in 1696. The enrollment for the first half-year of 1931-32 was 297. There were 29 faculty members. The endowment fund as of July 1, 1931, amounted to \$226,333, and the income for the year ending June 30 was \$316,547. The library contained 24,042 volumes. President, Douglas H. Gordon.

**ST. LAWRENCE UNIVERSITY.** An institution for the higher education of men and women in Canton, N. Y., founded in 1856. The registration for the autumn term of 1931 was 2331. The faculty numbered 136 members. The endowment funds amounted to \$4,948,174, and the income for the year to \$242,952. The library contained 54,000 volumes. President, Richard Eddy Sykes, D.D.

**ST. LAWRENCE WATERWAY.** See CANADA under *History*; CANALS; WATER POWER.

**ST. LOUIS CITY ART MUSEUM.** See ART EXHIBITION, ART MUSEUMS.

**ST. LUCIA, loo'shi-lá.** A British insular colony in the Windward group of the West Indies. Area, 233 square miles; population in 1929, 57,482. Castries, the chief port and capital, is a naval

base and coaling station. The chief products are cacao, sugar, lime juice, hides, logwood, and rum. Imports in 1929 totaled £244,753; exports, £199,000; expenditure, £86,434; revenue, £83,139 (including an Imperial grant of £3000); total shipping, 1,700,139 tons. Administrator and Colonial Secretary in 1931, Charles William Doorly. See LEEWARD ISLANDS.

**ST. PHILIBERT DISASTER.** See FRANCE under *History*; *SAFETY AT SEA*.

**ST. PIERRE AND MIQUELON**, mē-ko-lōn'. Two small groups of islands belonging to France, situated close to the southern coast of Newfoundland, and named from their two largest islands. Area of St. Pierre group, 10 square miles; of Miquelon group, 83 square miles; total population (1929), 4030. St. Pierre, the capital and chief port, had 3040 inhabitants. The islands are rocky and unsuited to agriculture, their main importance being as a centre for the cod-fishing industry and as a base of operations for liquor-smuggling into the United States. Following the embargo laid by Canada early in 1930 on the exportation of liquor across the American border, the rum-running trade of St. Pierre showed a marked increase. In the calendar year 1930, the islands ranked ninth in the foreign trade of Canada. Purchases from Canada, consisting almost entirely of liquor for re-export to the United States, totaled \$11,004,479. Governor in 1931, Adrien Juvanon.

**ST. THOMAS.** See SÃO THOMÉ AND PRÍNCIPE; VIRGIN ISLANDS.

**ST. VINCENT.** A British insular colony in the Windward group of the West Indies. Area, 150.3 square miles; population in 1929, 51,995. Kingstown, with a population of 3836 in 1921, is the capital. Births in 1929 numbered 1836; deaths, 1009; marriages, 151. The chief products are arrowroot, sugar, cotton, rum, cacao, and spice; the Sea Island cotton is regarded as the best grown in the British Empire. In 1929, imports totaled £180,439; exports, £151,570; revenue, £64,090; expenditure, £70,786; public debt, £33,060. Administrator, Major H. W. Peebles.

**SAKHALIN (SAGHALIEN)** sá'-ká-lyén'. An island off the eastern coast of Siberia, separated from Japan by the narrow Strait of Soya. The portion south of the 50th parallel of N. latitude belongs to Japan; north of that line lies Soviet Sakhalin. Japanese Sakhalin or Karafuto (see KARAFUTO), has an area of about 13,934 square miles and a residential population (1929) of 240,502. The area of Soviet Sakhalin is 14,688 square miles, with a population estimated at 22,500 at the beginning of 1930, compared with about 34,000 in 1915. The colonization of 10,000 new settlers was undertaken in 1931 by the state company charged with the development of the Soviet part of the island.

**SALANDRA**, sá-lán-drá, ANTONIO. An Italian statesman, died in Rome, Dec. 9, 1931. Born in Troia, near Foggia, Aug. 31, 1853, he was graduated from the University of Naples in 1875, and became instructor and later professor of administrative law at the University of Rome. In 1886 he was elected a member of the Chamber of Deputies, where he joined the Moderate Conservatives. In the second Pelloux Ministry (1899-1900) he was Minister of Agriculture, and in the first (1906) and second (1908-10) Sonnino Cabinets he held the portfolio of finance. He became Premier and Minister of the Interior in March, 1914, succeeding Giolitti. At the outbreak of the

World War he opposed Italy's joining her forces with Germany and Austria, despite the existence of the Triple Alliance. Later, under the popular leadership of his Ministry, preparations were made to enter the War on the side of the Allies in May, 1915. Salandra remained Premier until June, 1916. He attended the Paris Peace Conference and was Italian representative in the Council of the League of Nations until 1926, when he resigned and withdrew his support from the Fascist government. Thereafter he took no active part in politics, although appointed Senator in May, 1928, by King Victor Emmanuel. He was the author of a number of works on economics, finance, history, law, and politics. Among these are: *Trattato della giustizia amministrativa* (1904); *La politica nazionale e il partito liberale* (1912); *Legioni di diritto amministrativo* (2 vols., 1912); *Politica e legislazione: saggi, raccolti da Gisulino Fortunato* (1915); *Il discorso contro la malfede tedesca* (1915).

**SALVADOR**, sal'-vá-dör', (EL SALVADOR). A Central American republic on the Pacific coast, bounded on the east by Honduras and on the north by Guatemala. Capital, San Salvador.

**AREA AND POPULATION.** The area is estimated at 13,176 square miles; the population in 1930 was 1,437,611. The mestizos, or persons of mixed race, numbered 1,000,000 or more. San Salvador had a population of 95,700 in 1930. Other large towns were: Santa Ana, 74,800; San Miguel, 39,800; San Vicente, 24,500; and Ahuachapán, 28,117. From 1925 to 1929, births averaged 61,022 annually and deaths 33,565.

**EDUCATION.** Pupils enrolled in primary schools in 1930 numbered 56,578; in secondary schools, 1137 (1929); in the National University, 411.

**PRODUCTION.** The coffee crop is the major factor in the national economy, normally furnishing about 90 per cent of the value of all exports. The coffee crop in 1929-30 was reported at 142,763,000 pounds, but prices averaged 40 per cent lower than in 1928-29; exports in 1930 were 129,238,000 pounds, valued at \$11,957,000, against 103,137,000 pounds, valued at \$17,045,000, in 1929. The 1930-31 crop was the largest in the history of the republic, but prices declined further. Other products are sugar (about 20,000 short tons in 1930-31), henequen, balsam, indigo, cotton, rubber, corn, rice, and beans. The forests produce dyewoods and cabinet woods. Lead and some gold and silver are mined. Sugar grinding and coffee cleaning are the principal manufacturing industries. Trade depression began in Salvador with the break in coffee prices in the latter part of 1929 and continued, with variations, through 1931. The drop in coffee prices resulted in reduced government revenues, a decline in imports, restricted credits, wage cuts, and unemployment. In 1931, wages of agricultural workers were reduced about 50 per cent. Political uncertainty contributed to the business depression.

**COMMERCE.** Salvador's foreign trade declined 27 per cent in value in 1930, due chiefly to the lower prices prevailing. According to preliminary figures, exports amounted to 27,313,000 colones (\$13,656,500), against 36,831,000 colones (\$18,415,500) in 1929, while imports totaled 24,872,000 colones (\$12,436,000), compared with 34,681,000 colones (\$17,340,500) in 1929. The visible trade balance was favorable by 2,441,000 colones (\$1,220,500) in 1930 and by 2,150,000 colones (\$1,075,000) in the preceding year. The United States took exports to the value of \$4,445,000

in 1930 (\$8,050,000 in 1929) and furnished imports valued at \$2,875,000 (\$3,830,000 in 1929).

**FINANCE.** According to the Minister of Finance, ordinary revenues in the calendar year 1930 totaled 21,964,881 colones (1 colon equaled \$0.50 at par and exchanged at \$0.4902 in 1930), or 4,182,279 colones less than in 1929. Expenditures amounted to 23,048,451 colones, or 1,083,570 colones more than ordinary revenues. Early in 1931, it was reported that payments on a majority of the civil list were about three months in arrears. The general budget for the fiscal year ended June 30, 1931, calculated revenues and expenditures at 24,793,000 colones and 25,189,147 colones, respectively; that for 1931-32, at 20,986,300 and 20,977,084, colones, respectively. Due to an increase of 3,878,383 colones in the internal debt, the total public debt increased from 42,720,884 colones at the end of 1929 to 43,620,921 colones at the end of 1930.

**COMMUNICATIONS.** Railway lines in operation in 1930 totaled 375 miles, of which the principal line was the Salvador branch of the International Railways of Central America. Construction of the Salvadorean section of the Pan American Highway (204.6 miles in length) progressed sufficiently to allow automobile traffic over its entire length in 1931.

**GOVERNMENT.** Executive power is vested by the constitution in a president elected for four years, who acts through a ministry of four members, and legislative power in the Congress of 42 members elected for one year by universal suffrage. President at the beginning of 1931, Dr. Pio Romero Bosque, who assumed office Mar. 1, 1927; Vice President, Gustavo Vides.

**HISTORY.** The presidential elections held Jan. 11, 12, and 13, 1931, were indecisive (see 1930 YEAR BOOK). Arturo Araujo, wealthy agriculturalist and candidate of both the National Labor and Salvadorean Proletariat parties, received about 104,000 votes, as against about 64,000 for Gómez Zárate, the highest of his three opponents. Señor Araujo failed to receive a majority of the votes cast, however, and in accordance with the Constitution, the selection of the President devolved upon the National Congress. On February 12, Congress unanimously elected Señor Araujo as President and Gen. Maximiliano Hernández Martínez as Vice President. Both officials were inaugurated Mar. 1, 1931, for a four-year term.

On Dec. 3, 1931, President Araujo was forced to flee to Guatemala by a military revolt at San Salvador and the following day he resigned. The insurrection, opposed at first by the police, was accompanied by street fighting in which former Finance Minister Francisco Espinosa and a number of others were killed. Failure of army officers to receive their pay was reported to have been the direct cause of the coup d'état. However, there had been growing dissatisfaction with the Araujo Administration, accompanied by charges of inefficiency and corruption. Due to the collapse of coffee prices, the Government was said to be on the verge of bankruptcy and was unable to carry out promised social reforms. President Araujo had also adopted stringent measures against alleged Communists, in connection with which he imposed a censorship on the press.

President Araujo was succeeded in office by General Martínez, the former Vice President and Minister of War. The latter was eligible to succeed the deposed President under the Constitu-

tion, but the Governments of the United States, Guatemala, Honduras, and Costa Rica refused to recognize him because of the treaty of 1923. The treaty, which was adhered to by the United States, bound the Central American governments not to recognize a revolutionary régime established by any leader in the revolution or cabinet minister in the deposed administration. General Martínez was still in office at the close of the year, but his resignation was expected. The financial position of his Government made its position particularly vulnerable, as under the loan contract of 1922 American bankers were authorized to establish a receivership in Salvador in case of default.

**SALVATION ARMY.** A world-wide organization with international headquarters in London, England, whose purpose is the "salvation of mankind from all forms of spiritual, moral, and temporal distress." The government is military in character and in 1931 was under the command of Gen. Edward J. Higgins. The higher command is divided into territories, each territory usually being a separate country, or colony, led by a commissioner, and subdivided into divisions consisting of a number of corps or posts under the direction of a captain and lieutenant. The United States has four territories, with headquarters in New York City, Chicago, San Francisco, and Atlanta. The Salvation Army is active in 82 countries and colonies, and preaches the Gospel in 73 languages.

The constitutional problem, which had been under discussion for more than two years, was settled in July, 1931, by the passage through the British Parliament of a bill which gave legal force to the reforms which had been advocated for some time past. (For events leading up to this measure, see the 1930 YEAR BOOK.) This bill, as passed, was shorn of the provisions for fixing a retiring age for the General and for an arbitration board to settle differences between officers of the Army and the General. It was the feeling, both of the House of Commons and of the House of Lords, that these matters were purely domestic affairs which could better be arranged outside an Act of Parliament. As the Act stands, all future Generals must be elected by a competent representative body, and the property of the Salvation Army in Great Britain and the North of Ireland is to be held by a custodian company of officers, appointed by virtue of their office in the Army. The custodian trustee company, however, has no power over the property of the Salvation Army in the United States, where all the Army's assets are held by a board of trustees appointed under the charter of incorporation.

In 1931 there were in the service of the Salvation Army throughout the world 25,658 officers and cadets, 9644 persons without rank wholly employed, 155,874 local officers and bandmen, 64,954 songsters, 34,471 corps cadets, and 15,113 corps and outposts in operation. Social institutions and agencies numbered 1568, and day schools 1040. Among the social institutions were: 30 naval and military homes; 14 prisoners' homes, with a capacity of 638; 141 hotels for men and 23 hotels for women, accommodating 38,150 persons; 6 inebriates' homes with 239 patients; 99 homes housing 5105 children; 24 crèches; 19 industrial schools with 1289 pupils; 103 women's industrial homes, accommodating 3484 women; and 92 maternity homes with 3903 patients. The Army also maintained 301 miscellaneous social

services, as well as 12 farms, 177 slum posts, 218 homes, elevators, workshops, and woodyards accommodating 7271 persons. In addition to 32 food depots, there were 138 combined shelters for men and 27 shelters and food depots for women. Through the 142 labor bureaus, 238,234 men and women were supplied with work. The organization published 128 periodicals, with an average circulation of 1,838,575 copies per issue.

The economic depression brought to the Salvation Army in the United States in 1931 a wider opportunity for service than ever before. The entire resources of the organization were placed at the disposal of the President's Committee on Unemployment by Commander Evangeline Booth.

In the United States there were, in 1931, 1777 corps and outposts, 5076 officers and cadets, 14,930 local senior officers and bandmen, and 13,201 local junior officers and bandmen. Converts during the year numbered 129,649. Among the social institutions were 89 men's hotels, 1 women's hotel, and 13 residential hotels for young women, accommodating a total of 8998. Men's industrial homes numbered 117, with accommodation for 4652 persons; children's homes 10, with accommodation for 828 persons; women's homes and hospitals 45, with accommodation for 2992 persons; and dispensaries 10, with a total of 25,700 patients. During the year 11,128 families were visited, while Thanksgiving and Christmas dinners were distributed to 686,946 persons. In addition 40,970 prisoners were assisted by the Salvation Army on discharge and situations were found; 15,375,452 persons were afforded temporary relief outside social service centres and hotels; 41,270 children and 8505 mothers were given summer outings; and 238,737 men and women found employment through the Army's 105 free employment bureaus.

The national headquarters of the Salvation Army in the United States are at 120 West Fourteenth Street, New York City. Evangeline Booth, daughter of the founder, is the commander-in-chief. The territorial commissioners in 1931 were: John McMillan (eastern); William McIntyre (central); Col. Andrew Crawford (acting, following the death of Adam Gifford (q.v.) western; and Alexander M. Damon (southern).

**SAMARSKITE.** See CHEMISTRY.

**SAMOA.** A group of 14 islands in the Pacific Ocean, about 2000 miles south of Hawaii and 4000 miles southwest of San Francisco. Since Feb. 13, 1900, the islands east of 171° W. longitude have belonged to the United States; the islands west of that line belonged to Germany until the outbreak of the World War in 1914, when they were occupied by New Zealanders and later turned over to New Zealand for administration, under a mandate of the League of Nations.

**WESTERN SAMOA.** The official name applied to the former German Samoan Islands is the Territory of Western Samoa. This territory includes Savaii and Upolu, two of the largest islands. Area of Savaii, about 700 square miles; Upolu, about 430 square miles. Population, Dec. 31, 1929, 44,571, including 2749 Europeans and half-castes, 40,722 natives, and 955 Chinese laborers. The principal port is Apia, on the island of Upolu. The products include copra, cacao, bananas, rubber, sugar, and cardamoms. The imports for 1929 totaled £288,849; exports, £293,938. Revenue for the year ended Mar. 31, 1930, amounted to £151,416; expenditure, £131,280. The general control of the islands is under the New Zealand Ministry

of External Affairs, and the local Government is under an administrator. There is a legislative council, the membership of which is restricted to British subjects or persons born in Samoa of European descent, and a native council which advises the administrator in native affairs. Administrator in 1931, Brig-Gen. H. E. Hart (appointed February, 1931).

**AMERICAN SAMOA.** Tutuila, Tau, and the Manua group comprise the American Samoan islands. The total area is about 60 square miles; the total population at the census of 1930 was 10,055, as against 8056 at the census of 1920. The native population in 1931 was estimated at 9985, compared with 5697 in 1900. The principal port is Pago Pago on the island of Tutuila, the best and safest harbor in the South Seas. In 1931 there were 24 public schools, with 2100 pupils, and four private schools, with about 400 pupils. Production of copra, the sole export, totaled 1619 tons, valued at \$135,028, in 1930. The fertile soil produces a variety of fruits. Imports in 1930-31 totaled \$154,493 and gross revenues were \$132,716, with expenditures slightly lower. The United States Navy has established a high-powered radio station on the island of Tutuila. Government is in the hands of the Governor of the United States Naval Station at Pago Pago. Governor in 1931, Captain G. S. Lincoln, U.S.N., appointed Aug. 2, 1929.

**HISTORY.** According to the annual report of Secretary of the Navy Charles Francis Adams, the visit of a Congressional delegation to American Samoa in September-October, 1930, and the publication of the commission's findings resulted in almost complete cessation of political agitation among the islanders for the establishment of civil government. To meet native complaints, a bill of rights was added to the Codification of the Regulations and Orders for the Government of American Samoa, in accordance with the commission's recommendations. Acting upon further recommendations of the commission, the Navy Department established the new office of Attorney General, which was filled by the appointment of Lieut.-Commander Frank L. Lowe, effective September, 1931. In January, 1931, a violent storm did considerable damage to public works and native plantations, reducing the 1931-32 copra output to about 600 tons. Congress appropriated \$30,000 for the repair of public buildings and roads and the American Red Cross donated \$2500 for relief work. Establishment of a \$200,000 foundation for the education of the natives of American Samoa was announced in Honolulu Sept. 16, 1931, by Mr. and Mrs. William S. Barstow of Great Neck, L. I.

In contrast to conditions in 1929 and 1930, the native agitation in Western Samoa for greater political and economic autonomy was in general quiescent in 1931.

**SAMSON, CHARLES RUMNEY.** A British aviator, died near Salisbury, Feb. 5, 1931. Born in Manchester in 1883, he entered the British Navy in 1898. In 1911 he was elected as one of four naval officers to be trained as airplane pilots, and the following year made the first ascent from the deck of a moving battleship. He also carried out the first seaplane experiments in the British Navy and was one of the first pilots to make a practice of night-flying.

On the outbreak of the World War he was appointed to command Wing No. 2 of the Royal Naval Air Service in Belgium. He took part in



the siege of Antwerp and the first Battle of Ypres. In 1915 his Wing was sent to Tenedos to assist the Mediterranean Expeditionary Force in the Dardanelles campaign. After the failure of that campaign he was stationed at Port Said, where he was in command of the *Ben My Ohree* which raided the Syrian and Palestine coasts. During 1917-18 he commanded the air station at Yarmouth, the centre of anti-submarine patrols. In 1922 he was promoted to Air Commodore. While Chief Staff Officer for the Middle East during 1926-27 he headed many notable flights, including one to Aden and another from Cairo to the Cape and back. On his retirement in 1929 he wrote *Fights and Flights*. He was a Chevalier of the French Legion of honor and a Companion of the Order of St. Michael and St. George.

**SAN FRANCISCO.** See MUNICIPAL GOVERNMENT.

**SAN FRANCISCO, BRIDGES AT.** See BRIDGES.  
**SANITARY ENGINEERING.** See GARBAGE AND REFUSE DISPOSAL; SEWERAGE AND SEWAGE TREATMENT; WATERWORKS AND WATER PURIFICATION.

**SAN JOSE SCALE.** See ENTOMOLOGY, ECONOMIC.

**SAN MARINO**, mà-rě'nō'. A tiny independent republic situated near the northwest coast of the Adriatic and encircled by Italian territory. The area is 38 square miles and the population (Oct. 31, 1929) was 13,387. Capital, San Marino (2000 inhabitants). An electric railway from Rimini to San Marino was scheduled for completion in 1931. Legislative power is vested in a council of 60 elected members and executive power in two regents appointed every six months by the council.

**SANSKRIT STUDIES.** See PHILOLOGY, MODERN.

**SANTO DOMINGO.** See DOMINICAN REPUBLIC.

**SÃO PAULO.** See BRAZIL under *History*.

**SÃO THOMÉ**, soun tō-mă', **AND PRINCIPE**, prěnthě-pa. Two islands in the Gulf of Guinea, about 125 miles from the coast of Africa, constituting a province of Portugal. Area 360 square miles; population in 1921, 52,160 for São Thomé and 6905 for Principe. Europeans numbered 1115 and Negroes 57,125. Cacao, cinchona, coffee, and rubber are the chief exports. Governor in 1931, Eugenio de Barros Soares Branco.

**SARAWAK**, sã-rã'wāk. An independent state, comprising the northwestern part of the island of Borneo; under the protection of Great Britain. Area, about 50,000 square miles (coast line 400 miles). Population estimated at 600,000, made up of Malays, Dyaks, Kayans, Chinese, etc. Kuching is the capital, with a population of 25,000. The chief exports are petroleum products, plantation rubber, and sago flour. In 1929, imports totaled 22,726,657 Straits dollars; exports, 63,311,501 Straits dollars (1 Straits dollar exchanged at \$0.56 in 1929). In the same year revenue amounted to 6,671,291 dollars and expenditure to 6,515,757 dollars. There is no public debt. The region was acquired by Sir James Brooke in 1842 from the Sultan of Brunei. Rajah in 1931, Sir Charles Vyner Brooke, grandnephew of Sir James.

**SASKATCHEWAN.** One of the Prairie Provinces of Canada, situated between Alberta on the west and Manitoba on the east. Area, 251,700 square miles; the census populations were 921,785 in 1931 and 757,510 in 1921. Regina, the

capital, had 53,209 inhabitants in 1931 (34,432 in 1921); Saskatoon, 43,291 (25,739); Moosejaw, 21,299 (19,285). Living births during 1929 numbered 21,310; deaths, 6707; marriages, 6535. The total enrollment in the public schools in 1929 was 227,263 (223,049 in 1928). The University of Saskatchewan at Saskatoon had 2449 students in 1928-29.

Agriculture is the leading occupation, the gross value of the agricultural production being estimated at \$229,304,000 in 1929. The sown area of the chief crops in the spring of 1931, according to the 1931 census, was 21,746,039 acres, compared with 17,667,852 acres in 1921. Field crops harvested from 22,868,300 acres were valued at \$120,215,000 in 1930, as compared with \$235,248,000 from 22,420,232 acres in 1929. The wool clip for 1930 was 1,211,000 pounds. The value of the mineral output rose from \$2,253,506 in 1929 to \$2,298,725 in 1930.

Ordinary provincial revenues for the fiscal year ended April 30, 1930, totaled \$16,561,528 and expenditures \$17,079,704 (provisional figures), as compared with \$16,096,666 and \$15,971,231, respectively, in the previous fiscal year. The bonded indebtedness in 1929 was \$58,275,776. Executive power is vested in a lieutenant-governor and a legislative assembly of 63 members elected for five years. In 1931, the government coalition included 24 Conservatives, 5 Progressives and 6 Independents, with 28 Liberals forming the Opposition. Lieutenant-Governor in 1931, H. W. Newlands; Premier, President of the Council, and Minister of Education, J. T. M. Anderson.

The condition of the agricultural population of the Province became desperate in 1931, due to drought and low grain prices (see CANADA under *History and Business Conditions*). The wheat production from 13,881,000 acres in 1931 was estimated at only 101,300,000 bushels, the smallest crop since 1919, when the wheat acreage was 3,300,000 acres. In June the Provincial Treasurer estimated necessary farm relief expenditures for the balance of the year at \$5,000,000. The Saskatchewan Court of Appeal ruled in May, 1931, that the Saskatchewan Grain Marketing Act, which provided for 100 per cent compulsory pooling, was *ultra vires* of the Legislative Assembly. An appeal was to be taken to the Supreme Court of Canada.

**SATELLITES.** See ASTRONOMY.

**SATIN MOTH.** See ENTOMOLOGY, ECONOMIC.

**SAULT STE. MARIE**, CANALS AT. The Lake commerce passing through the canals at Sault Ste. Marie in Michigan and Ontario during 1931 suffered a marked decrease over the previous season. There were 13,056 vessels with a registered tonnage of 35,917,044 as against 16,818 vessels of 54,828,769 net tons, a decline in number of 22 per cent and in tonnage of 34 per cent. The 1931 traffic involved 10,935 steamers, 748 sailing vessels, and 1373 unregistered craft. There were 9537 lockages against 12,661 in 1931.

The freight passing through the canals in 1931 totaled 44,013,671 short tons as against 72,897,752 tons in 1930, a decline of 39 per cent, while passengers were 33,006 as against 45,303 in the previous year, a decline of 26 per cent. The traffic in wheat amounted to 189,090,091 bushels or a decline of 22 per cent from 243,927,016 bushels in 1930. Grain was 56,303,180 bushels as against 55,433,921 bushels in 1930, a gain of 2 per cent. Iron ore in 1930 was 24,259,899 short tons or a decline of 48 per cent from 47,050,854 tons in



1930. Soft coal was 9,891,474 short tons a decline of 25 per cent from 13,256,786 tons in 1930.

The U. S. Canal, which opened April 10 and closed Dec. 15, 1931, had a season of 250 days, and the Canadian Canal, which opened April 13 and closed Dec. 15, 1931, had a season of 247 days.

The greater amount of the freight was east-bound and amounted to 32,686,929 short tons, of which 30,874,207 passed through the U. S. Canal and 1,812,722 tons through the Canadian Canal. The total westbound freight was 11,926,742 tons, of which 11,512,551 passed through the U. S. Canal and 414,191 passed through the Canadian Canal.

**SAUNDERS, WILLIAM LAWRENCE.** An American engineer, died in Tenerife, Canary Islands, June 25, 1931. He was born in Columbus, Ga., Nov. 1, 1856, and was graduated from the University of Pennsylvania in 1876. During 1878-82 he was in charge of the hydrographic work and subaqueous rock excavation for the National Storage Company at Black Tom Island, New York harbor. Later he became president of the Ingersoll-Sergeant Drill Company, and at the time of his death was chairman of the board of directors of the successor organization, the Ingersoll-Rand Company. In addition, he was officer or director of several tool and machinery manufacturing companies. He invented apparatus for drilling rock under water, the Ingersoll track and bar channellers, and gadders for quarrying stone and originated the system of pumping liquids by compressed air and the radialaxe system of coal mining. In 1915 he was appointed a member of the U. S. Naval Consulting Board, and during the World War served on the 2nd district committee on capital issues of the Federal Reserve Board, on the advisory board of the Fuel Administration, and on the military engineering committee. He was also appointed by President Wilson a member of the New Jersey Harbor Commission and of the advisory committee of the Federal Trade Commission, and later served as governor and deputy chairman of the board of the Federal Reserve Bank of New York. In 1926 he founded the William Lawrence Saunders Gold Medal awarded by the American Institute of Mining and Metallurgical Engineers in recognition of achievement in mining. His publications include *Compressed Air Information* (1903); *Rock Drilling* (with Richard T. Dana, 1911); and *The Subways and Tunnels of New York* (with Gilbert H. Gilbert, 1912).

**SAVING BANKS.** See **BANKS** and **BANKING**.

**SAXONY.** The name applied to three divisions of the former German Empire: the Republic of Saxony (formerly the Kingdom of Saxony); the former Grand Duchy of Saxony (now part of Thuringia); and the Prussian Province of Saxony.

**REPUBLIC OF SAXONY.** The third largest state of the German Reich; proclaimed a republic on Nov. 9, 1918. Area, 5786 square miles; population, according to the census of 1925, 4,994,281. The capital, Dresden, had a population in 1925 of 625,016. The largest city is Leipzig, with a population of 684,782 in 1925. The other cities with over 100,000 in 1925 were Chemnitz, 335,982, and Plauen, 111,436. In 1929, births numbered 83,031, deaths 61,013, marriages 50,425. The excess of births over deaths declined rapidly from 31,942 in 1926 to 19,566 in 1929.

Saxony constitutes one of the leading industrial centres of Germany. Crops are wheat, rye,

barley, oats, potatoes, and meadow hay. The ordinary budget for 1930-31 was estimated to balance at 416,500,000 Reichsmarks and the extraordinary budget at 43,730,000 Reichsmarks. The estimated deficit in the ordinary budget for 1929-30 was 27,956,000 Reichsmarks. The Constitution of Oct. 26, 1920, vests supreme power in a Diet of 96 members. The leading parties in the Diet elected June 22, 1930, were: German Social Democrats, 32; National Socialists (Hitlerites), 14; Communists, 13; Middle Class party, 10; German People's party, 8. Premier, Herr Schieck, appointed May 8, 1930. See **GERMANY** under *Area and Population*.

**SCABIES, ERADICATION OF.** See **VETERINARY MEDICINE**.

**SCANDINAVIAN LITERATURE.** This review includes the late books of 1930 in addition to the books of 1931, and is divided into Danish, Norwegian, and Swedish literature.

In order to stimulate fiction writing three publishing houses, one in each country, cooperated in arranging a literary contest. Prizes ranging from 10,000 kroner down were awarded in each country for the three novels voted the best by a national committee. The nine works thus selected were then submitted to an all-Scandinavian jury, who chose one of them as the best Scandinavian novel of the year. The all-Scandinavian prize, 25,000 kroner, went to the Norwegian writer, Sigurd Christiansen, as discussed below.

**DANISH.** *Poetry.* Harald Herdal's *Eros og Døden* (Eros and Death) contains free verse as well as poetry written according to the older formulas. Paul la Cour's new volume, *Menneskets Hjem* (Man's Home), is characterized by a unity of content and form.

*Fiction.* Critics noted that the three prize novels, mentioned below in their order of ranking, all have their scene in the territory of the Limfjord in northern Jutland, and yet are entirely different in character. The differences can, no doubt, be explained by the time of the action in each case. Johannes Buchholtz' *Susanne* is a story of to-day, which contrasts the strict moral ideas of the old-fashioned small town citizens with the selfish ideals of the plutocrats. Bent Steenberg takes us back to the beginning and middle of the eighteenth century in *Hjerremandsbørn* (Children of Good Family), which exemplifies the biblical thesis that the sins of the fathers are visited on the children. In *Jørgen Lykke*, a romantic story, well written although its strong local color sometimes comes near producing the effect of parody, Thit Jensen goes back to the sixteenth century.

*Op nu venter vi paa Skib* (Waiting for Ships), by Marcus Lauesen, who clearly belongs to a new generation of writers, has, in addition to its external action, an inner symbolic action, which also is in keeping with the title. In *Midt i en Jazztid* (In the Midst of a Jazz Age), Knut Sønderby gives a pessimistic picture of the Danish youth of to-day. Among collections of short stories may be mentioned Johann Skjoldborg's *Dybe Strømme* (Deep Streams) and Gunnar Gunnarsson's *Verdens Glæde* (Joys of the World).

**NORWEGIAN.** *Drama.* Two plays (the first one a revision of an older play by the same author) were received favorably on the stage: Ronald Fangen's *Fienden* (The Enemy), which presents the conflict between the idealist who lives on a higher plane and the materialist who maintains

that life is low and lives accordingly; and Sigurd Christiansen's *En reise i natten* (A Journey at Night), the hero of which commits what he considers a justifiable murder, atones for it in prison, and discovers upon his release that his crime and suffering have been in vain.

**Fiction.** In the literary contest referred to above Sigurd Christiansen received the first Norwegian prize (as well as the general Scandinavian prize already mentioned) for *To levende og en død* (Two Living and One Dead), a concentrated dramatic story quite different from the author's previous works. The second prize was awarded to Sigurd Hoel for *En dag i oktober* (A Day in October), which impresses the reader as a series of scenes from a play rather than as a novel. Peter Egge received the third prize for *Gjester* (Guests), which tells the story of a man whose own guilt engenders in him a torturing jealousy and suspicion of his wife.

In *Ragnhild* the great Landsmaal writer, Olav Duun, portrayed a renewal of the conflict of *Medmenneke*. In *Eldjarstad*, which is one of her best works, Barbra Ring left her usual domain, the psychology of the modern woman, and went back to the middle of the last century for her material, centring her story around an old family estate. Another novelist that turned to the past was Ingeborg Møller, whose *Vaarfrost* (Frost in Spring) gives a good picture of an earlier period in Norwegian history. In *Prinsesse Terese* (Princess Terese) Oskar Braaten shows how the humiliation and loneliness of a man's youth casts a shadow over his entire life. Ronald Fanger continued the story of *Nogen unge mennesker* in *Erk*. This year's book by O. E. Rølvaag, whose recent death was a great loss to American as well as Scandinavian readers, continues the story of Peder "Victorious." It was published simultaneously in Norway and in the United States under the respective titles *Den signede dag* and *Their Father's God*.

**SWEDISH.** Three important writers died during the year: the poet, Erik Axel Karlfeldt, who was posthumously awarded the Nobel prize in literature for the year; the novelist, Hjalmar Bergman; and the scholar, Archbishop Nathan Söderblom, internationally known for his investigations in the field of comparative religions.

**Poetry.** Ebba Lindqvist made her début with *Jord och rymd* (Earth and Space), which deserves mention not so much for its form as for the seriousness and genuine feeling that pervade it. In *Valda dikter* (Selected Poems) Sigurd Agrell shows a desire to escape from the world of reality and an insistent attention to form. Two modernistic poets may be quoted: Harry Martinson, who wrote *Nomad*, and C. E. Englund, who wrote *Trasiga Sagor* (Legends in Rags).

**Fiction.** The prize for the best Swedish novel was given to the Finlander Jarl Hemmer for *En man och hans samvete* (A Man and His Conscience). This story, written in a simple and direct style, recounts with seriousness and pathos the sufferings of a human soul. The second prize went to Karin Boye for *Astarte*, a story which gives a good picture of modern metropolitan life and shows a keen insight into social problems on the part of the author. The third prize novel, Py Sörman's *Aloe*, suggests Heiberg's *A Soul after Death* and Strindberg's *A Dream Play*. It pictures the death of a poet and his encounter

in the spirit world with the great writers who have preceded him to the shadowy region.

*Avsked till Hamlet* (Farewell to Hamlet), which seems very much like a series of pictures in a cinema film, is one more example of Eyvind Johnson's desire to create something new and different in the field of fiction. Two promising writers made their début: Waldemar Hammenhög with *Esther och Albert* (Esther and Albert), a story independent of any modern tendencies and strangely reminiscent of Ahlqvist's almost century-old *Det går an*; and Allan Tallqvist with *Topi från Sörnäs* (Topi from Sörnäs), which portrays realistically the underworld of Helsingfors. Hans Botwid, who delights in the effects of contrast in his poetry, shows the same predilection in his volume of short stories, *Det ingen visste* (What No One Knew). See also PHILOLOGY, MODERN.

**SCHAIERITE.** See MINERALOGY.

**SCHAUMBURG-LIPPE**, shoum'börk-lip'é.

A State of the German Republic. See GERMANY.

**SCHNEIDER TROPHY COMPETITION.**

See AERONAUTICS.

**SCHNITZLER**, shnits'lér, ARTHUR. An Austrian playwright and novelist, died Oct. 21, 1931, in Vienna, where he was born May 15, 1862. The son of Johann Schnitzler, a distinguished Jewish physician, he himself studied medicine at the University of Vienna, from which he was graduated in 1885. During 1886-88 he was on the staff of the Imperial General Hospital and then practiced privately. He also began at this time to contribute poems and prose sketches to various literary journals, and in 1893 received recognition as a playwright with the publication of *Anatol*. The success of a second play, *Liebelei* (1895), led Schnitzler to abandon medicine for literature. In 1899 he published *Der grüne Kakadu*, *Paracelus*, and *Die Gefährtin*; in 1902, *Lebendige Stunden*, and in 1903, *Reigen*, a cycle of ten dialogues. Schnitzler's social-problem plays include: *Freiwild* (1895); *Das Vermächtnis* (1901); *Der einsame Weg* (1903); *Der Ruf des Lebens* (1905); *Zwischenspiel* (1906); *Comtesse Mizzi* (1909); and *Professor Bernhardt* (1912). In *Der Schleier der Beatrice* (1901) and *Der junge Medardus* (1910), Schnitzler used as historical setting the Italian Renaissance and Napoleonic campaigns, while in *Das weite Land* (1911) he adopted the "slice-of-life" methods of the Russian school. His later plays include: *Komödie der Worte* (1915); *Die Schwestern* (1919); *Komödie der Verführung* (1924); and *Der Gang zum Weiher* (1926).

Schnitzler was also a writer of short stories and novels, which rank practically as high as his plays. Among these are *Sterben* (1895); *Leutnant Gustl* (1901); *Die griechische Tänzerin* (1905); *Dämmerseelen* (1907); *Der Weg ins Freie* (1908); *Frau Beate und ihr Sohn* (1913); *Casanovas Heimfahrt* (1918); *Fräulein Else* (1924); *Spiel im Morgengrauen* (1927); and *Therese* (1928). In 1912 his *Gesammelte Werke* were published in Berlin in seven volumes. The following of his plays and novels have been translated into English: *Anatol* (1911); *Professor Bernhardt*, *The Green Cockatoo and Other Plays* (1913); *Playing with Love* (1914); *The Lonely Way*, *Intermezzo*, *Countess Mizzi* (1915); *Casanova's Homecoming* (1922); *Comedies of Words and Other Plays* (1923); *Fräulein Else* (1925); *Daybreak* (1928); and *Flight into Darkness* which was published posthumously in 1931).

**SCHOELLKOPF MEDAL.** See CHEMISTRY, INDUSTRIAL.

**SCHOLA CANTORUM.** See MUSIC.

**SCHOLARSHIPS.** See UNIVERSITIES AND COLLEGES.

**SCHOOLS.** See EDUCATION IN THE UNITED STATES; and paragraphs on *Education* under the various countries and States of the United States.

**SCIENCES, NATIONAL ACADEMY OF.** See NATIONAL ACADEMY OF SCIENCES.

**SCIENTISTS, CHRISTIAN.** See CHRISTIAN SCIENCE.

**SCLEROSIS.** See MEDICINE, PROGRESS OF.

**SCOTLAND.** See GREAT BRITAIN.

**SCOTLAND, CHURCH OF.** See PRESBYTERIAN CHURCH.

**SCOTT, FRED. NEWTON.** An American philologist, died in San Diego, Calif., May 29, 1931. He was born in Terre Haute, Ind., Aug. 20, 1860, and was educated at the University of Michigan (A.B., 1884; Ph.D., 1889). From instructor in English at the University of Michigan in 1889, he was advanced to professor of rhetoric in 1901 and professor of rhetoric and journalism in 1921, retiring as professor emeritus in 1927. He wrote *Æsthetics: Its Problems and Literature* (1890) and *Principles of Style* (1890) and was joint author of other texts. He was also a contributor to the NEW INTERNATIONAL ENCYCLOPEDIA.

**SCOTTISH ART.** See ART EXHIBITIONS.

**SCULPTURE.** Although the pace of sculpture in the United States still lags behind that of painting, the year 1931 was not without interest even in this field where the high cost of translating the artist's sketch into stone or bronze was more than usually discouraging. An outstanding event was the Exhibition of American Folk Sculpture which opened in the fall at the Newark Museum, revealing a not inconsiderable background of plastic art in America. The exhibition included ships' figureheads, cigar-store figures, Pennsylvania Dutch stove plates—anything, in fact, to which the early American carver, whittler, or molder could turn his hand. One of the most interesting pieces in the exhibition was a wooden figure of Henry Ward Beecher carved by an Indiana farmer with an abstraction and sense for essential caricature strangely suggestive of modern work. The exhibition took as its premise the belief that at no time has plastic talent been entirely lacking in America, and the collections went far toward supporting this statement.

The opening of the American Folk Art Gallery in New York, sponsored by the Downtown Galleries, also in the fall of 1931, was another indication of growing interest in the field of "American primitive" sculpture, although paintings and various forms of craftsmanship were also exhibited in this case.

The award of two prizes at the Forty-fourth Annual Exhibition by Contemporary American Painters and Sculptors at the Art Institute of Chicago to works of sculpture was also noticeable. The First Logan Medal was awarded to a painter, but the Second and Third went to William Zorach for his group of "Mother and Child" and John Storrs for his "Seated Torso." Sculpture was exhibited, also, though not so prominently, at the Pennsylvania Academy show, where prizes were awarded to Gladys E. Bates for "Eve" and to Edward McCartan for "Dionysus." Other non-commercial exhibitions were those of the American Academy of Arts

and Letters, which showed the work of Paul Wayland Bartlett, and of the Architectural League of New York, which exhibited the work of the winner of the Prix de Rome in 1928—David Rubins. The classic sense for weight and solidity of form in this latter exhibition indicates that Rome has still the power to influence strongly the work of those who study there.

Among exhibitions in various New York galleries were works by Daniel Rumsey, Max Kalish, and Leopold Seyffert, shown together at the Grand Central Galleries; an exhibition of sculpture by Robert Laurent at the Valentine Galleries, showing both the old, subtle, flowing surfaces and a tendency toward a new, more rugged style; and an exhibition bearing the name of Contemporary American Sculpture which modestly hid the names of the group of women whose work it revealed—Anna Glenny, Minna Karkavy, Concetta Scaravaglione, Marion Walton, Anne Morgan Wright, Sonia Brown, and Helene Sardeau. Exhibitions of garden sculpture were the most plentiful, for in this field, which combines the decorative and utilitarian with the purely æsthetic, there is more chance at present for financial success. These exhibitions, held at several galleries, included works by Paulanship, Seymour Fox, Charles Rumsey, Paul Jennewein, Harriet Frishmuth, Janet Scudder, Enid Bell, Brenda Putnam, Orazio Mardarelli, Pietro Montana, Abastenia St. Leger Eberle, and others.

Averell House showed an interesting exhibition of garden sculpture of many periods, with a contemporary American group of animal sculpture including works by William Zorach, Paul Manship, Eli Nadelman, Albert Stewart, and others, and a series of bronzes by Herbert Haseltine of prize English cattle, which were to form the models for life-size figures commissioned by Marshall Field for the Field Museum in Chicago—one of the most regal orders for many a day. The Wildenstein Galleries exhibited some two dozen pieces by the Russian-American, Boris Lovet-Lanski, chiefly stylized ideal figures, and the Fourth Annual Members' Exhibition held at the Grand Central Galleries in November included a fair number of sculptures, the prize for sculpture being awarded to Edward McCartan for his "Diana and Dog."

Among individual works by American sculptors which attracted attention during 1931 were the statue of Woodrow Wilson by Gutzon Borglum erected at Poznan, Poland; the figure of Leif Ericson standing upon the prow of his ship designed by A. Stirling Calder and presented as a gift from the American people to Iceland to be erected at Reykjavik; a marble bust of Jefferson by Attilio Piccirilli, presented to the Capitol at Richmond, Virginia, by a group of French citizens; a statue of Radigost, an ancient Slavonic god of harvest, executed by Albin Polasek for erection in the Carpathians; Lorado Taft's Crusader, set up in Graceland Cemetery, Chicago, as a memorial to Victor Lawson, founder of the Chicago *Daily News*; and a life-size bronze figure, "Flight," by Richard Recchia of Massachusetts, which was awarded the cross of merit and a gold medal at the International Exposition held during the summer at Bologna under the auspices of the Italian Government.

Such exhibitions as that of Contemporary American Ceramics by the firm of W. & J. Sloane of New York called attention to the fact that



*Courtesy of the Newark Museum, Newark, N. J*

**ANDREW JACKSON**

Figurehead from the U. S. Frigate "Constitution,"  
1834



**HENRY WARD BEECHER**

Sculptor Unknown



**WOODROW WILSON**

By Gutzon Borglum

A Statue for the Republic of Poland



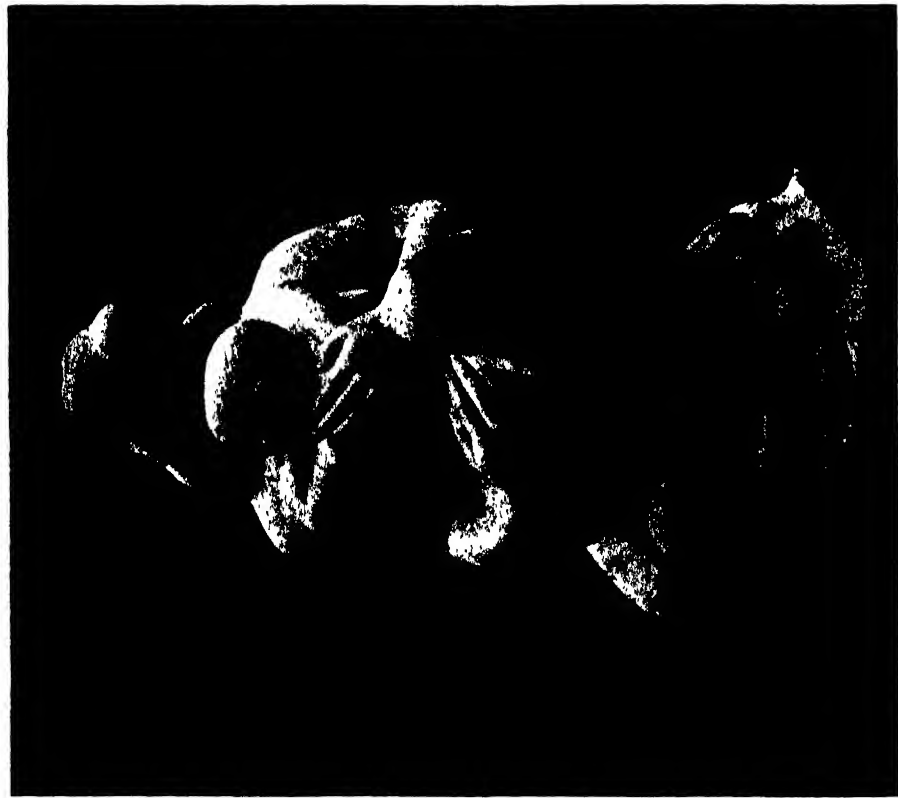
**LEIF ERICSON**

By Stirling Calder

To Be Sent to Iceland on his 1000th  
Anniversary

*Wide World Photos*

**SCULPTURE EXHIBITED IN 1931**



"MOTHER AND CHILD"

By Wilham Zorach

Mr. and Mrs. Frank G. Logan Prize, 1931

Forty-fourth American Painting and Sculpture Exhibition, Art Institute of Chicago



"DIONYSUS"

By Edward McCartan

James E. McClees Prize, 1931

Pennsylvania Academy of Fine Arts, Philadelphia

NOTABLE SCULPTURE OF 1931

a considerable amount of talent is spending itself, often anonymously, in the designing of the pottery figures which are steadily growing more popular—an employment at which no sculptor need look askance considering the work of Cellini and other great sculptor-craftsmen of the Renaissance to whom a cup or a salt-cellar was as authentic a form of art as a life-size statue.

Among the awards of the Guggenheim Fellowships appeared the names of three sculptors—Harold Cash of Chattanooga, Tennessee, who was then at work studying the Negro types of the Belgian Congo; Oronzio Maldarelli; and Ruben Nakian. The Prix de Rome for sculpture went to Warren G. Mosman of Bridgeport, Connecticut.

American sculpture suffered a heavy loss in the fall of 1931 by the death of Daniel Chester French (q.v.), for so long a leader in the National Sculpture Society as well as friend and patron of younger artists. See ART EXHIBITIONS; ART MUSEUMS; ART SALES; LITERATURE, ENGLISH AND AMERICAN under *Pine Arts*; for bibliography, see PHILOLOGY, MODERN.

**SEABURY INVESTIGATION IN NEW YORK.** See NEW YORK under *Political and Other Events*; CRIME.

**SEA LAW.** See INTERNATIONAL LAW.

**SEAL FISHERIES.** See ALASKA.

**SEALSKINS.** See ALASKA.

**SEAMANITE.** See MINERALOGY.

**SEAPLANE.** See AERONAUTICS.

**SEATTLE, BRIDGES AT.** See BRIDGES.

**SECURITIES.** See FINANCIAL REVIEW.

**SEISMOLOGY.** The occurrence of earthquakes of abnormally great focal depth is a much discussed question, on which opinion is still divided. The hypothesis of deep foci was proposed by Turner in 1922, to explain the observed times of arrival of longitudinal waves at stations near the epicentre and near the antipodes; but Jeffreys, Byerly, and others maintain that other considerations make it difficult to accept the existence of foci at depths of 300 kilometers in normal quakes, and suggest that the data used by Turner must admit of some other interpretation. However, in searching for further evidence, an examination of the seismograms of these supposedly deep focus quakes revealed phases that do not correspond to any of those shown by normal disturbances; and these additional phases seem to be caused by supplementary reflected waves that appear because of the abnormal depth of the focus. The actual occurrence of deep focus quakes is thus apparently confirmed; and a means is provided for recognizing such quakes from records at a single station.

Strong earthquake motions, such as those which take place in the vicinity of the epicentre of a destructive shock, are being investigated in the United States through the coöperation of several agencies, including the Bureau of Standards, the Coast and Geodetic Survey, the Massachusetts Institute of Technology, and the Seismological Society of America. Suitable instruments for recording such motions, and for measuring the forces which are exerted, have been designed, and will be placed at a network of stations in seismic regions. Experiments with shaking tables were also being carried out, in order to obtain data for engineering purposes.

Many important investigations of particular earthquakes and their effects, numerous contributions to the mathematical theory of the propa-

gation of earthquake waves in the earth, and a number of studies of the interpretation of seismograms will be found in the *Bulletin* of the Seismological Society of America, the *Bulletin* of the Earthquake Research Institute of Japan, the Geophysical Supplement to the *Monthly Notices* of the Royal Astronomical Society.

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**SELANGOR.** See FEDERATED MALAY STATES.

**SENEGAL**, sɛn'egal'. A colony belonging to France on the west coast of Africa, under the Government of French West Africa (see FRENCH WEST AFRICA). Total area, 74,112 square miles; population in 1929, 1,480,139, including 424 European and 1984 native troops. Capital, St. Louis, with 19,108 inhabitants in 1929. Other important towns are Dakar, the seat of the Governor-General of West Africa and a fortified naval station; population, 1926, 33,697 (Europeans, 2939); and Rufisque, population, 16,703 in 1929. Dakar is the only coaling station on the French West African coast. The colony sends one deputy to the French Parliament. Lieut.-Governor in 1931, M. Beurnier.

**SENUSSITES.** See CYRENAICA.

**SERBIA.** See YUGOSLAVIA.

**SERENDITE.** See MINERALOGY.

**SESQUICENTENNIAL CELEBRATIONS.** See CELEBRATIONS.

**SETH, ANDREW.** See PRINGLE-PATTISON, ANDREW SETH.

**SEVEN-POWER CONFERENCE.** See GREAT BRITAIN, GERMANY, FRANCE under *History*.

**SEVENTH-DAY ADVENTISTS.** See ADVENTISTS.

**SEWAGE TREATMENT.** See SEWERAGE AND SEWAGE TREATMENT.

**SEWAGE AND SEWAGE TREATMENT.** The treatment of sewage before its final discharge in those vicinities or areas where the water receiving it is insufficient in volume or devoted to such uses as make it undesirable to discharge the sewage without treatment continued to present interesting problems. Even here the interest centres in details rather than in main process of treatment, the latter falling for the most part into screening, sedimentation in one- or two-story tanks, and either direct aération, as in the activated-sludge process, or filtration, both of the latter being biological processes. Various combinations of the methods used are employed and sometimes practically all available principal methods of treatment are brought together in a single plant, including final disinfection by chlorination of the final effluent in extreme cases. Disposal of the sludge or sediment removed from the sewage is being given more and more attention. The volume of sludge from sedimentation tanks is reduced in the lower or digestion chamber of the two-story tanks while that from the one-story tanks and from the activated-sludge process is being more and more frequently treated in separate digestion tanks. In the latter case the gases produced in the digestion process are sometimes drawn off and burned for the production of power. Thus far the number of cities utilizing the gas from digestion tanks is small, as is also the number



that derive a revenue from the sludge by selling it to the public for utilization as fertilizer.

The most common method of sewage treatment, the world over, is still screening and sedimentation, either alone or combined with the use of filter beds. The activated-sludge process, which has come into use in the last 15 years or so, is rapidly gaining in favor and in use. The central element in the process is aeration of the sewage in the presence of an accumulation of the solids or sludge. This is effected in tanks, either by the introduction of compressed air through porous plates at the bottom of the tank or else by bringing air into the sewage at the surface and by means of revolving wheels.

In the United States air agitation is more extensively used than agitation by wheels. On July 7, 1931, the formal beginning of construction of an activated-sludge plant with a daily capacity of 180 million gallons was begun by New York City. The plant is located on Ward's Island in the East River and is designed to treat the sewage of a population of 1,350,000 contributed by adjacent territory on either side of the river. It is expected that the process will remove 90 per cent of the suspended matter in the sewage and 95 per cent of the bacteria. Most of the sludge produced will be barged to sea and dumped, but there will be a small plant for the production of fertilizing material from the sludge, this plant to be operated with a view of determining the practicability of recovering the fertilizing material. The total estimated cost of the Ward's Island plant is \$16,000,000, but to this must be added \$14,000,000 to provide tunnels and appurtenances to bring the sewage under water to the plant.

New York City already has a number of smaller plants for the treatment of its sewage. Its Department of Sanitation submitted a report outlining a programme for the treatment of the entire sewage of New York City but no action to put the programme into effect, beyond the works already provided or under construction, had been taken at the close of 1931. Three tentative plans were submitted, each providing for a different degree of removal of impurities from the sewage—79, 92 and 95 per cent. The plan recommended for adoption would remove 79 per cent of the impurities and would provide for the treatment of an average daily flow of 2,117,000,000 gallons of sewage at a total cost of \$244,000,000. Nearly all of this sewage, according to the plan, would be treated by the activated-sludge process, at some 20 different plants.

The work outlined would be designed to take care of the sewage from the city up to the year 1960, and would include the cost for land and for engineering. If the plan providing for 92 per cent removal of impurities were adopted, the total outlay would be \$358,000,000; for 95 per cent removal, the cost would be \$109,000,000.

At Cleveland, Ohio, some of the contract work for an activated-sludge plant to treat the sewage of the easterly district had been let. The population to be provided for ultimately is 770,000. The sludge from this plant will be pumped 13 miles for final treatment at one of the two other existing sewage-works.

Providence, R. I., was building a 52,000,000-gallon activated-sludge plant, making over, so far as practicable, a precipitation plant built in the late nineties but long since outgrown. At the close of the year the Westchester County,

N. Y., Sanitary Sewer Commission put in operation a plant built at a cost of \$800,000 to screen and chlorinate 80,000,000 gallons of sewage daily. Under the construction programme laid down by the United States Supreme Court (see 1930 YEAR BOOK), the Chicago Sanitary District had expended over \$96,000,000 for sewage treatment works, pumping plants and trunk sewers by June 1, 1931, but still had work to be done at an estimated total cost of \$173,000,000. The treatment plants already in use and to be built will treat to a high degree the sewage of the entire sanitary district of Chicago, which includes some 50 municipalities altogether. Of the two large plants already in service one makes use of the activated-sludge process and the other consists of Imhoff tanks.

Novel studies designed to show the possibilities of so treating sewage as virtually to reduce it to its original state of water suitable for various uses, were being conducted by the city of Los Angeles, Calif. That city and adjacent municipalities forming the Southern California Metropolitan Water District are handicapped by their location in an area with insufficient rainfall. This gives rise to the question already indicated. The studies thus far reported (*Engineering News-Record*, Mar. 12, 1931) indicate that by a combination of various processes of sewage treatment, the sewage could be reclaimed so it might be used for irrigation, for industrial purposes, or for the replenishment of the underground water of a portion of the district and possibly, after a very high degree of purification, for municipal water supply. The journal just named, in its issues of May 28, 1931, and Oct. 29, 1931, continued the discussion of some of the points raised by the Los Angeles studies, the first of these two articles being by Dr. Carl Imhoff of the Ruhr district in Germany, where resort is had to various expedients to provide sufficient water supply for municipal and industrial purposes, and the second article being in the nature of a symposium by various American engineers and sanitarians.

Two new books may be noted: Adams, *Modern Sewage Disposal and Hygienics* (London) and Nurse, *Purification and Disposal of Sewage* (London), each dealing with the subject primarily from the British viewpoint.

**SEX.** See ZOOLOGY.

**SHAKESPEARE.** See LITERATURE, ENGLISH AND AMERICAN.

**SHANGHAI.** See CHINA under *History*.

**SHAN STATES.** See BURMA.

**SHANTUNG**, shān'tōng'. One of the 30 Provinces of China. Area, 55,970 square miles; population, estimated at about 31,000,000. See CHINA.

**SHEEP.** See LIVESTOCK; WOOL.

**SHIBUSAWA**, shēbōō-sā'wā, EI-ICHI, VIS-COUNT. A Japanese financier, died in Tokyo, Nov. 10, 1931. Born in Saitama-ken, Feb. 13, 1840, he took service under the Tokugawa Shogunate in its declining days and visited Europe in 1867-68 in the company of a Tokugawa prince. He was appointed to a high post in the Treasury Department on the establishment of the Imperial government in 1869, but resigned in 1873 to found the first national bank of Japan, known as the First Bank. In time he came to be supreme in the commercial, financial, and industrial life of Japan, acting as president of the Tokyo Savings Bank, which he also founded, as chairman of the Tokyo Bankers' Association, and as promoter of

Nippon Yusen Kaisha, the largest Japanese steamship line, and of railroads in Japan, Korea, and Manchuria. He was created a Baron in 1900 and a Viscount in 1920. He visited the United States in 1902, 1910, 1915, and 1921 in the interest of Japanese-American friendship.

**SHIP, NAVAL.** See **NAVAL PROGRESS.**

**SHIPBUILDING.** With a total output of mercantile vessels launched in 1931 reaching 1,617,115 tons, or a decrease of 1,272,357 tons as compared with 1930, there was recorded the lowest production of any year since 1909, with the exception of the war year 1915. These figures and the following summary of shipbuilding are from the annual record of *Lloyd's Register of Shipping*, which does not include warships and takes into account only merchant vessels of 100 tons gross and upwards that were launched in 1931, whether they were completed during the year or were still under construction at its close. The total launches included 24 vessels of 294,406 tons to be fitted with steam turbines, nine vessels of 125,559 tons with electric drive, and seven vessels of 26,478 tons with a combination of steam reciprocating engines and turbines. The motor tonnage for 1931, aggregating 920,495 tons as compared with 1,582,994 tons launched in 1930, exceeded by over 237,000 tons the world's output of steam tonnage, as was the case in 1930 by over 330,000 tons, while in 1929 the motor tonnage launched equaled 84.4 per cent of the steam tonnage. The total steam tonnage of 1931, 683,000 tons, included about 538,000 tons for steamers fitted for burning fuel oil, so that the tonnage depending exclusively upon coal for propulsion was less than 10 per cent of the world's 1931 output. There were 596 vessels launched in the world during the year, of which 14 were over 15,000 tons, 12 between 10,000 and 15,000 tons, 89 between 6000 and 10,000 tons and 24 between 4000 and 6000 tons. The five largest vessels launched during the year were as follows:

	Tons	Built in
Turbines s. s. <i>Rex</i>	50,100	Italy
Turbines s. s. <i>Conte di Savoia</i>	46,000	Italy
Turbine s. s. <i>Manhattan</i>	30,000	United States
Turbine s. s. <i>Champlain</i>	28,912	France
Motorship <i>Georgic</i>	27,000	Ireland

In 1931 there were launched 85 tankers of 642,507 tons, of which 73 vessels of 553,136 tons were motorships. As usual, though with a decreased amount, Great Britain and Ireland led in the amount of tonnage launched, the following countries having an output of 100,000 tons or more during 1931:

	Tons
Great Britain and Ireland	502,487
United States	205,865
Italy	165,048
Denmark	125,974
Holland	120,296
Sweden	112,703
Germany	103,934
France	103,419

The table on page 730 from *Lloyd's Register of Shipping* indicates the fluctuation in the yearly totals for world tonnage launched in the years 1913-31. During the five years 1927-31 the average tonnage launched annually in the world was about 33,000 tons less than the average tonnage launched in the five pre-war years 1909-13.

**GREAT BRITAIN AND IRELAND.** The tonnage launched in 1931, 502,487 tons, or 976,076 tons less than in 1930, was the lowest recorded since 1888. This output represented 31.1 per cent of the world's output as compared with 51.2 per cent for 1930, 54.5 per cent for 1929, 53.6 per cent for both 1928 and 1927, and 58 per cent in 1913. England and Wales were responsible for 243,279 tons, Scotland for 180,301 tons, and Ireland for 78,907 tons. There were 27 vessels of between 5000 and 10,000 tons launched and 11 vessels of 10,000 tons and upwards. The largest was the twin screw motorship *Georgic* of about 27,000 tons. Three steamers of over 20,000 tons each, all fitted with turbo-electric machinery, were also launched: *Strathnaver*, 22,547 tons; *Strathaird*, 22,544 tons; and *Monarch of Bermuda*, 22,424 tons. There were nine steamers of 77,243 tons and 21 motorships of 164,979 tons for the carriage of oil in bulk launched during the year. Steamers fitted for burning oil fuel, launched during the year, amounted to nearly 210,000 tons while 12 vessels with a total tonnage of 117,550 tons were to be fitted with steam turbines, four of which, of 73,623 tons, were to have electric drive. In addition, two vessels of 16,176 tons were launched with a combination of reciprocating engines and low-pressure steam turbines. The 37 motorships, aggregating 227,910 tons, represented more than 84 per cent of the steam tonnage launched, and the largest, the *Georgic*, already referred to, was the largest motorship launched in the world during the year.

During the year the National Shipbuilders' Security, Ltd., formed in 1930 by the coöperation of practically all the shipbuilding companies in Great Britain to acquire and dismantle redundant yards, functioned actively, and by the end of the year more than 71 berths were scrapped, involving 12 establishments with an annual capacity of 500,000 tons.

**UNITED STATES.** *Lloyd's Register of Shipping* record for 1931 gives an output of 205,865 tons launched in the United States, an amount 40,822 tons lower than for 1930 and 18.5 per cent of the total output outside Great Britain and Ireland. Of the tonnage launched, 45 vessels of 196,707 tons were built on the Atlantic and Gulf Coasts, 10 vessels of 5520 tons on the Pacific Coast, and two vessels of 3638 tons on the Great Lakes, this latter being the smallest amount recorded since the first issue of *Lloyd's* returns. The largest vessel of the year launched was the *Manhattan*, a turbine vessel of about 30,000 tons built at Camden, N. J., while the *President Coolidge*, a turbo-electric vessel of 21,936 tons, was built at Newport News, Va., and the *Mariposa* and the *Monterey*, turbine vessels of 18,000 tons, were launched at Quincy, Mass. Six other vessels of between 8000 and 10,000 tons also were launched during the year. Including the vessels named, 13 turbine steamers of 145,234 tons were launched in the United States during 1931, making a total of five vessels of 51,936 tons in which electric drive was employed and a total tonnage of 48,424 tons with internal-combustion engines. Five oil tankers of 37,561 tons were launched, four of which, of 36,027 tons, were motorships. Of the 20 steamers launched during 1931, 14 of 147,279 tons were fitted for burning oil fuel.

**ITALY.** The output for 1931, 165,048 tons, was 77,339 tons higher than for 1930 and was the highest recorded since 1926. There were included the two largest vessels launched in the world

during the year, namely, the quadruple screw turbine steamers *Rex*, of 50,100 tons, launched at Genoa, and *Conte di Savoia*, of 46,000 tons, launched at Trieste. There were 24 vessels of 107,165 tons, out of the 33 launched, built on the Adriatic coast. The motorships launched included the quadruple screw vessel *Neptunia*, of about 20,000 tons, and two tankers of 16,379 tons.

DENMARK. The tonnage launched in 1931, 125,974 tons, was 11,256 tons less than in 1930. The motorship tonnage of 116,765 tons included a larger output of motorships than any other country, outside Great Britain and Ireland.

HOLLAND. Outside of vessels intended exclusively for river navigation, there were launched in 1931, 120,296 tons, or 32,776 tons less than in 1930.

SWEDEN. The high record of 1930 was not equaled, but otherwise the output, 112,703 tons, was the largest amount ever launched in Sweden. There were 15 motorships of 107,766 tons, of which 13 were over 6000 tons, the largest being a tanker of 10,400 tons.

GERMANY. A decrease of 141,623 tons, or over 57.5 per cent, was recorded in the output for the year of 58 vessels of 103,934 tons launched. There were four vessels of 8702 tons, fitted with

TABLE SHOWING THE NUMBER AND GROSS TONNAGE OF MERCHANT VESSELS OF 100 TONS GROSS AND UPWARDS LAUNCHED IN THE VARIOUS COUNTRIES OF THE WORLD DURING THE YEARS 1913-1931—LLOYD'S REGISTER OF SHIPPING

Year	Austria-Hungary		Belgium		British Coasts		Dominions	Canadian Lake Ports	Denmark		France	
	No.	Tons	No.	Tons	No.	Tons		No.	Tons	No.	Tons	
1913	17	61,757	54	30,181	77	26,744	14	21,595	81	40,932	89	176,095
1914	11	84,335*	8	17,145	58	22,288	22	25,246	25	32,815	33	114,052
1915	...	(*)	No Returns		27	13,289	4	8,725	23	45,198	6	25,402
1916	...	(*)	No Returns		36	22,577	4	8,994	28	35,277	9	42,752
1917	...	(*)	No Returns		80	66,475	25	27,996	23	20,445	6	18,828
1918	...	(*)	No Returns		184	230,514	22	49,390	13	26,150	3	18,715
1919	...	.....	2	2,433	235	298,495	28	60,233	46	37,766	34	82,633
1920	...	.....	5	8,371	90	174,557	13	29,087	30	60,669	50	98,449
1921	...	.....	3	17,909	49	118,303	5	11,372	37	77,238	65	210,663
1922	...	.....	4	7,497	37	53,347	2	9,418	23	41,016	62	184,509
1923	...	.....	5	1,102	41	37,072	3	4,191	24	49,479	27	96,644
1924	...	.....	2	3,997	29	29,815	2	15,064	33	63,987	26	79,685
1925	...	.....	3	4,206	47	32,220	4	13,858	21	73,268	35	75,569
1926	...	.....	8	3,627	39	22,842	3	10,836	25	72,108	34	121,342
1927	...	.....	8	4,693	24	20,119	5	10,131	20	72,038	22	44,335
1928	...	.....	3	16,248	47	22,959	1	734	21	138,712	20	81,416
1929	...	.....	4	8,361	47	21,327	3	11,814	34	111,496	16	81,607
1930	...	.....	5	12,265	77	43,292	2	458	38	137,230	18	100,917
1931	...	.....	7	897	31	18,612	...	...	30	125,974	22	103,419

Year	Germany		Great Britain and Ireland		Holland		Italy		Japan		Norway	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
1913	162	465,226	688	1,932,153	95	104,296	38	50,356	152	64,664	74	50,637
1914	89	387,192*	656	1,683,558	130	118,153	47	42,981	32	85,861	61	54,204
1915	...	(*)	327	650,919	120	113,075	30	22,132	26	49,408	59	62,070
1916	...	(*)	306	608,235	201	180,197	10	56,654	55	145,624	52	42,458
1917	...	(*)	286	1,162,896	146	148,779	11	38,906	104	350,141	44	46,103
1918	...	(*)	301	1,348,120	74	74,026	15	60,791	198	489,924	51	47,723
1919	...	(*)	612	1,620,442	100	137,086	32	82,713	133	611,883	82	57,578
1920	...	(*)	618	2,055,624	99	183,149	82	133,190	140	456,642	90	38,855
1921	242	509,064	426	1,538,052	98	232,402	86	170,948	43	227,425	35	51,458
1922	187	525,829	235	1,031,081	60	163,182	42	101,177	49	83,419	23	32,391
1923	109	845,062	222	845,651	35	65,632	21	66,523	44	72,475	48	62,619
1924	108	175,113	494	1,439,885	41	63,627	19	82,526	31	72,757	34	25,139
1925	121	406,374	342	1,084,633	47	78,823	31	142,046	23	55,784	48	28,805
1926	60	180,548	197	639,568	47	93,671	27	220,021	26	52,405	25	9,237
1927	105	289,622	371	1,225,873	68	119,790	25	101,076	19	42,359	12	5,663
1928	81	376,416	420	1,445,920	74	166,754	29	58,640	37	103,663	12	10,401
1929	85	249,077	489	1,522,623	77	186,517	32	71,487	40	164,457	51	89,604
1930	92	245,557	481	1,478,563	74	153,072	36	87,709	37	151,272	53	53,843
1931	58	103,934	148	502,487	99	120,296	33	165,048	42	83,721	20	18,163

Year	Spain		Sweden		United States Coast		Great Lakes		Other Countries		Total	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
1913	12	8,488	25	18,524	182	228,232	23	48,216	17	4,786	1,750	3,332,882
1914	5	5,163	26	15,163	84	162,937	10	37,825	22	13,840	1,319	2,852,753
1915	5	12,765	27	20,319	76	157,167	8	20,293	5	876	743	1,201,638
1916	6	10,847	34	26,769	167	384,899	44	119,348	12	8,449	964	1,688,080
1917	10	22,777	34	26,760	266	821,115	60	176,804	17	9,761	1,112	2,087,786
1918	18	17,889	36	39,583	741	2,602,153	188	430,877	22	17,089	1,866	5,447,444
1919	41	52,609	53	50,971	852	3,579,826	199	495,559	34	34,322	2,483	7,144,549
1920	13	45,950	46	68,823	467	2,348,725	42	127,528	84	42,047	1,759	5,861,666
1921	11	47,256	27	65,911	1,004,093	7	11,284	78	63,465	1,379	4,356,843	
1922	2	7,776	14	30,038	55	97,161	4	21,977	53	77,316	852	2,467,084
1923	7	4,488	10	20,118	69	96,491	14	76,326	22	19,308	701	1,643,181
1924	2	8,559	12	81,211	71	90,155	8	49,808	12	21,673	924	2,247,751
1925	1	1,271	17	53,750	94	78,766	7	50,010	14	15,165	855	2,193,404
1926	6	25,671	14	53,518	73	115,217	5	35,896	11	18,970	600	1,674,977
1927	5	22,899	18	67,361	58	124,270	8	54,948	34	80,802	802	2,285,679
1928	7	11,852	20	106,912	57	86,092	6	5,265	24	67,260	869	2,699,239
1929	8	37,023	29	107,346	59	100,632	4	25,431	34	54,498	1,012	2,793,210
1930	13	25,218	31	131,781	92	214,012	8	32,675	27	21,613	1,084	2,889,472
1931	11	48,117	20	112,703	55	202,227	2	3,638	18	12,879	596	1,617,115

\* Returns are not available as regards Germany and Austria-Hungary for the war period (1914-18) nor as regards Germany for 1919 and 1920.

a combination of reciprocating steam engines and low-pressure turbines, and 32 vessels of 79,995 tons, fitted with oil engines, of which eight were between 6000 and 8500 tons. There were nine tankers launched of 65,881 tons, only one of which, of 1094 tons, was a steamer.

FRANCE. The output for 1931, 103,419 tons, was 2502 tons more than in 1930 and included five vessels exceeding 9000 tons. The turbine steamer *Champlain* of 28,912 tons, the motorship *Aramis* of about 15,500 tons, and the turbine steamer *Colombie* of 13,719 tons were the largest. Two other turbine steamers of 7400 tons were launched.

JAPAN. The output for 1931, 83,721 tons, registered a decrease of 67,551 tons as compared with 1930. There were launched in 1931, 39 motorships of 77,065 tons, which was 92 per cent of the total output for the year. Four of the motorships were between 6000 and 10,000 tons each. Three tankers, all motor-driven, of 20,434 tons, also were launched.

At the end of 1931 there was under construction in the various countries tonnage as follows: Great Britain and Ireland, 400,505 tons; United States, 207,837 tons; Italy, 178,287 tons; France, 164,440 tons; Germany, 103,981 tons; and Sweden, 95,380 tons.

SHIPPING. According to the annual report of the U. S. Commissioner of Navigation for the fiscal year ended June 30, 1931, the Merchant Marine of the United States, at that date, including all kinds of documented craft, comprised 25,471 vessels of 15,908,256 gross tonnage, of which 1998 seagoing vessels of 9,922,771 gross tonnage were of 1000 tons or over compared with 2105 vessels of 10,233,125 gross tons on June 30, 1930. The accompanying table gives the ownership of seagoing tonnage at the end of the fiscal year 1931 compared with one year previously.

AMERICAN MERCHANT MARINE ON JUNE 30, 1931

Ownership and date	Steel		Wood		Total	
	Number	Gross tons	Number	Gross tons	Number	Gross tons
Private ownership (500 gross tons and over):						
July 1, 1930 .....	1,449	7,207,405	482	610,861	1,931	7,818,866
July 1, 1931 .....	1,468	7,395,551	400	497,753	1,868	7,893,304
U. S. Shipping Board (1,000 gross tons and over):						
July 1, 1930 .....	478	2,663,879	...	.....	478	2,663,879
July 1, 1931 .....	397	2,239,153	...	.....	397	2,239,153
Total, 1930 .....	1,927	9,871,284	482	610,961	2,409	10,482,245
Total, 1931 .....	1,865	9,634,704	400	497,753	2,265	10,132,457

Of the gross total of the American Merchant Marine in 1931, 1001 vessels of 5,488,939 gross tons were engaged in foreign trade and 1264 vessels of 4,643,518 gross tons in coasting trade. The United States foreign trade reached its greatest volume on June 1, 1921, when a total of 10,699,596 gross tons were enrolled, and from that time there had been a gradual decline, until on June 1, 1931, it amounted to only 5,623,300 gross tons, or a falling off of 5,076,296 gross tons, due principally to the scrapping of large vessels belonging to the U. S. Shipping Board, and to changes from foreign to coasting trade. Since June 1, 1921, the coasting trade, exclusive of the trade on the Great Lakes, increased 2,092,472 gross tons, while the total seagoing tonnage in the same period had decreased 2,983,824 gross tons. During the fiscal year, 1931, 1302 vessels of 386,906 gross tons were built and documented, and on July 1, 1931, there were building or under contract to build in

American shipyards for private ship-owners, 105 vessels of 358,904 gross tons. This new tonnage included 7 steel passenger steamers of 63,155 gross tons; 3 steel steam ferries of 8118 gross tons; 6 steel steam tankers of 49,390 gross tons; 1 steel passenger motorship of 9180 gross tons; 1 steel cargo motorship of 1112 gross tons, and 5 steel motorship tankers of 44,407 gross tons, aggregating 178,138 gross tons. These figures include only steel, steam, and motor vessels of 1000 gross tons and over, and of this total, 161,700 gross tons were seagoing. The total horse power of these vessels was 116,120. See SHIPBUILDING.

The International Convention on Load Lines held at London in 1931, and referred to in the 1930 YEAR BOOK, was ratified by the United States Senate on Feb. 27, 1931. On Sept. 2, 1931, the law requiring load lines on American vessels became effective, and these regulations were in close accord with the conclusions reached by the world's leading load-line experts at the London Conference of 1930. In the United States Merchant Marine there were approximately 1500 vessels subject to this law, and up to July 1, 1931, 1189 of these had applied for load lines and 479 load-line certificates had been issued.

The Fifteenth Annual Report of the U. S. Shipping Board, covering the fiscal year 1931, stressed the continued liquidation of the Government's merchant fleet. Sales of vessels during the year 1930-31 had reduced the Board's holdings to 390 vessels, as compared with a total of 2546 vessels acquired by the Board since its inception. Of the 390 vessels, only 138 were in active operation on June 30, 1931. During the fiscal year 73 vessels were sold for a cash price of \$1,088,680. The extent of this liquidation was further shown by the Board's annual budget, which had been reduced from \$17,000,000 in 1928 to \$5,950,000 for the year ended June 30, 1931. According to the re-

port the Government's retirement from the field of active ship operations was marked by a corresponding rise in the proportionate amount of tonnage held by private American interests. Of the 1734 American ships of 1000 gross tons or over, registered on June 30, 1931, a total of 1341 ships, aggregating 7,200,000 gross tons, was, the report discloses, privately owned, while 394 (this number includes five vessels belonging to the Panama Railroad Steamship Line), aggregating 2,200,000 gross tons, were still in the hands of the Government.

The beneficial effects of the Jones-White Act in stimulating activity in American shipyards, were shown by advances made on construction loans during the year totaling \$28,704,786.65, as contrasted with \$20,384,100 for the fiscal year 1930. Contracts for 16 seagoing commercial vessels of approximately 122,000 gross tons were placed, and 19 vessels of 166,000 gross tons were delivered

during the year. The larger part of the tonnage under construction was due to mail contracts entered into with shipowners by the Postmaster General under the provisions of the Merchant Marine Act of 1928. At the close of the fiscal year, the number of ocean mail contracts signed since the passage of the Merchant Marine Act of 1928, stood at 41, with positive or conditional requirements for the construction of 61 new vessels (including five completely rebuilt vessels), and betterments or substitutions affecting 35 vessels. The estimated cost of the new vessels was \$283,000,000, and of the betterments \$8,000,000.

**WORLD SHIPPING.** The principal factors in world shipping during the year 1931 included a further decline in the value of overseas trade and its inevitable consequence, an increase in idle tonnage, although this tendency was at a slower rate than in 1930. Freights declined as a result of the lack of employment of shipping, while passenger fares also were reduced in many trades. One feature of the year was the large number of ocean liners included in the idle tonnage, which was not confined to cargo vessels or tramps. The liners in service were being operated with the greatest possible efficiency through quicker turn-arounds and other devices. The accompanying table from *Commerce Reports* shows in detail the idle steam and motor shipping of the principal maritime countries on December 31 of the three years 1929-31:

IDLE STEAM AND MOTOR SHIPPING OF THE  
PRINCIPAL MARITIME COUNTRIES ON  
DECEMBER 31

[In thousands of gross tons]

Country	1929	1930	1931
Idle in home country:			
United States—			
Shipping Board .....	1,531	1,452	1,368
Shipping Board tankers ...	6	6	6
Privately owned .....	447	1,105	1,646
Government, other than Shipping Board .....	22	11	11
Total .....	2,006	2,574	3,031
Great Britain and Ireland ...	521	2,355	2,919
Norway .....	12	595	915*
Italy .....	180	653	807
Germany .....	8	484	790
Netherlands .....	4	324	595
France .....	91	219	566*
Japan .....	90	343	352
Belgium .....	14	77	187
Denmark .....	...	91	185
Sweden .....	8	131	181
Greece .....	87	223	180
Spain .....	22	120	188
Australia .....	90	171	183
Idle in foreign countries .....	90	805	413
Grand total .....	3,218	8,665	11,392

\* Exclusive of the whaling fleet, totaling 282,000 gross tons, the bulk of which was idle.

† Latest figures available October 15. French idle shipping on Dec. 31, 1931, totaled 743,000 gross tons.

On Dec. 10, 1931, Great Britain and Northern Ireland, Canada, Australia, New Zealand, Union of South Africa, the Irish Free State, and Newfoundland signed a merchant shipping agreement dealing with such vital measures for commerce in the British Commonwealth as registry, standards of safety, port regulations, certificates of officers, and similar subjects which had been under discussion since the report of the Conference on the Operation of Dominion Legislation and Merchant Shipping Legislation held in 1929. This agreement, which applied to all territories administered under the authority of the

government of any part of the commonwealth, was of importance as emphasizing the formal basis of political conditions developed under the Statute of Westminster. See GREAT BRITAIN under *History*.

**SHIPWRECKS.** See SAFETY AT SEA.

**SHOCK.** See SURGERY, PROGRESS OF.

**SHOES, SHOE INDUSTRY.** See BOOTS AND SHOES.

**SHOOTING.** An Ohio clergyman, the Rev. Garrison Roebuck of McClure, O., was the surprise of the Grand American trapshooting championships held at Vandalia, Ohio, in 1931. This man, who had not shot over traps more than a dozen times in his life, broke ninety to tie for the lead with two other gunners and then won the shoot-off. Carl Maust gave a splendid exhibition in winning both the Class AA championship, the ultimate world's title in trapshooting, and the North American clay target championship in the same tournament. He broke 548 out of 550 clay disks. In the AA division Maust broke 188 birds in a row, missed at 189, and then went on to the two-hundredth without another miss. The following day Maust duplicated the 199 score, but was tied by three other gunners. Maust then broke 150 straight in the shoot-off. Champions in the other trapshooting events were Class A—Fred Barlow, Newark; Class B—C. F. Booher, Dayton; Class C—J. W. Paddock, Rock Island, Ill.; Class D—Mrs. H. E. Grigsby, Oklahoma City.

In the women's events Miss Jeanette Jay, 18-year-old girl from Waverly, Ia., captured the North American title defeating Mrs. Grigsby in the shoot-off. Miss Jay also won the women's division title in the Grand American handicap. In the women's doubles Miss Alice Crothers broke seventy-seven for the title.

Clyde Mitchell, professional from Milwaukee, won the international open title with 199, and Earl Donohue of Minneapolis won the professional clay target title with the same score. Gus Payne of Oklahoma City won the North American doubles crown and Steve M. Crothers, of Pennsylvania, won the title of champion of State champions.

The national individual rifle title was taken at the annual championship at Camp Perry, O., by Lieut. Emerson F. Sloan, attached at Vancouver, Washington. He compiled a score of 286 out of a possible 300. With a score of 2809 out of a possible 3000, the U. S. Marine Corps won the team title for the second consecutive year and for the eleventh time since the matches were inaugurated. In the President's Cup match, Sergeant Reginald Herin, of the Mississippi National Guard, captured the honors with a score of 145 out of 150.

The United States team at the famous English matches at Bisley was unsuccessful, losing to the British small bore squad, 3927 to 3925. For the third time Sergt. A. G. Fulton, of the Queens Westminsters, captured the gold medal for the King's Prize. Fulton had also conquered in 1912 and 1926.

Sergeant John Carlson, U. S. Infantry, Fort Missoula, Mont., won the national pistol shooting championship, triumphing in a huge field with a score of 277 out of a possible 300. The national team championship for pistol shooting went to the U. S. Cavalry team, which defeated the Marines, 1261 to 1256. The Marines had held the team title previously for four straight years.

**SHORTT, ADAM.** A Canadian political economist, died in Ottawa, Ont., Jan. 14, 1931. He was born in Kilworth, Ont., Nov. 24, 1859, and was educated at Queen's University, Kingston, from which he was graduated in 1883, and also at Glasgow and Edinburgh universities. He was professor of philosophy at Queen's from 1885 to 1889, lecturer in political science from 1889 to 1892, and professor of political science from 1892 to 1908. In 1908 he was appointed Dominion Civil Service Commissioner, and in 1917 chairman of the Board of Historical Publications. He wrote *Imperial Preferential Trade from a Canadian Point of View* (1904); *Documents Relating to the Constitutional History of Canada, 1759-79* (with A. G. Doughty, 1907); *Lord Sudenham* (in the "Makers of Canada Series," 1908).

**SIAM, si-ám.** An independent monarchy in southeastern Asia. Capital, Bangkok; reigning king in 1931, Prajadhipok, of Sukhodaya.

**AREA AND POPULATION.** With an area of 200,149 square miles, Siam supported a population of 11,506,207 at the census of 1929, as compared with 9,207,355 in 1920. There were some 10,000,000 of the Thai people, or original Siamese, nearly 1,000,000 Chinese, and a considerable Malay element in the south. Migration statistics for the five years ending in 1930 showed arrivals of 182,265 at Bangkok and on the southern frontier, and departures of 133,635. Bangkok, the chief port and principal city, had about 600,000 inhabitants in 1929.

**EDUCATION.** About half of the population is said to be literate. During the school year 1928-29, there were 558,151 pupils in primary schools, 14,829 in secondary schools, and 1637 in special schools. Chulalongkorn University is situated at Bangkok.

**PRODUCTION.** Agriculture is the main occupation, there being 7,104,000 acres, or 6 per cent of the total area, under cultivation in 1928-29. Rice is the leading crop, the production of cleaned rice in 1929 totaling 5,315,000,000 pounds. The other chief crops are corn, sesame, peas, cotton, tobacco, and pepper. The large teak forests are second only to rice as a source of wealth; about 120,000 logs are saved annually in Bangkok sawmills. Sticklac is another forest product. Tin is the most important mineral, production (metal content) in 1930 being estimated at 11,354 metric tons (8027 in 1929). Tungsten, lignite, copper, iron, antimony, zinc, and coal are found also. Rice milling is the principal manufacturing industry and is mostly in the hands of Chinese.

**COMMERCE.** In the calendar year 1931 Siam's imports and exports declined about 37 and 29 per cent, respectively, from the 1930 level. Exports were valued at 133,082,000 bahts (1 baht equaled \$0.44), compared with 182,590,000 bahts in 1930, and imports at 110,044,000 bahts, compared with 174,761,000 bahts in 1930. Rice, tin ore, and teak wood were the chief exports; cotton piece goods, machinery, sugar, cigarettes, and kerosene the leading imports. Trade was credited chiefly to Singapore and Hong Kong, but the United Kingdom supplied directly 16.9 per cent of all imports in 1929-30. Imports from the United States in 1931 were \$1,306,000 (\$2,365,000 in 1930) and exports to that country \$263,000.

**FINANCE.** Budget estimates for the fiscal year ended Mar. 31, 1931, placed revenues at 106,593,000 bahts (1 baht equaled \$0.4424 at par) and expenditures at 106,534,000 bahts. The

1931-32 estimates were: Revenues, 94,806,000 bahts; expenditures, 94,346,000 bahts. A balanced budget was maintained in 1929-30, but revenues and treasury balances declined. About 20 per cent of the budget was devoted annually to defense. The public debt on Mar. 31, 1931, totaled \$11,092,000 (\$53,979,000), compared with \$11,385,000 on the same date of 1930. The entire debt was floated in London.

**COMMUNICATIONS.** The state railway system, representing an investment of more than \$90,000,000 up to 1930, is one of the most efficient in the Far East. Miles of line in operation in 1930 numbered 1794, and 120 miles were under construction. Highways in 1931 consisted of 771 miles of state roads, including some 625 miles of hard-surfaced roads. About 550 miles of road were under construction. Air lines operated from Bangkok to various cities in the kingdom. At Bangkok, which handles 85 per cent of the foreign trade, a total of 1013 vessels, of 1,145,922 net registered tons, entered in 1929-30, and 1003 ships, of 1,136,889 tons, cleared.

**GOVERNMENT.** Executive power is vested in the King, who is assisted by a consultative council of four elder statesmen of the royal household, and by an advisory cabinet council consisting of the ministers of state and other high officials. The cabinet council functions as the legislative arm of the government.

**HISTORY.** Developments of outstanding interest in Siam during 1931 were the visit to the United States of the King and Queen of Siam; the organization of a department of commercial intelligence, with a long-time programme covering commercial and agricultural development; establishment of weekly air-mail and telephone service to Europe; important increases in the tariff schedules; the entrance of Siam into the international tin-restricting scheme; the imposition of new immigration regulations, including a tax; and the amalgamation of the Ministries of War and Marine. An amendment was also passed to the currency act, providing for the disposal of surplus silver currency held by the Treasury.

The King and his entourage made his headquarters while in the United States at Ophir Hall, estate of Mrs. Whitelaw Reid, near White Plains, New York. There he underwent a successful operation for the removal of a cataract. In an interview with American reporters on April 27, King Prajadhipok announced that he planned to pave the way for the gradual introduction of representative government in Siam. He indicated that the first step would be to allow his people to vote for municipal officials. The King ended his visit to the United States July 28, 1931.

Consult Eldon R. James, "Siam in the Modern World," *Foreign Affairs*, July, 1931; Wilbur L. Williams, "Siam," *Foreign Policy Reports*, vol. vii, No. 7, June 10, 1931.

**SIAMESE TWINS.** See Zoölogy.

**SIBERIA.** A general term applied to the vast area of northern Asia extending from the Ural Mountains to the Pacific and from the Arctic Ocean to Manchuria, Mongolia, and Soviet Central Asia. Siberia is divided as follows into administrative units of the Russian Socialist Federated Soviet Republic, the largest of the seven republics forming the Union of Soviet Socialist Republics. The units extend from west to east in the order listed in the table given on page 734.



## SIBERIA: ADMINISTRATIVE UNITS \*

	Area in square miles	Population 1926
Ural Area <sup>b</sup> .....	660,000	6,800,020
Western Siberian Area <sup>c</sup> .....	503,650	7,202,754
Eastern Siberian Area <sup>c</sup> .....	1,877,420	2,608,666
Yakutsk Republic .....	1,519,760	288,845
Far Eastern Area .....	900,740	1,291,850
Total .....	4,961,570	18,191,685

\* As reorganized by the All-Russian Executive Committee on July 20, 1930.

<sup>b</sup> Includes a small section of European Russia.

<sup>c</sup> Area and population estimated as of 1926 following division of the former Siberian Area into Eastern and Western Siberian Areas on July 20, 1930.

Approximately 90 per cent of the population is engaged in agriculture and stock raising, with mining, lumbering, hunting, and fishing as other leading occupations. Siberia is one of the world's most important sources of furs. The Soviet Government is actively undertaking the exploitation of its virtually untouched mineral, forest, and fishery resources. The Trans-Siberian railway traverses all except the Yakutsk Republic. See UNION OF SOVIET SOCIALIST REPUBLICS; EXPLORATION.

**SIERRA LEONE**, sê-ër'â lê-ô'nê. A British colony and protectorate on the west coast of Africa situated between French Guinea on the north and Liberia on the southeast. The approximate area of the colony is 4000 square miles and the population, according to the census of 1921, 85,163, of whom 1161 were Europeans. The chief city is Freetown, with a population in 1921 of 44,142. Freetown is the chief seaport in West Africa, being a coaling station and the headquarters of the British Imperial forces in West Africa. Vessels entered and cleared in the foreign trade in 1929 aggregated 4,812,566 tons. In the year 1930 exports totaled £1,206,046; imports £1,424,175, revenue, £942,972; expenditure £805,725. The net public debt Jan. 1, 1931, was £1,990,173. Main railway lines open to traffic in 1929 totaled 310 miles. Platinum and gold are mined and hematite and chromite deposits of commercial value have been discovered.

The adjoining protectorate has an area of 27,000 square miles; population, according to the census of 1921, 1,456,148, of whom 1,450,903 were natives. The chief exports are palm kernels,

kola nuts, palm oil, and ginger. Governor and Commander-in-chief in 1931, Arnold W. Hodson.

**SILESIA**, sl-ê'sha. The term applied to (1) a part of the Province of Moravia and Silesia in Czechoslovakia, including the former Austrian crownland of Silesia and a small section of Germany ceded by the Versailles Treaty; area, 1708 square miles; estimated population Jan. 1, 1929, 735,532, (2) a county of Poland, including 1241 square miles detached from German Upper Silesia following a plebiscite in 1921 and Teschen Silesia, detached from Austria by the St. Germain Treaty; total area, 1633 square miles; population at the census of 1921, 1,124,967, and (3) the two Prussian provinces of Lower Silesia and Upper Silesia, the respective areas of which on Apr. 1, 1925, were 10,276 and 3746 square miles; respective populations on the same date, 3,132,328 and 1,379,278. For the question of the German minority in Polish Silesia, see POLAND and GERMANY under *History*.

**SILK**. The 1931 raw silk crop of the world showed a decline from 1930 and was considerably below that of 1929, which was the largest on record. However, the silk industry suffered the familiar conditions of continued high production with reduced consumption, resulting in the fall of prices of raw silk to new levels for all time towards the close of the year. In Japan the year 1931 witnessed increasing production and exports, with stocks in Japanese ports increasing moderately in consequence. Whereas Japanese raw silk had sold at the end of 1929 around \$4.65 per pound and at \$2.70 per pound at the end of 1930, at the close of 1931 corresponding prices were in the neighborhood of \$1.95. The trend of prices during the first half of 1931 was lower, with a recovery during the summer and a fairly steady level during the autumn. As Japan's financial situation developed, leading to the forsaking of the gold standard on Dec. 13, 1931, prices continued to drop.

During 1931, Yokohama and Kobe, the main ports in Japan, exported 553,600 bales of raw silk, of which 537,815 went to the United States and 15,785 to Europe. In 1930 total exports from these ports were 473,882 bales of which 455,727 went to the United States and 18,516 to Europe. In 1931, the total exports from Canton, China,

## WORLD RAW-SILK PRODUCTION

[Including tussah silk]  
[Compiled by the Statistical Bureau of the Silk Association of America]

	1930-31 * Pounds	1929-30 Pounds	1928-29 Pounds	1927-28 Pounds	1926-27 Pounds
Europe .....	11,067,000	11,243,000	11,287,000	11,084,000	9,215,000
Italy .....	10,527,000	10,648,000	10,661,000	10,201,000	8,499,000
France .....	386,000	430,000	452,000	650,000	529,000
Spain .....	154,000	165,000	174,000	183,000	187,000
Levant .....	2,822,000	2,601,000	2,513,000	2,293,000	2,359,000
Asia: Total quantity exported <sup>b</sup> .....	83,676,000	85,221,000	93,673,000	87,270,000	84,337,000
China, Shanghai .....	13,775,000 <sup>c</sup>	13,194,000	12,313,000 <sup>c</sup>	10,825,000 <sup>c</sup>	
China, Canton .....	18,310,000	6,243,000	6,162,000	5,809,000	7,055,000
Japan .....	65,256,000	65,036,000	74,075,000	68,839,000	66,193,000
India .....	110,000	187,000	242,000	309,000	264,000
Total, pounds .....	97,565,000	99,065,000	107,473,000	100,597,000	95,911,000
Tussah .....	1,500,000	1,060,000	958,000	970,000	1,400,000
Grand total, pounds .....	99,065,000	100,125,000	108,431,000	100,567,000	97,311,000

\* Estimated.

<sup>b</sup> The total production of raw silk in Asia is an unknown quantity, therefore export figures have been used.

<sup>c</sup> Excludes tussah silk.

The exports from Canton and Shanghai during the season 1930-31 were 10,263,833 pounds. The Japan crop was estimated at 98,957,000 pounds.

amounted to 46,570 bales as against 60,470 bales in 1930, of which 30,845 went to America and 15,727 to Europe in 1931, while in 1930, 37,580 bales went to America and 22,890 to Europe. The total imports from China into the United States in 1931 were 86,502 bales as compared with 92,850 in 1930, and 98,723 in 1929.

The raw silk imports into the United States during the calendar year 1931 aggregated 605,919 bales as against 549,884 bales in 1930; 661,611 bales in 1929, and 566,378 in 1928. During 1931 the imports accordingly were 10.02 per cent greater than in 1930. The deliveries of raw silk to United States mills in 1931 totaled 594,889 bales as against 582,226 bales in 1930 and 619,747 bales in 1929, the increase of 1931 over 1930 in the mill deliveries being 2.02 per cent. Stocks at warehouses on Dec. 31, 1931 were 69,460 bales compared with 58,430 bales on Dec. 31, 1930.

#### See TEXTILE INDUSTRY.

**SILVER.** The world production of silver in 1931, according to the Annual Review of Handy & Harmon of New York City, fell to 196,100,000 oz., as against a total of 246,800,000 oz. in 1930, a shrinkage of 20½ per cent. This company estimated the production of the world as follows: United States 31,400,000 oz.; Mexico 88,900,000 oz.; Canada 20,400,000 oz., and South America 19,700,000. The shrinkage from 1930, expressed in percentage, was approximately as follows: United States, 38 per cent; Mexico, 15½ per cent; Canada, 22 per cent; South America, 16 per cent, and all other sources combined, 13½ per cent. The total amount of silver arising from demonetization and Indian Government sales during 1931 came to 59,500,000 oz., the review stated, against 71,500,000 oz., in 1930.

#### AVERAGE PRICE OF SILVER, 1921-31

Yearly averages	New York official	London spot	Yearly averages	New York official	London spot
1931 ...	28.701	14.594	1925 ...	69.065	32.091
1930 ...	38.154	17.666	1924 ...	66.780	33.969
1929 ...	52.993	24.459	1923 ...	64.873	31.926
1928 ...	58.176	26.746	1922 ...	67.521	34.406
1927 ...	56.370	26.047	1921 ...	62.654	36.841
1926 ...	62.106	28.686			

The U. S. Bureau of the Mint, with the cooperation of the Bureau of Mines, issued the accompanying statement of the preliminary estimate of refinery production of silver in the United States during the calendar year 1931.

Comparison with 1930 production indicated a decrease in 1931 of 17,070,180 ounces of silver. Comparison with the year of largest production, 1915, when silver amounted to 74,961,075 ounces, gave a reduction of 43,993,457 ounces.

Exports of silver from the United States in 1931 totaled \$26,485,000 and imports were \$28,604,000, leaving an excess of imports of \$2,179,000. In 1930, exports were \$55,157,000 and imports \$42,761,000; in 1929, exports were \$83,407,000 and imports \$63,940,000.

The total silver production of the Dominion of Canada in 1931 was estimated at 20,403,771 fine ounces valued at \$5,984,109 as against 26,435,935 fine ounces valued at \$1,089,376 in 1930, there being a decline of 23 per cent in production and of almost 50 per cent in value. The record of silver production in Canada was made in 1910 with 32,869,264 fine ounces.

The output of silver in Ontario in 1931 was estimated at 7,036,222 fine ounces as against 10-

#### PRODUCTION OF SILVER IN THE UNITED STATES IN 1931

[Arrivals at United States Mints and Assay Offices and at private refineries]

States	Silver	
	Ounces	Value *
Alaska .....	854,609	\$ 102,887
Alabama .....	5	1
Arizona .....	4,808,761	1,248,091
California .....	709,891	205,868
Colorado .....	2,147,909	622,894
Georgia .....	11	8
Idaho .....	7,889,638	2,142,994
Michigan .....	1,488	418
Missouri .....	12,519	8,680
Montana .....	4,119,578	1,194,676
Nevada .....	2,412,904	699,742
New Mexico .....	1,080,487	298,885
North Carolina .....	10,592	8,072
Oregon .....	7,280	2,097
Pennsylvania .....	1,600	464
South Carolina .....		
South Dakota .....	118,657	32,961
Tennessee .....	52,000	15,080
Texas .....	250	72
Utah .....	8,178,203	2,370,229
Washington .....	22,845	6,480
Wyoming .....	19	6
Philippine Islands .....	104,004	80,161
Total .....	80,967,618	8,980,609

\* Value at 29¢ per ounce, the average New York price of bar silver.

205,638 fine ounces in 1930, while that in British Columbia was 8,339,989 fine ounces as against 11,836,632 fine ounces in 1930.

The production of Mexico, the world's leading producer in 1931, was estimated at 88,900,000 ounces or a decline of 15½ per cent from 1930, when the production was about 105,411,000 ounces. This was a matter of considerable economic importance for Mexico, as the export of silver bullion is one of the most important sources of wealth of that Republic, and naturally her national income and commercial position in the markets of the world was seriously affected. A number of the mines were forced to close but many were kept open through government action in order to avoid an increase of unemployment. See MEXICO.

**SIMMONS, EDWARD (EMERSON).** An American painter, died in Baltimore, Md., Nov. 17, 1931. He was born in Concord, Mass., Oct. 27, 1852, was graduated from Harvard in 1874, and studied painting under Lefebvre and Boulanger in Paris. His work was free and sure in execution and possessed much charm of color. Among his mural paintings are those in the Massachusetts State House, the Minnesota and South Dakota State Capitols, the Appellate and Criminal Court buildings in New York City, the Congressional Library in Washington, the Waldorf-Astoria Hotel in New York City, and the Court Houses in Des Moines, Iowa, and Mercer, Pa. He was the author of *From Seven to Seventy: Memories of a Painter* (1922).

**SIMMONS COLLEGE.** A nonsectarian college for women in Boston, Mass., founded in 1899. The enrollment on Nov. 1, 1931, was 1558 distributed among the following schools: Household economics, 261; secretarial studies, 481; library science, 234; general science, 90; social work, 232; store-service education, 62; public-health nursing, 181; landscape architecture, 12; physical education, 5. There was an enrollment of 219 in the 1931 summer session. The faculty numbered 160. The productive funds of the institution amounted to \$3,381,133 and the income for the year was \$502,352. The library contained

49,533 volumes. President, Henry Lefavour, Ph.D., LL.D.

**SIMPSON, SIR WILLIAM JOHN RITCHIE.** A British physician, died in London, Sept. 20, 1931. Born in 1855, he attended Aberdeen University and was graduated with the M.D. degree from Cambridge in 1880. After serving as lecturer in hygiene at Aberdeen, he went to India in 1886 as Health Officer of Calcutta, where he remained until 1897. In 1900 he was appointed member of the government commission to inquire into dysentery and enteric in South Africa, and the following year became chief commissioner to deal with the outbreak of plague in Capetown and Cape Colony. In 1902 he was transferred to Hong Kong, China, as government commissioner to inquire into the causes and continuance of plague there, and in 1906 reported on the sanitary condition of Singapore. He returned to Africa in 1908 to deal with the outbreak of plague on the Gold Coast, and visited East Africa, Uganda, and Zanzibar in 1913-14 to report on plague and health conditions, the Gold Coast and Ashanti in 1924 to report on the sanitary condition of the mines and mining villages, and Northern Rhodesia in 1929 to report on enteric fever, dysentery, and malaria. At the time of his death he was director of tropical hygiene at the Ross Institute and Hospital for Tropical Medicine in London, editor of the *Journal of Tropical Medicine*, and a member of the advisory committee to the Secretary of State for the Colonies on medical and sanitary matters. He was knighted in 1923. His publications include *Cholera and Maritime Quarantine* (read at the International Hygiene Congress, 1891); *Etiology of Cholera* (read at the First Indian Medical Congress, 1894); *A Treatise on Plague* (1905); and *Maintenance of Health in the Tropics* (1916).

**SINGAPORE.** See STRAITS SETTLEMENTS; BRITISH MALAYA.

**SKATING—SPEED.** Fred Stack, Canadian, won the national title at Oconomowoc, Wisconsin, succeeding Allan Potts of Brooklyn as the champion. He also captured the North American indoor laurels, with Ross Robinson of Toronto, second. Robinson, Canadian champion, carried off the North American outdoor title as well as the Eastern United States crown. Both these United States titleholders were scheduled to represent Canada in the Olympics at Lake Placid in February, 1932. Bert Taylor won the Metropolitan and New York State championships and after a skate-off with Ray Murray, youthful New Yorker, Allan Potts won the Middle Atlantic States title. In Chicago Stack set a new amateur world's record for five miles when he skated the distance in 15:42½.

Miss Elsie Muller, veteran, won the North American women's championship crown at Chicago, but was defeated by Miss Lillian Corke of Yonkers in the Middle Atlantic championships. Miss Jean Wilson, of Toronto, gained the women's outdoor North American title.

**FIGURE SKATING.** Miss Sonja Henie, 19-year-old Norwegian girl, and Karl Schafer, of Vienna, both retained their titles as world's figure skating champions. Miss Henie won an easy conquest at Berlin in March to win her fifth consecutive world's title. Schafer, who first won in 1930 at New York City, was hard pressed by Roger F. Turner, United States champion, for the fourth straight year. Miss Maribel Vinson, of Winchester, Mass., won the United States women's title

for the fourth straight season as well as the British championship at London. The national senior pair championship went to Miss Beatrix Loughran and Sherwin C. Badger of New York for the second time. Joseph K. Savage, of New York, captured the men's junior crown and the women's junior title went to Miss Margaret Bennett, of Indianapolis. The world's pair figure skating championship was awarded to Miss Baby Rotter and Laszlo Szollas of Hungary and the North American pairs championship went to Mrs. Constance Wilson Samuels and Montgomery Wilson, of Toronto. Montgomery Wilson also won the North American men's championship.

**SLAVERY.** See HONG KONG; LIBERIA under *History*; ETHIOPIA.

**SLAVIC STUDIES.** See PHILOLOGY, MODERN.

**SLAVONIA.** See CROATIA AND SLAVONIA; YUGOSLAVIA.

**SLOVAKIA.** A Province of Czechoslovakia. See CZECHOSLOVAKIA under *Area and Population*.

**SLOVENES.** See YUGOSLAVIA under *History*.

**SMELTING.** See METALLURGY.

**SMITH, HOKE.** An American lawyer and former U. S. Senator, died in Atlanta, Ga., Nov. 27, 1931. He was born in Newton, N. C., Sept. 2, 1855, and was educated at Chapel Hill in a school of his father's. On removal to Atlanta, he studied law and was admitted to the Georgia bar in 1873, becoming one of the most successful lawyers in the State. He also was proprietor from 1887 to 1896 of the *Atlanta Journal*, which became a power in Georgia politics. President Cleveland made him Secretary of the Interior in his second cabinet, where he served acceptably for three years (1893-96). In 1906 he was elected Governor of Georgia, but was defeated for reelection in 1908. Two years later, however, he was chosen governor again by an overwhelming majority for the term 1911-13. In July, 1911, he was elected U. S. Senator by the Georgia Legislature to fill the unexpired term of A. S. Clay, but continued to serve as governor until the assembling of Congress in December. Re-elected to the Senate for the term 1915-21, he was a supporter of President Wilson, but differed with him over the entry of the United States into the League of Nations. He practiced in Washington from 1921 to 1924, and in 1923 represented the Government of Peru in litigation with Chile.

**SMITH, CAPTAIN JOHN, ANNIVERSARY.** See CELEBRATIONS.

**SMITH, GEORGE OTIS, CASE OF.** See LAW, PROGRESS AND DEVELOPMENTS under *Other Causes Célèbres*.

**SMITH COLLEGE.** A nonsectarian college for women in Northampton, Mass., founded in 1871. The enrollment for the autumn of 1931 was 1878, including 101 graduate students, 13 non-collegiate students, 33 juniors studying in France, 5 juniors studying in Spain, and 8 juniors studying in Italy. The registration in the 1931 summer session was 189, schools in music and social studies being conducted. There were 245 faculty members. The productive funds amounted to \$8,295,280, and the income from funds was \$325,313. The library contained 181,900 volumes. President, William Allan Neilson, Ph.D., LL.D., L.H.D., Litt.D.

**SMITHSONIAN INSTITUTION.** An organization founded in 1846 according to the terms of the will of James Smithson of England, who, in 1826, bequeathed his property to the United States of America "to found at Washington,

under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men."

The affairs of the institution are administered by a board of regents, whose membership consists of the Vice President, the Chief Justice, three members of the Senate, and three members of the House of Representatives, together with six other persons, other than members of Congress, two to be residents of the city of Washington and the other four of different States. The chancellor of the institution in 1931 was Chief Justice Charles Evans Hughes.

The enterprises supported wholly by Congressional appropriations, but administered by the Smithsonian Institution, include the National Museum, the National Gallery of Art, the Bureau of American Ethnology, the International Exchange Service, the National Zoological Park, the Astrophysical Observatory, and the U. S. Regional Bureau of the International Catalogue of Scientific Literature. It also administers the Freer Gallery of Art.

During 1931 an appropriation of \$10,000 was made by Congress for preliminary architectural plans of the extensions to the natural history building of the U. S. National Museum, authorized by that body in 1930. There was also completed the new reptile house of the National Zoological Park, which was formally opened to the public on Feb. 27, 1931. A bequest of approximately \$50,000 was received from the estate of James Arthur to promote knowledge of the sun, and there was carried out during the year application of improved methods of solar radiation research at the stations of the Astrophysical Observatory, located on Table Mountain, California, and Mount Brukkaros, South West Africa.

The institution and the government bureaus under its direction published during 1931, 98 volumes and pamphlets, of which 205,711 copies were distributed to libraries, educational institutions, and individuals. The unrestricted income of the institution, averaging about \$75,000, was derived from interest on its endowment funds, which in 1931 amounted to a little more than \$1,100,000. Secretary, Dr. C. G. Abbot; assistant secretary, Dr. Alexander Wetmore.

**SNUFF.** See **TORACCO**.

**SOCCER.** The New York Yankees captured national honors in the annual cup competition of the U. S. Football Association in 1931, winning the Eastern championship rather easily and then defeating the Chicago Bricklayers in the national championship final.

Two visits to the United States by foreign teams made the season noteworthy. The famous Glasgow Celtics lived up to their reputation, winning nine games, tying one, and losing three. The three defeats, at the hands of the Yankees, Fall River and Pawtucket, came in the nature of surprises. The Racing Club of Madrid, coming over in October, was not as successful. Three games were won, a like number lost and two tied.

Defeating the German-Americans in the final, the Prague Football Club won the New York State Association cup. The University of Pennsylvania and Army teams were strongest in the intercollegiate ranks.

In England the following teams were the winners: English Cup, West Bromwich Albion; English League, Arsenal of London; Scottish Cup, Glasgow Celtics; Scottish League, Glasgow

Rangers; Irish League, Glentoran; Dominion Cup, Westminster Rangers.

**SOCIAL ECONOMICS.** See **CHILD LABOR**; **COÖPERATION**; **LABOR LEGISLATION**; **MATERNITY PROTECTION**; **MINIMUM WAGE**; **OLD AGE PENSIONS**; **STRIKES AND LOCKOUTS**; **WOMEN IN INDUSTRY, ETC.**; also **LITERATURE, ENGLISH AND AMERICAN**.

**SOCIAL INSURANCE.** See **MATERNITY PROTECTION**; **OLD AGE PENSIONS**; **UNEMPLOYMENT**; **WELFARE WORK**; **WORKMEN'S COMPENSATION**.

**SOCIALISM.** **INTERNATIONAL ACTIVITIES.** The fourth congress of the Socialist Workmen's (Amsterdam) International, which met in Vienna July 27, 1931, was attended by more than 600 representatives of 34 Socialist parties in all parts of the world. A number of other international Socialist organizations met in Vienna at the same time, including 70,000 European workers who assembled for the Socialist Olympiad. The solidarity of the French, Belgian, and German Socialists was affirmed by Emile Vandervelde, Belgian Socialist leader, and other speakers. M. Vandervelde reiterated the demand of the Second International for the restriction of reparation payments to direct damage done to civilian populations in the War, the cancellation of all other war debts, and disarmament.

**SOCIALISM IN THE UNITED STATES.** In a report to the Socialist party of America covering 1931, Executive Secretary Clarence Senior reported an increase in the party membership and the establishment of 96 new locals or branches. Minor Socialist gains were recorded in municipal elections held during the year. Although the party's vote in Reading, Pa., increased, the Socialist ticket was defeated by a fusion of Republicans and Democrats. A Socialist resolution for an amendment to the Federal Constitution authorizing the U. S. Congress to establish uniform labor laws throughout the country was defeated in the Pennsylvania House of Representatives by a vote of 102 to 79. Other party activities during the year included the establishment of a national press bureau in Washington, unemployment relief work among the miners of Western Pennsylvania and Eastern Ohio, the introduction of unemployment relief and other social measures in various State legislatures, and agitation for the release of Tom J. Mooney (See **CALIFORNIA**). The executive secretary reported that bills making it difficult for minority parties to appear on ballots had been introduced in many State legislatures and that in Illinois, Ohio, and several other States the position of the Socialist party had, in consequence, been weakened. See **NEW YORK** under *Political and Other Events*.

**SOCIALISM IN OTHER COUNTRIES.** The Socialist movement in Great Britain, Australia, New Zealand, and Germany sustained severe electoral setbacks during 1931, due partly to financial stringency in the national finances and the relatively heavier burden of social services. A similar tendency was noted in the Scandinavian countries. In Germany, Austria, and Finland the Socialist groups were confronted with armed and hostile Fascist organizations. In France, on the other hand, the tide of public sentiment was reported to be swinging toward the Socialist and Radical Socialist parties, particularly the latter. See the articles on each country under *History*; also **COMMUNISM**, **TRADE UNIONS**.

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*temporary Social Movements* (New York, 1930); Harry W. Laidler, *Concentration in American Industry* (New York, 1931).

**SOCIAL PROGRESS, INTERNATIONAL ASSOCIATION FOR.** An international association, of which the Association for Labor Legislation is the American section, created in 1925 by amalgamating three former allied organizations, the International Association for Labor Legislation, the International Social Insurance Committee, and the International Association on Unemployment. The general assembly met at Paris, Oct. 19-22, 1931, with Dr. Karl Renner, former Chancellor of Austria, presiding. Following reports from the various national sections a resolution was adopted calling for the formulation of a convention establishing principles of international law in regard to migrations; a resolution was adopted for the consideration of wage levels at the 1933 general assembly; a third resolution recommended study of seasonal unemployment in the building trades, and further consideration was to be given to the respective functions of relief and insurance in providing against social risks. The association publishes a periodical, entitled *L'Avenir du Travail*, edited by the general secretary, A. Boissard, at the international headquarters maintained at Basel, Switzerland. See LABOR LEGISLATION, AMERICAN ASSOCIATION FOR.

**SOCIAL PSYCHOLOGY.** See PSYCHOLOGY.

**SOCIAL SCIENCE.** See CHILD WELFARE; OLD AGE PENSIONS; WELFARE WORK.

**SOCIAL STATISTICS.** See WELFARE WORK.

**SOCIETY ISLANDS.** See OCEANIA, FRENCH ESTABLISHMENTS IN.

**SOCIOLOGY.** See LITERATURE, ENGLISH AND AMERICAN.

**SÖDERBLOM, THE MOST REV. LARS OLOF JOHNATHAN (NATHAN).** A Swedish prelate of the Lutheran church and ecclesiastical historian, died in Upsala, July 12, 1931. He was born in Trönö, Jan. 15, 1806, and was educated at Hudiskväll and the University of Upsala. After serving as pastor of the Swedish church in Paris from 1894 to 1901, he became in 1901 professor of relative history at the University of Upsala in 1912 professor of comparative religions at the University of Leipzig. In 1914 he was made Archbishop of Upsala, pro-chancellor of the University of Upsala, and Primate of Sweden. In 1925 he was one of the leaders of the Christian Conference on Life and Work held in Stockholm and two years later was one of the moving spirits of the World Conference on Faith and Order in Lausanne, Switzerland.

He was elected to the Swedish Academy in 1921, and received the Nobel Peace Prize for 1930 in recognition of his untiring efforts to unify the churches of northern Europe in the cause of international peace. His works include *Främmande religionsurkunder* (4 vols, 1908); *Religionsproblemet* (2 vols., 1910); *Natürliche Theologie und allgemeine Religionsgeschichte* (1913); *Ur Religionens historia* (1915); *On the Character of the Church of Sweden* (1915); *Religionen och staten* (1918); *När stunderna väla* (4 vols., 1921); *Christian Fellowship* (1923), also in German, Swedish, and Dutch; *Kristenhetens Moete* (1926); *Kristi Pinns Historia* (3d ed., 1928); *Die Einheit der Kirche und der päpstliche Stuhl* (1928); *The Church and Peace* (1929); *Tal och Skrifter* (published in 7 volumes, 1929-30).

**SOILS.** Land classification, valuation, and adaptation, soil erosion and moisture conservation, soil chemistry, soil fertility, soil physics, soil microbiology, and the relation of soil colloids to soil dynamics were among the more important topics receiving special consideration by soil investigators in 1931.

The trend toward more discriminating use of soils in the United States became widespread and culminated in a National Land Utilization Conference which was called by the Secretary of Agriculture and the Association of Land Grant Colleges and Universities. The recommendations growing out of this conference included strengthening the administration of public lands to obtain conservation and rehabilitation of the grazing ranges of the public domain, more efficient watershed protection, centralization and protection of State school lands, the making of an economic inventory of land resources, strengthening the administration of the several homestead acts to provide for supervision of land available for homemaking, the classification of lands opened for homestead entry, and the withdrawal of marginal and submarginal lands from homestead entry; readjustment of land taxation for more equitable distribution of the tax burden, the licensing and regulation of land development enterprises, the confining of reclamation activities to the finishing of projects under way and the rehabilitation of deficient water rights on lands now cultivated and occupied, the development of a coordinated Federal and State programme to govern the utilization of the extensive areas of marginal lands, public retention acquisition of lands not adapted for private utilization, the undertaking of a programme of soil conservation, land classification, and the initiation of a study of decentralization of industry and its effect on land utilization.

*The Report of the Secretary of Agriculture for 1931* pointed to the need to adjust the national agricultural policy, particularly the land policy, to the changing conditions and outlook. This implies an economic classification of land resources which should be readjusted from time to time to conform to fundamental changes in economic conditions. Developments unfavorable to agriculture during 1930 were reflected by severe declines in farm real estate values in nearly all parts of the country. According to this *Report*, not since 1922 had land values dropped in any year to such an extent as during the year ended Mar. 1, 1931. The index of estimated value per acre for the United States as a whole decreased from 115 per cent of the pre-war level to 106 per cent.

The sections reporting the greatest declines in farm land values, relative to 1930 levels, were the West North Central and West South Central States, the decline averaging 11 per cent. The East North Central and South Atlantic groups reported average declines of 9.4 per cent, the East South Central 8.6 per cent, the Middle Atlantic 4.7 per cent, the Mountain States 2 per cent, the Pacific States 1.4 per cent, and the New England States 0.8 per cent. The States reporting the greatest percentage of decline were Arkansas, North Carolina, Missouri, South Carolina, and Iowa. An appreciable and rather general demand for farm lands to rent resulted from the influence of urban unemployment.

The Bureau of Chemistry and Soils continued

the nation-wide inventory of the soil fertility resources of the United States. The soil survey continued to furnish a valuable basis for the classification, selection, and economic adaptation of soil types. This practice continued to be world wide and the United States retained the lead in such work. During the year the Department of Agriculture conducted soil-survey work in 85 separate areas distributed over 30 States and two insular territorial possessions. Thirty-nine of these areas were completed. Detailed surveys aggregating 28,530 square miles and reconnaissance surveys to the extent of 14,014 square miles were covered during the year, bringing the total acreage for the detailed survey to over 528,000,000 and the reconnaissance survey to nearly 400,000,000, according to the *Report of the Chief of the Bureau of Chemistry and Soils for 1931*.

Continued progress was made by the several State organizations cooperating with the U. S. Department of Agriculture in the proper correlation and classification of soils. The Department of Agriculture also extended the soil survey into mountainous areas and into the areas of the national forests to a greater extent than ever before. The information obtained is of value in determining the distribution of the areas where different kinds of timber or different species of grasses may be grown most successfully.

Continued progress was made in the classification of muck and peat soils. A detailed survey and classification of peat soils in the Erie-Ontario Basin and other areas of New York State was carried out and three principal series of organic soils and 12 type profiles were established and described. Information also accumulated regarding means of turning unprofitable, submarginal peat lands to commercial and industrial uses other than farming. Marked progress was made in the comparison and correlation of profile data and the work in peat investigation and its service steadily expanded. Interest was growing in the characteristics and possible economic utilization of the alluvial lands in various parts of the United States and a compilation was made of these areas and a study begun of their general character.

Soil impairment by erosion and runoff continued to be recognized as one of the most important problems confronting American agriculture. The investigations of the Department of Agriculture were expanded by the establishment of three additional erosion experimental stations in defined major soil regions. The work already in operation was enlarged and considerable information accumulated on soil and water losses under various controlled conditions of soil type, slope, and character of rainfall. This made it possible to interpret the basic principles of erosion, runoff, and water penetration with sufficient clearness to permit the practical application of the results in the planning, installing, and perfecting of erosion control and water conservation methods of both engineering and agronomic types.

It was learned that the rate of soil removal on some types of land, occupying moderately steep slopes, is so rapid as practically to preclude its conservation when used for clean-tilled crops except under systems of strip farming supplemented by terracing, or terracing supplemented by soil-saving crops grown in rotation with the clean-tilled crops. Strip subsoiling also

gave promise as a means of soil and water conservation and the effectiveness of substantially built graded terraces was demonstrated on the rolling parts of the red plains of Oklahoma, not only in slowing down erosion but in rehabilitating erosion-denuded land.

New light also was thrown on the function and importance of forest litter and leaf mold in runoff prevention which pointed to a number of possibilities for vegetative erosion control. The reconnaissance erosion survey of the United States was continued, an area of 27,114,240 acres, covering all or part of 70 counties in the drainage basin of the Brazos River being completed. Measurements of the annual losses of soil by erosion were continued and extensive field observations in 34 States indicated that the topsoils of 115 important types of farm land average only nine inches in depth and are being washed away at the rate of seven inches in about 30 years. A soil saving cultivator was developed by the Bureau of Chemistry and Soils and the Kansas Agricultural Experiment Station which gave promise of causing more of the rainfall to sink into the soil, thereby reducing erosion.

The demand continued for more accurate and specific information regarding the fertilizer requirements of crops on soils of known character, and soil fertility studies continued to concentrate in that direction with particular reference to the needs of cotton, potatoes, sugar beets, small fruits, citrus fruits, truck crops, nuts, peaches, and sugar cane. Soil fertility and fertilizer investigations covering the influence of fertilizer composition and ratio on the shape, quality and yield of potatoes were completed. Additional evidence was obtained of the crop producing and economic value of some of the newer concentrated fertilizers, but the necessity again was emphasized of exercising precaution in placing and distributing these materials on soils subject to leaching.

Results obtained during the year indicated that, on such soils where systematic rotations are not practiced, the continued use of the relatively pure fertilizer salt mixtures may create serious deficiencies of minor elements like manganese, boron, copper, iodine and similar elements. The evidence continued to accumulate that the addition of calcium, magnesium, and a number of the heavy metals such as nickel, copper, zinc, and manganese to concentrated fertilizers increases the yields of crops on most soils. This was particularly true with such crops as cotton and tomatoes on soils of the Atlantic and Gulf Coastal Plains.

The relation of soil reaction to crop production continued to receive much attention, with particular reference to its influence on the prevalence and severity of certain crop diseases and on crop yields. The investigations of cotton root rot were continued and expanded to provide for trials of new fertilizers, more comprehensive tests of phosphate sources and particle sizes of new fertilizers, experiments leading to a more practical and economical system of fertilizer usage, and the extension of tests on the effects of subsoiling and deep tillage. Evidence continued to accumulate that soils low in phosphoric acid are conducive to cotton root rot and that the increase in yield of cotton and the acceleration of maturity resulting from the use of fertilizer mixtures containing combinations of phosphate



and nitrogen may constitute effective means of offsetting and evading losses due to root rot. Late summer subsoiling in conjunction with a rotation crop also developed into a successful means of reducing root-rot infestation according to the Bureau of Chemistry and Soils and the Texas Agricultural Experiment Station.

Laboratory studies were in progress to determine the maximum field moisture carrying capacity of the horizons of each soil profile, with a view to the correlation of this property with field data. Basic information also accumulated regarding the physical and chemical character of soils which erode badly. A study of field percolation rates was completed showing that percolation in the field is governed to a much greater extent by holes, cracks, and crevices than by the mechanical composition of the soil. The capacity of the soil to disperse in water and to fill such cracks is the most important factor in regulating the rate of water percolation through soils. Important information continued to accumulate, especially at the State agricultural experiment stations, relating to the functions and behavior of soil colloids, with particular reference to base exchange phenomena and availability of soil nutrients to plants.

Work was carried almost to completion on soil colloids as semipermeable membranes by the Bureau of Chemistry and Soils, indicating a general relationship between the osmotic pressure developed with soil colloids as membranes and the major chemical constituents of the colloids.

**BIBLIOGRAPHY.** Advances in the knowledge of the sciences of soil technology, microbiology, and fertility appear currently in *Soil Science*, published in Baltimore, Md., and in *Journal of the American Society of Agronomy*, published at Geneva, N. Y. Recent books on these subjects are E. Blanck, *Handbuch der Bodenlehre II* (Berlin); F. E. Bear, *Soil Management* (New York, 1931); S. A. Waksman and R. L. Starkey, *The Soil and the Microbe* (New York, 1931); *Recherches Chimiques sur les Sols Podzolises-Leur Amelioration* (Toulouse, 1930); and A. B. Hulbert, *Soil: Its Influence on the History of the United States* (New Haven, 1930). See **FERTILIZERS**.

**SOKOLOW**, NAHUM. See **JEWS**.

**SOLAR PHYSICS**. See **PHYSICS**.

**SOLOMON ISLANDS**. A group of islands in the western Pacific, lying to the eastward of Papua. The southern islands of the group (Guadalcanar, Malaita, Ysabel, San Cristoval, New Georgia, Choiseul, Shortland, and numerous smaller ones) are known as the British Solomon Islands and are under the protection of Great Britain. The land and sea area of the British Solomon Islands is about 375,000 square nautical miles; population, 150,000 natives and 447 Europeans (December, 1929). Headquarters of the British Resident Commissioner are at Tulagi.

The northern islands of the Solomon group (Bougainville, Buka, and adjacent small islands) were formerly German possessions and now form part of the Territory of New Guinea under Australian mandate. The area of this group is about 4100 square miles and the native population of patrolled areas was 38,619, in 1929. See **NEW GUINEA**.

**SOMALILAND**, ITALIAN. See **ITALIAN SOMALILAND**.

**SOMALILAND**, sō-mā'lē-lānd, **PROTECTORATE**. A British territory on the African coast of the Gulf of Aden, bounded by Italian

Somaliland, Ethiopia, and the French Somali Coast. Area, about 68,000 square miles; population estimated at 344,700, mostly Mohammedan and entirely nomadic except for permanent settlements on the coast. The capital and chief port is Berbera, with about 30,000 inhabitants. Stock raising is the main occupation in the interior. Governor in 1931, Sir H. B. Kittermaster, appointed Jan. 26, 1926.

**SORGHUM**. See **HAY**.

**SOUND PICTURES**. See **MOTION PICTURES**; **PHOTOGRAPHY**.

**SOUND STUDIES**. See **PHYSICS**.

**SOUTH, UNIVERSITY OF THE**. A Protestant Episcopal institution for the higher education of men in Sewanee, Tenn., founded in 1857. The enrollment for the autumn term of 1931 was 248, of whom 232 were registered in the college and 19 in the theological school. The faculty had 28 members, exclusive of student assistants. The income from productive funds was \$64,500, while the receipts from all sources totaled \$316,190. The library contained 44,671 volumes. President, Benjamin Ficklin Finney, LL.D.

**SOUTH AFRICA, UNION OF**. A self-governing dominion of the British Commonwealth of Nations. Capital, Pretoria; seat of the legislature, Cape Town.

**AREA AND POPULATION**. The area and population of the Union by Provinces is shown in the accompanying table:

AREA AND POPULATION BY PROVINCES

Province	Area, square miles	Non-European 1921	European	
			1921	1931
Cape of Good Hope ...	276,536	2,132,110	650,609	748,455
Natal .....	35,284	1,292,560	136,838	177,424
Transvaal ..	110,450	1,544,151	543,485	695,963
Orange Free State ....	49,647	440,271	188,556	205,324
Total ..	471,917	5,409,092	1,519,488	1,827,166

Of the total white population in 1931, more than 55 per cent were of Dutch origin and about 36 per cent were British. No enumeration of the colored and native population was made in connection with the census of Europeans taken in May, 1931. However, the total population in 1930 was estimated at 8,014,000, of which 1,799,000 were Europeans and 6,215,000 non-Europeans (5,438,700 natives, 188,800 Asiatics, and 587,500 mixed and other colored persons). The 1931 census showed a gain of about 9 per cent in the European population in five years; Transvaal, the fastest growing area, gained 14 per cent. The urban white population increased in all Provinces, but only Transvaal reported a rural increase. For the European population, the average annual number of births from 1926 to 1930 was 45,421 and of deaths 16,912, the respective rates per 1000 inhabitants being 26.1 and 9.6. Immigrants in 1930 numbered 7101 and emigrants 5699; of these 5904 and 4623, respectively, were Europeans.

The estimated total population of the chief cities in 1930, with 1931 census figures of the white population in parentheses, was: Johannesburg, 330,595 (205,544); Cape Town, 264,892 (146,249); Durban, 116,215 (86,296); Pretoria, 74,821 (61,627); Port Elizabeth, 62,824 (43,748); Benoni, 48,700; Bloemfontein, 47,714 (28,361).

**EDUCATION**. In 1930 there were 703,786 stu-

dents in state and state-aided schools (other than schools of higher education), of which 358,786 were Europeans and 345,000 non-Europeans. A total of 7155 students were enrolled in the 10 institutions of university rank, the principal ones being the universities of Cape Town, Stellenbosch, Witwatersrand, and Transvaal University College (Pretoria).

**PRODUCTION.** Of about 10,000,000 acres under cultivation in 1930, approximately 60 per cent was devoted to cereals, with corn dominant. The yields of the chief crops in 1930-31, with 1929-30 figures in parentheses, were (in bushels except as indicated): Wheat, 10,180,000 (11,140,000); barley, 1,046,000 (2,007,000); oats, 5,920,000 (10,289,000); corn, 61,254,000 (80,382,000); potatoes, 4,635,000 (8,063,000); sugar cane, 2,798,000 short tons in 1929-30; tobacco (Europeans only), 12,000,000 pounds (13,000,000); cotton, 5,736,000 pounds (5,750,000). The wine production in 1929-30 was 19,720,000 gallons; groundnuts, 20,390,000 pounds. Livestock in 1929 included 10,518,000 cattle, 804,000 swine, 45,012,000 sheep, and 7,894,000 goats. Wool production for the season ended July 30, 1930, was 307,000,000 pounds, the largest recorded; mohair production was 9,338,000 pounds.

Mineral production in 1930 was valued at £58,985,000 (£60,599,000 in 1929). The Union is the chief gold and diamond producing region of the world. The value of output of the principal minerals in 1930 was: Gold, £45,520,000; diamonds, £8,341,000; coal, £3,497,000; copper, £502,000; asbestos, £341,000; platinum, £299,000. Gold production in 1931 was estimated at 10,874,145 fine ounces (10,716,351 fine ounces in 1930), valued at £45,772,843 (see GOLD). With the completion of a connecting railway line, important manganese deposits at Postmasburg were brought into production in 1930. Vanadium and chrome are also produced. For the year ended June 30, 1929, manufacturing establishments employed 217,660 workers and 934,515 horse power, producing commodities valued at £113,441,000, of which £54,619,000 represented the value added in process of manufacture.

**COMMERCE.** Foreign trade declined approximately 20 per cent in 1930, as compared with 1929, imports showing the greatest decrease. Imports were valued at £64,559,000 (£83,467,000 in 1929) and exports at £67,931,000 (£80,943,000 in 1929). In 1931, according to preliminary returns, imports were valued at 52,975,000 South African pounds and exports at 71,936,000 South African pounds (\$4.8665 at par). The 1930 exports were marked by large decreases in the value of wool and diamond shipments and the increase of nearly 300,000 ounces in gold bullion. The volume of exports was only slightly lower than in 1929. Gold bars, wool, diamonds, corn, and hides and skins, in the order named, were the chief exports. The United Kingdom furnished 44.7 per cent of all imports (43.3 in 1929) and purchased 74.3 per cent of all exports (68.8). Respective shares of the United States were 15.3 and 1.8 per cent. The total value of goods imported in 1931 was £52,974,882 (South African pounds of \$4.8665); exports amounted to £71,936,571 and the excess of exports to £18,961,689 (provisional figures).

**FINANCE.** The fiscal year ending Mar. 31, 1931, closed with a net deficit of £1,212,000, compared with a surplus of £300,000 for the preceding fiscal year. According to estimates, receipts in

1930-31 were about £28,300,000 and expenditures £30,000,000; for 1931-32, budget estimates were reported at £27,513,000 and £29,389,000, respectively. To meet the 1930-31 deficit and the 1931-32 estimated expenditures, new taxation aggregating £2,160,000 was imposed, but an accumulated deficit of £780,000 was anticipated at the end of March, 1932. The Government of the Union remained on the gold standard throughout 1931, despite abandonment of gold by Great Britain. It also declined to accept the British Government's offer of a moratorium on its debt, the payments on which totaled about £337,500 annually. The gross debt of the Union on Mar. 31, 1930, was £249,651,000 and the net debt was £232,091,000. Of the gross debt, £155,997,000 was external and was all floated in London.

**COMMUNICATIONS.** The railway mileage in 1930 was 13,284, all government owned except 400 miles of private line. For the year ended Mar. 31, 1931, the government railways reported operating revenues of £24,321,854 and expenditures of £19,308,4444, compared with £28,130,549 and £20,878,539, respectively, for 1929-30. Access to the west coast of Africa from the South African railway system was made possible in 1931 by the extension of the Benguela Railway to meet the Katanga Railway in the Belgian Congo. Highways in 1930 extended 85,598 miles, of which 680 miles were macadam. In 1930, 1579 vessels, of 5,415,000 net registered tons, entered South African ports in the foreign trade and 1601 vessels, of 5,447,000 tons, cleared. Durban is the chief port, handling 42 per cent of the volume of all imports and 72 per cent of the total exports in 1930.

**GOVERNMENT.** The executive power is vested in a governor-general, appointed by the Crown, who acts through an executive council of ministers, each in charge of a department. Legislative power rested (1931) in a parliament, consisting of a senate of 40 members, of whom eight were nominated by the governor-general-in-council and 32 by the Provinces (eight each), and a house of assembly of 148 members, distributed among the Provinces as follows: Cape of Good Hope, 58; Transvaal, 55; Natal, 17; and Orange Free State, 18; the basis of suffrage being the same as that existing in each Province at the time of the formation of the Union. The executive council in 1931 was composed as follows: Prime Minister and Minister of External Affairs, General J. B. M. Hertzog; Interior, Health, and Education, Dr. D. F. Malan; Mines and Industries, A. P. J. Fourie; Railways and Harbors, C. W. Malan; Finance, N. C. Havenga; Justice, O. Pirow; Defense and Labor, Col. F. H. P. Creswell; Agriculture, Gen. J. C. G. Kemp; Lands, P. G. W. Grobler; Posts and Telegraphs and Public Works, H. W. Sampson; Native Affairs, E. J. G. Jansen.

The composition of the Assembly, following the elections of June, 1929, was: Nationalists, 78; South African party, 61; Labor (Creswell), 5; Labor (National Council), 3; Independent, 1. Governor-General and Commander-in-Chief in 1931, Earl of Clarendon, appointed January, 1931.

**HISTORY.** The refusal of General Hertzog's Nationalist Government to follow the example of Great Britain in abandoning the gold standard (Sept. 21, 1931) gave rise to the major political issue of 1931. The predominant British financial interests, merchants, and the producers of pri-

mary products vigorously opposed the Government's policy, which seriously dislocated South Africa's foreign trade. On the other hand, the Government was able to save some £2,500,000 on each of its semi-annual interest payments in London as a result of the 30 per cent depreciation in sterling. Preservation of the gold standard was also favored by the Afrikaaner, or Boer, majority of the white population as a step toward the elimination of South Africa's dependence upon the British financial system. Earlier in the year there had been strong evidence of a revival of the Afrikaner movement for the establishment of a republic and the break with sterling was in line with republican wishes.

The conflict over the gold standard thus tended to emphasize the schism between the Boer and British elements in the population. But it also cut across racial lines. There were many Afrikaners among the farmers and wool producers, who were unable to sell their products in either non-gold standard countries, owing to exchange losses, or in gold standard countries, which could buy more advantageously in Australia and other countries with depreciated currencies. To conciliate the farmers, the Government on October 29 established an export subsidy of 10 per cent on all primary exports except golds, diamonds, and sugar. The subsidy was paid out of a special primage duty of 5 per cent ad valorem on all imports. In November the Government called a special session of Parliament, which approved its monetary policy and the export subsidy on November 25 by a vote of 78 to 53. The Government thereupon affirmed its intention of remaining on the gold standard permanently. At the close of the year, however, a strong opposition campaign was under way, led by Gen. Jan Christiaan Smuts, head of the South African party.

Earlier in the year the Government found it necessary to intervene on behalf of many farmers reduced to desperate straits by the collapse of agricultural prices. A bill was passed by Parliament providing for the raising of an internal loan of \$25,000,000 with which to guarantee farmers' debts up to an individual maximum of \$5000. During the summer General Hertzog told the Nationalist Party Congress at Pretoria that the Government had decided upon the gradual abolition of the system of provincial councils. His primary objective was the centralization of financial control of the Provinces in the Union Government. The increase in the European population revealed by the census of May, 1931, involved important changes in parliamentary representation. The House of Assembly was to be expanded to its maximum of 150 members provided for under the Act of Union, with Cape of Good Hope having 61 seats, Transvaal 57, Natal 16, and the Orange Free State 16. Consult Jan H. Hofmeyr, *South Africa* (London, 1931). See MILITARY PROGRESS.

**SOUTH AMERICA.** See under the various South American countries; EXPLORATION.

**SOUTH AMERICAN LITERATURE.** See SPANISH-AMERICAN LITERATURES.

**SOUTHAMPTON, ENGLAND, HARBOR IMPROVEMENTS.** See PORTS AND HARBORS.

**SOUTH AUSTRALIA.** A state of the Australian Commonwealth, occupying the south central part of the continent. Area, 380,070 square miles; population, 495,160 at the census of 1921, as compared with an estimate of 582,127 on Jan.

1, 1931. Adelaide, the capital and largest city, had 324,420 inhabitants on the latter date, a decrease of 478 during 1930. Births in 1930 exceeded deaths by 5133, but 3277 more emigrants left the State than the number of immigrants entering. Accordingly the total estimated increase for 1930 was 1856, compared with 923 in 1929 and 14,761 in 1926.

Education is free and compulsory. In 1929, there were 1067 public schools, with 93,029 pupils, and 189 private schools, with 16,087 pupils. There is a State university at Adelaide. The value of production in 1928-29 aggregated £36,177,658, divided as follows: Crops, £13,152,360; manufactures (value added in process), £12,163,066; pastoral, £5,615,431; dairying, £1,842,364; minerals, £1,032,952; fisheries, game, poultry, forestry, etc., £1,317,546. Wheat is the principal crop; production in 1930-31 was estimated at 34,871,000 bushels from 4,120,000 acres (23,345,093 bushels in 1929-30). Barley, oats, hay, and grapes are other leading crops. Wine production in 1929-30 totaled 12,188,651 gallons. The wool output in 1930 was 67,300,881 pounds from 5,500,000 sheep.

The value of direct oversea imports for the year ended June 30, 1930, was £9,228,785; of direct oversea exports, £15,009,496; for 1930-31, imports were £3,911,596 and exports £10,067,986. Wool, wheat, flour, minerals, meats, wine, fruits, hides, and leather are the leading exports. The State faced a critical financial situation in 1931 (see AUSTRALIA under *Finance and History*). For the fiscal year ended June 30, 1930, revenue totaled £10,551,061 and expenditure £12,176,840. In the same year the net State loan expenditure was £2,493,287. The total net debt June 30, 1930, was £93,977,794, or about \$787 per capita. The budget for 1930-31 estimated receipts at £12,764,050 and expenditures at £12,747,583. There were 2536 miles of government-owned railway open for traffic in the fiscal year 1929-30, which reported a net loss for the year of \$8,747,630, bringing the cumulative deficit to \$154,385,287.

Executive power is vested in a governor appointed by the Crown and an executive council composed of six Ministers responsible to Parliament and the Chief Justice of the Supreme Court. Parliament consists of a legislative council of 20 members and an assembly of 46 members elected for three years. The Assembly elected Apr. 5, 1930, was composed of 30 Laborites, 13 Liberals, 2 Country party members, and 1 Independent. Governor in 1931, Sir Alexander G. A. Hore-Ruthven. Premier, Treasurer, and Minister of Education, L. L. Hill (Labor). See AUSTRALIA.

**SOUTH CAROLINA. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 1,738,765, in 1920 it was 1,683,724. The native whites became the predominant part of the population, increasing to 938,774 (1930), from 812,137 (1920); while the Negroes decreased to 793,681 (1930), from 864,719 (1920). The scattering of foreign-born whites diminished to 5266 (1930), from 6401 (1920). There were, in 1930, 959 Indians. The urban population—those living in places of at least 2500 inhabitants—increased sharply to 371,080 (1930), from 293,987 (1920). The rural fell off slightly to 1,367,685 (1930), from 1,389,737 (1920).

Of 687,721 persons reported as in the gainful occupations in 1930, 344,641 or almost exactly one half, were in agriculture, 152,224 farmers

included; in manufacturing and mechanical industries were 145,174, whereof 74,196 were in cotton mills; in trade were 49,172; in domestic or personal service, 68,131; in transportation, 30,189; in professional service, 28,459.

Charleston, the most populous city, had 62,205 inhabitants (1930), 67,957 (1920); Columbia, the capital, 51,581 (1930), 37,524 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton	1931	1,940,000	1,015,000*	.....
	1930	2,173,000	1,001,000*	.....
Corn	1931	1,608,000	22,994,000	\$10,117,000
	1930	1,531,000	22,200,000	19,980,000
Tobacco	1931	98,000	70,070,000*	6,448,000
	1930	116,000	98,600,000*	11,832,000
Oats	1931	378,000	9,450,000	8,688,000
	1930	344,000	7,912,000	5,855,000
Hay, tame	1931	244,000	178,000*	2,118,000
	1930	200,000	144,000*	2,707,000
Sweet potatoes	1931	53,000	3,180,000	2,067,000
	1930	49,000	4,655,000	8,724,000
Potatoes	1931	25,000	3,550,000	2,486,000
	1930	21,000	2,885,000	3,866,000

\* Bales.    ♢ Pounds    ° Tons.

**MINERAL PRODUCTION.** The chief feature of the State's mineral industry, the quarrying of stone, was less active in 1929, the output for that year falling to 1,067,060 short tons, from 1,278,190 tons for 1928; by value, to \$1,702,575 (1929), from \$2,203,863 (1928). Clay products, next in importance, attained a value of \$1,252,817 for 1929 and \$1,462,055 for 1928. The raw clay extracted, which did not all go into the State's clay products, was valued at \$896,472 for 1929 and \$1,000,103 for 1928. The total value of the mineral production of the State was \$3,592,112 for 1929; for 1928, \$4,045,849.

**MANUFACTURE.** Figures gathered by the Federal Census in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 1658. These establishments employed 108,000 wage earners (a decrease of 0.4 per cent from the number employed in 1927). The wages paid these earners amounted to \$73,231,687 (1.6 per cent less than payments of 1927 for wages). Materials for manufacture, plus fuel and purchased electricity, cost \$227,103,083 (an excess of 10 per cent over these costs for 1927). The manufactured product attained the value of \$385,339,461 (exceeding the total for 1927 by 7.5 per cent). Value added by manufacture was estimated as \$158,236,378. Columbia, among the manufacturing centres, had 67 establishments, 3769 wage earners, a wage total of \$3,404,850, and a product of \$18,107,816. Charleston had 54 establishments, 2770 wage earners, a wage bill of \$2,619,304 and a product of \$19,765,055.

**FINANCE.** State expenditures of the year ended Dec. 31, 1930, as reported to the United States Department of Commerce, were: for maintenance and operation of governmental departments, \$14,211,250 (of which \$3,857,284 was for local education); for interest on debt, \$2,354,867; for permanent improvements, \$13,602,972; total, \$30,170,940 (of which \$15,578,935 was for highways, \$2,226,268 being for maintenance and \$13,352,667 for construction). Revenues were \$21,331,317. Of these, property and special taxes formed 26.5 per cent; departmental earnings and remuneration to the State for officers' services, 6.5; sale of licenses, 59.9 (including gasoline sale

taxes amounting to \$6,108,624). The State's funded debt outstanding on Dec. 31, 1930, was \$56,859,658. Net of sinking fund assets, it was \$56,478,741. On a property valuation of \$415,390,125 were levied in the year State taxes of \$2,803,192.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 3779.67. There had been brought into operation, during the year preceding, 3 miles of line, but 2.28 miles had been abandoned.

**EDUCATION.** There were enrolled in the academic year 1930-31, in the public schools of the State, 461,813 pupils, of whom 240,091 were white and 212,722 were colored. The reported enumeration of inhabitants of school age being 637,613 (339,736 white and 333,877 colored), the percentage of enrollment was 73 for whites, 64 for the colored and 69 for all. Those enrolled in elementary schools or grades numbered 202,231 whites and 203,816 Negroes: 406,047 in all. In high schools were enrolled 46,800 whites and 8006 Negroes: 55,766 in all. The year's current expenditures for public school education totaled \$11,005,845 for white schools, \$1,566,471 for colored and \$12,572,316 for all. Teachers' salaries averaged, by the year, \$967 for whites, \$315 for Negroes, and \$739 for all teachers.

**LEGISLATION.** The General Assembly held a regular biennial session, the longest since 1871, concluding on May 9, after a duration of 118 days. Rigid measures of retrenchment were adopted. The appropriation bill as enacted and signed imposed reductions in the salaries of practically all State employees. The Attorney General and the State Tax Commission were authorized by the Legislature to settle a pending litigation over taxes of the Southern Railway Company for not less than \$240,000, or not quite three-fifths of the total sought for income taxes as due for the years 1921-25. The annual appropriations were reduced by some \$1,275,000, to the neighborhood of \$10,000,000.

**Special Session.** Called in special session to deal with the excess of cotton, the Legislature met on September 14 and adjourned on the 24th. It passed an act to prohibit the planting of cotton in the State in 1932, as a measure to reduce the oversupply, provided that 75 per cent of the cotton area of the United States be likewise put under prohibition.

**POLITICAL AND OTHER EVENTS.** A dam, 7338 feet long, across the Saluda River, 14 miles northwest of Columbia, creating a reservoir of the capacity of 763,000,000 gallons and serving a hydro-electric plant of the Associated Gas and Electric Company, built by the J. G. White Company, was completed for service.

**OFFICERS.** Governor, Ibra C. Blackwood; Lieutenant-Governor, James O. Sheppard; Secretary of State, W. P. Blackwell; Treasurer, J. H. Scarborough; Budget Secretary, Walter E. Duncan; Attorney General, John M. Daniel; Comptroller-General, A. J. Beattie.

**JUDICIARY.** Supreme Court: Chief Justice, Eugene S. Blease; Associate Justices, Thomas P. Cothran, John G. Stabler, Jesse F. Carter, Milledge L. Bonham.

**SOUTH CAROLINA, UNIVERSITY OF.** A non-sectarian State institution of higher education in Columbia, chartered in 1801 and opened in 1805. The enrollment for the autumn session of 1931 totaled 1660, of whom 1067 were men and 593 women. The registration for the summer

session was 484. The faculty, including instructors, numbered 103. The appropriation by the General Assembly of the State of South Carolina was \$375,000 for the fiscal year. There were 110,000 volumes in the libraries. In the fall of 1931 the school of education occupied its new building, erected at a cost of \$300,000; this building was also to house the university high school. Acting President, Leonard T. Baker, A.M., LL.D.

**SOUTH DAKOTA. POPULATION.** According to the Fifteenth Census, the population of the State on Apr. 1, 1930, was 692,849; in 1920 it was 636,547. In composition, it was: native white, 603,805 (1930), 536,756 (1920); foreign-born white, 65,648 (1930), 82,391 (1920); Negro 646 (1930), 832 (1920); Indian, 21,833 (1930); Mexican, 816 (1930); and a scattering of Asiatics. The rural population, 561,942 (1930), 534,675 (1920), remained over five times the urban; but the latter, the dwellers in communities of at least 2500, rose to 130,007 (1930), from 101,872 (1920). Of 247,678 reported in 1930 as gainful workers, 130,786 were in agriculture, 28,902 in trade, 22,229 in manufacturing and mechanical industries, 17,936 in transportation, and 20,257 in professional service. The capital is Pierre. The most populous city, Sioux Falls, had 33,362 inhabitants (1930), 25,202 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1931	4,837,000	25,192,000	\$10,312,000
	1930	5,146,000	82,336,000	38,698,000
Hay, tame	1931	1,195,000	558,000*	4,464,000
	1930	1,178,000	1,076,000*	9,146,000
Wheat	1931	2,796,000	15,891,000	7,580,000
	1930	3,808,000	45,279,000	21,001,000
Oats	1931	1,745,000	20,068,000	4,415,000
	1930	2,385,000	70,358,000	14,775,000
Barley	1931	1,833,000	16,680,000	5,338,000
	1930	1,987,000	42,720,000	12,389,000
Flaxseed	1931	185,000	462,000	541,000
	1930	702,000	3,299,000	4,388,000
Potatoes	1931	54,000	2,160,000	972,000
	1930	58,000	3,654,000	3,471,000
Rye	1931	373,000	2,723,000	899,000
	1930	414,000	6,293,000	1,673,000

\* Tons.

**MINERAL PRODUCTION.** About three-fourths of the State's total of mineral production, measured by value, was derived in 1929 from the output of gold, essentially from the working of the Homestake mines. The production of gold increased conspicuously to 406,297 fine ounces for 1930, from 312,328 for 1929; by value, to \$8,398,900 (1930), from \$6,456,400 (1929). There was a subsidiary production of silver amounting in either year to less than \$50,000 in value. The yield of stone rose to 250,440 short tons for 1929, from 172,360 for 1928; by value, to \$635,890 (1929), from \$451,869 (1928). The total value of the State's mineral production was \$8,914,334 for 1929; for 1928, \$9,443,488.

The production of mines in South Dakota in 1931 was estimated at \$8,848,000 in gold and 109,000 ounces of silver, by the U. S. Bureau of Mines, as against \$8,418,008 in gold and 105,236 ounces of silver in 1930. The Homestake mine, at Lead, Lawrence County, the largest producing gold mine in the United States, was operated continuously. For 1930, this company's report showed 1,364,456 tons mined; the proceeds from gold-silver bullion by amalgamation followed by cyanidation of sands and slimes were

\$8,426,195; the dividends paid were \$2,009,280.

**MANUFACTURE.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 618 (nearly 10 per cent above the number for 1927). These establishments employed 6518 wage earners (17.4 per cent more than had been employed in 1927). Their wages totaled \$8,085,912 (19 per cent in excess of the total for 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$75,167,023 (nearly 19 per cent above the corresponding cost for 1927). The manufactured product of 1929 was valued at \$97,768,846 (an excess of 17.8 per cent over the 1927 total). Value added by manufacture was estimated as \$22,601,823. Sioux Falls had 75 establishments, 2393 wage earners, a wage total of \$2,794,414, and a product of \$47,170,805.

**FINANCE.** State expenditures of the year ended June 30, 1930, as reported to the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$9,489,270 (of which \$1,722,400 was for local education); for conducting public-service enterprises, \$625,672; for interest on debt, \$2,825,570; for permanent improvements, \$3,742,083; total, \$16,682,595 (of which \$5,344,172 was for highways, \$2,358,782 being for maintenance and \$2,985,390 for construction). Revenues were \$19,779,229. Of these, property and special taxes formed 27.3 per cent; departmental earnings and remuneration to the State for officers' services, 7.7; sale of licenses, 34.0 (including gasoline sales taxes amounting to \$3,749,134). The State's funded debt outstanding on June 30, 1930, was \$55,594,023. Net of sinking fund assets, it was \$10,795,814. On a property valuation of \$1,744,499,116 were levied in the year State taxes of \$5,279,476.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 4237.87. No additions of line had been made during the year preceding, while the operation of 49.58 miles had been given up.

**EDUCATION.** As reported in 1931, the number of persons of school age in the State was 214,503. The number of those enrolled as pupils in the public schools was 165,624. Of these, 134,286 were in common schools or elementary grades, and 31,338 in high schools. For the academic year 1929-30, the expenditures for public-school education totaled \$19,213,611. The annual salaries of teachers averaged \$1282.39.

There was installed on July 1, 1931, according to State superintendent Giffen, a uniform system of accounting in all the public schools. The law for the certification of teachers was practically rewritten by the Legislature.

**CHARITIES AND CORRECTIONS.** As administered in 1931, the activity of the State in the care and custody of persons was in the hands of the State Board of Charities and Corrections. This board was composed of three members, appointed by the Governor, one every three years. It governed and controlled the State's seven charitable and penal institutions. These, with their populations as reported in December, 1931, were: State Hospital for the Insane, Yankton, 1450; School and Home for the Feeble-Minded, Redfield, 520; State Penitentiary, Sioux Falls, 548; School for the Blind, Gary, 60; School for the Deaf, Sioux Falls, 120; Training School (reformatory), Plankinton, 150; State Tuberculosis Sanitarium, Custer, 300.

**LEGISLATION.** Among the enactments of the



regular biennial session of the Legislature was one for the construction of an annex to the Capitol Building; a commission was created, with the Governor as chairman, to supervise the work. Another measure heavily increased the license fees on heavy motor trucks and added an estimated 60 per cent to the allotments of revenue to counties for the construction and maintenance of highways. As a step to encourage the development of municipal utility plants, the power was given to municipalities to pledge the future earnings of such plants in order to secure the capital needed for them. By another measure, raising to 65 per cent, from 55, the vote necessary to approve the sale of a municipally owned public utility, the tendency of municipalities to sell out to private corporations was discouraged.

The State's representation in the Federal Congress having been reduced to two Representatives, from three, by the new reapportionment, the Legislature redistricted the State in accordance with the change. The old First and Second districts, having a combined population of some 550,000 and comprising the territory east of the Missouri River, were merged into a new First District; the old Third district, west of the river, with a population of some 175,000 became the new Second District.

**POLITICAL AND OTHER EVENTS.** The last band of the Hutterite sect, which had migrated to the State in 1874, abandoned their Wolf Creek colony and departed for Canada on September 6. The Hutterites had at one time 17 colonies in South Dakota containing some 4000 members, who had left Russia to be rid of the obligation of military service. A particularly severe pest of grasshoppers did great damage to crops in the Rosebud area of the south-central part of the State during the summer, infesting an area of 100 by 125 miles.

**OFFICERS.** Governor, Warren Green; Lieutenant-Governor, O. K. Whitney; Secretary of State, Elizabeth Coyne; Treasurer, A. C. Goodhope; Auditor, William M. Dunn; Attorney-General, M. Q. Sharpe; Superintendent of Public Instruction, F. C. Giffin.

**JUDICIARY.** Supreme Court: Presiding Judge, Samuel C. Polley; Judges, Dwight Campbell, E. D. Roberts, Frederick A. Warren, H. B. Rudolph.

**SOUTH DAKOTA, UNIVERSITY OF.** A State institution of higher education in Vermilion, founded in 1882. The enrollment for the autumn term of 1931 was 984 and for the summer session, 432. The faculty and staff numbered 145. The operating income for the year was \$488,405. The library contained 72,500 volumes. President, Herman G. James, J.D., Ph.D.

**SOUTH DAKOTA STATE COLLEGE.** A State college of agriculture and mechanic arts in Brookings, founded in 1882. The enrollment for the summer session and the autumn of 1931 was 1288; summer school, 272. The teaching staff was equivalent to 87 full-time teachers. The productive funds of the college amounted to \$508,744. The income for 1930-31 was \$1,032,390. The library contained 44,740 bound volumes and 15,000 pamphlets. President, Charles W. Pugsley, D.Agr.

**SOUTHERN CALIFORNIA, UNIVERSITY OF.** An institution of higher education for men and women in Los Angeles, Calif., founded in 1879. It comprises the following schools and colleges: Letters, arts and sciences, music, dentistry, phar-

macy, graduate, religion, law, speech, commerce and business administration, education, social welfare, architecture, engineering, medicine, international relations, philosophy, merchandising, public administration, and university college. The enrollment for 1930-31, including summer session and extension classes, was 16,185. In the autumn of 1931, there were 550 members on the faculty. The endowment was \$1,717,000, the income from tuition and fees, \$1,737,968, and other income, \$286,450. There were 142,000 volumes in the library. In 1931 construction of a new library building was begun. President, Rufus B. von Kleinsmid, Sc.D., J.D.

**SOUTH GEORGIA.** See FALKLAND ISLANDS.

**SOUTH MANCHURIA RAILWAY.** See MANCHURIA; KWANTUNG; JAPAN under *History*.

**SOUTH ORKNEYS.** See FALKLAND ISLANDS.

**SOUTH-WEST AFRICA.** A former German protectorate, administered since Dec. 17, 1920, by the Union of South Africa under a mandate from the League of Nations; bounded by Angola, the Atlantic Ocean, Cape Providence of the Union, and Bechuanaland Protectorate. Area, 322,394 square miles; population, at the census of 1926, 24,115 Europeans and about 234,790 natives; estimated in 1930, 30,404 Europeans and 261,117 natives. Capital, Windhoek, with 4602 European and 13,753 native inhabitants.

In 1929, there were 63 Government schools, with 3623 pupils, and 56 private schools, with 1368 pupils. The country is generally too dry for agriculture, and mining and stock-raising are leading industries. Imports in 1930 were valued at \$10,325,770; exports, \$12,745,400. The budget for 1930-31 estimated revenue at £707,000 and expenditure at £1,516,710, including a loan expenditure of £623,890.

Executive power is delegated by the Governor-General of the Union of South Africa to an administrator with full authority to legislate. The Constitution conferred on the territory in 1925 provided also for an executive committee, an advisory council, and a legislative assembly. Administrator in 1931, A. J. Werth.

**SOVIET CENTRAL ASIA.** A region in Central Asia, including the territory formerly known as Russian Turkestan, and extending from the Caspian Sea to Mongolia and Sinkiang and from Siberia to the northern boundaries of Afghanistan, and Persia. Administratively it is divided into the following soviet socialist republics and autonomous areas affiliated with the Soviet Union:

#### SOVIET REPUBLICS OF CENTRAL ASIA

<i>Republics</i>	<i>Area, sq. miles</i>	<i>Population</i>
Turcoman S. S. R. ....	189,658	1,030,500
Uzbek S. S. R. ....	75,598	4,525,000
Tadzhik S. S. R. ....	54,826	745,200
Kara-Kalpak Aut. Area ....	46,320	370,000
Kirghiz A. S. S. R. ....	60,000	1,000,000

Soviet Central Asia also includes the southern part of the Autonomous Kazak Republic, which, like the Kirghiz Republic and the Kara-Kalpak Autonomous Area, is a part of the Russian Socialist Federated Soviet Republic. The figures given for both area and population are rough estimates. See UNION OF SOVIET SOCIALIST REPUBLICS.

**SOVIET RUSSIA.** See UNION OF SOVIET SOCIALIST REPUBLICS.



**SOVIET UNION.** See **UNION OF SOVIET SOCIALIST REPUBLICS.**

**SPAIN.** A former constitutional monarchy of southwestern Europe, proclaimed a republic on Apr. 14, 1931. Capital, Madrid.

**AREA AND POPULATION.** Continental Spain has an area of 190,050 square miles; including the Balearic and Canary Islands, the total area is 196,607 square miles, or about one-third less than that of Texas. The population on Jan. 1, 1930, was estimated at 22,760,854, as compared with 21,338,381 at the census of 1920. The density of population is about 113 per square mile, compared with 338 for Italy and 40 for the United States. Births in 1929 totaled 653,571; deaths, 407,411; marriages, 168,337. Emigrants in 1929 numbered 97,465, but the outward flow was largely offset by Spaniards returning from foreign countries. The excess of emigrants over immigrants declined from 72,653 in 1913 to about 1186 in 1927. Emigration is principally to Spanish America. The principal cities, with the estimated population on Jan. 1, 1930, are: Madrid, 825,471; Barcelona, 775,272; Valencia, 272,129; Seville, 217,924; Bilbao, 160,501; Málaga, 160,228; Zaragoza, 157,399; Murcia, 156,458; Granada, 109,001; Cartagena, 101,493.

**EDUCATION.** At the census of 1920, 45.46 per cent of the population could neither read nor write. Elementary education is free for the most part. In 1928, there were 23,690 public and about 6000 private elementary schools, with a total of approximately 3,200,000 pupils. For secondary instruction, there were 65 schools, with 77,347 students; and for higher education, 11 universities, with 39,719 students. Barcelona, Granada, Madrid, Murcia, Oviedo, Salamanca, Santiago, Seville, Valencia, Valladolid, and Zaragoza each has a university.

**PRODUCTION.** Spain is predominantly an agricultural country, although two-thirds of the country is so dry that crops are problematical or impossible without irrigation. The area under cultivation in 1925 was 47,823,000 acres, or 38.3 per cent of the total area; about 7 per cent of the land under crops was irrigated. The total value of field crops and products of vines and orchards was \$1,425,428,000 in 1929. Cereals, rice, potatoes, and sugar beets are leading crops.

Spain is normally the leading olive-producing country of the world. Citrus and other fruits, figs, nuts, garden truck, esparto, flax, hemp, and silk are other products. Livestock in 1928 included 19,370,443 sheep, 4,773,366 swine, 3,659,639 cattle, 1,153,874 mules, and 598,306 horses. See **AGRICULTURE** under *World Agriculture*.

Together with extensive mineral and water-power resources, Spain's agricultural and forest products furnished the basis for a considerable industrial development during and after the World War. There is an exportable surplus of copper, iron, lead, zinc, manganese, mercury, and pyrite, and adequate amounts for domestic use of tungsten, barite, fluorspar, graphite, gypsum, talc, and soapstone. British capital controls most of the valuable mineral deposits. The output of the principal minerals in 1930, in metric tons, was as follows: Coal and lignite, 7,559,000; pig iron, 685,800; lead, 122,300; zinc, 10,700.

Cork is the most important forest product, the exports normally totaling about 84,000 metric tons with a value of about 155,000,000 pesetas (1 peseta equals \$0.193 at par). In the period 1909 to 1928, the value of crude minerals mined

increased from 202,327,000 to 422,976,000 pesetas while the value of products fabricated from crude minerals advanced from 250,529,000 pesetas to 1,295,314,000 pesetas. Cotton goods, paper, glass, sugar, cork products, and silk are the other principal manufactured products. The hydroelectric power industry leads all others in invested capital, with an aggregate of about 1,500,000,000 pesetas (about \$220,200,000) in 1929. In 1931, there were 800 weaving mills, with 2,380,000 spindles and 80,000 looms, employing 110,000 persons. The mining, manufacturing, and commercial industries were seriously affected during 1931 by the world-wide economic depression and political disturbances in Spain. A prolonged drought reduced agricultural yields.

**COMMERCE.** Spain's exports in the calendar year 1930 were valued at \$443,800,000, as compared with \$406,900,000 in 1929, while the value of imports declined to \$472,300,000 from \$528,200,000 in the preceding year. The excess of imports over exports, which stood at \$121,300,000 in 1929, was reduced in 1930 to \$28,500,000. The balance of visible trade is normally unfavorable, but is offset to a considerable extent by emigrant remittances, expenditures of foreign tourists, etc. The six leading export commodities in 1930 were: Oranges, \$62,795,000; olive oil, \$56,171,000; wine, \$45,172,000; fruits and nuts, \$44,458,000; cotton manufactures, \$24,092,000; and cork manufactures, \$17,297,000. The United States, United Kingdom, France, and Germany, in the order named, were the chief sources of imports, while France, the United Kingdom, and the United States were the leading export markets.

**FINANCE.** Preliminary returns on the budget covering the calendar year 1930 indicated a surplus of 38,000,000 pesetas (about \$4,435,000 at the average exchange rate of \$0.1167). The ordinary budget as revised at the end of April, 1930, estimated revenues for the year at 3,670,000,000 pesetas and expenditures at 3,997,798,000 pesetas. The extraordinary budget, introduced in 1926 to provide for public improvements, was suppressed in 1930. There was an annual deficit in the combined ordinary and extraordinary accounts for the years 1923-24 to 1929 inclusive, the deficit for 1929 totaling 323,789,000 pesetas and that for 1928, 249,904,000 pesetas. Revenues for the calendar year 1931 were estimated at 3,753,654,000 and expenditures at 3,690,945,000 pesetas. Preliminary results showed a deficit for 1931 of 199,000,000 pesetas, exclusive of the railway fund which had an estimated deficit of 372,000,000 pesetas in October, 1931.

As a result of continued deficits in the budgets, the national debt increased steadily from 11,881,600,000 pesetas in 1921 to 20,234,451,000 pesetas at the beginning of 1930. There was practically no foreign debt. See *History*.

**COMMUNICATIONS.** On Jan. 1, 1929, there were 10,281 miles of railway line in operation, of which 7311 miles were wide-gauge steam, 2539 miles narrow-gauge steam, and 270 electric railways. The highway system, under the Primo de Rivera régime, became one of the best in Europe. Highways in use or under construction in 1925 totaled 54,117 miles, of which 37,833 miles were state highways, 6126 miles provincial highways, and 10,158 local roads. In 1929, there were 54 airports in the country and air lines radiated from Madrid to Barcelona, Seville, and Biarritz; another line connected Seville and Larache. The Spanish Telephone Company operated 212,360



# PORTUGAL DISTRICTS

- 1 Aveiro
- 2 Beja
- 3 Braga
- 4 Bragança
- 5 Castelo Branco
- 6 Coimbra
- 7 Évora
- 8 Faro
- 9 Guarda
- 10 Leiria
- 11 Lisbon
- 12 Portalegre
- 13 Póvoa
- 14 Santarém
- 15 Viana do Castelo
- 16 Vila Rica
- 17 Viseu

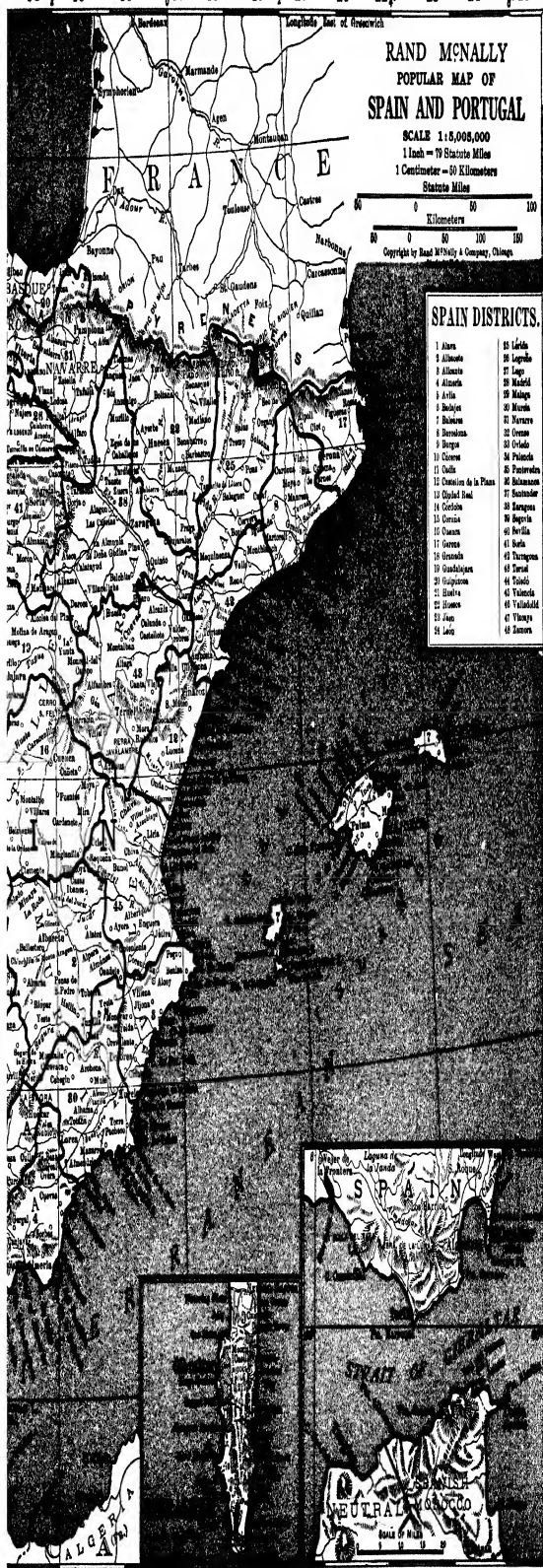


# RAND McNALLY POPULAR MAP OF SPAIN AND PORTUGAL

SCALE 1:15,000,000  
1 Inch = 75 Statute Miles  
1 Centimeter = 50 Kilometers  
Statute Miles

# SPAIN DISTRICTS

- 1 Álava
- 2 Almería
- 3 Alicante
- 4 Albacete
- 5 Ariza
- 6 Badajoz
- 7 Baleares
- 8 Barcelona
- 9 Burgos
- 10 Cáceres
- 11 Cadix
- 12 Cantabria de la Pina
- 13 Ciudad Real
- 14 Córdoba
- 15 Coruña
- 16 Cuenca
- 17 Gerona
- 18 Granada
- 19 Guadalupe
- 20 Guipúzcoa
- 21 Huelva
- 22 Jaén
- 23 La Rioja
- 24 León
- 25 Logroño
- 26 Lugo
- 27 Madrid
- 28 Málaga
- 29 Murcia
- 30 Navarra
- 31 Orense
- 32 Oviedo
- 33 Palencia
- 34 Pánuco
- 35 Pontevedra
- 36 Salamanca
- 37 Santander
- 38 Segovia
- 39 Seville
- 40 Soria
- 41 Tarragona
- 42 Teruel
- 43 Toledo
- 44 Valencia
- 45 Valladolid
- 46 Vizcaya
- 47 Zamora







telephone stations at the end of 1930, an increase of 22 per cent over 1929. On Jan. 22, 1931, radio-telephone service was inaugurated between Spain and the Canary Islands, and on Oct. 24, 1931, the service was extended to Majorca.

**ARMY AND NAVY.** See **MILITARY PROGRESS**; **NAVAL PROGRESS**.

**GOVERNMENT.** The Constitution of 1876 vested executive power in the King, acting through a responsible ministry, and legislative power in the Cortes, or Parliament, consisting of the Senate and the Chamber of Deputies. The Cortes was dissolved by royal decree Sept. 16, 1923, and parliamentary government was dispensed with until the overthrow of King Alfonso on Apr. 14, 1931. A provisional republican government was established the same day, composed as follows: Prime Minister, Alcalá Zamora; Foreign Affairs, Alejandro Lerroux; Justice and Worship, Fernando de los Rios; War, General Azana; Marine, Casares Quiroga; Finance, Indalecio Prieto; Interior, Miguel Maura; Education, Marcelino Domingo; Public Works, Señor Albornoz; Labor, Largo Caballero; Economy and Communications, Martínez Barrios. A constituent Cortes was convened July 14, 1931, which spent the remainder of the year drawing up a new Constitution (see below under *History*).

#### HISTORY

**FALL OF THE MONARCHY.** Alfonso XIII, proud repository of the sovereign power wielded by his Bourbon and Hapsburg ancestors for five centuries, was driven into exile Apr. 14, 1931, by a virtually bloodless republican revolution. His throne was the price exacted by Alfonso's subjects for his absolutist tendencies, and particularly for what they conceived to be the two supreme sins of his 29-year reign. Firstly, he was charged with responsibility for the annihilation of 10,000 Spanish soldiers by Riff warriors at Anual, Morocco, in 1921. Secondly, he was accused of sanctioning the six-year dictatorship of Gen. Primo de Rivera, in violation of his oath to the Constitution, in order to evade an accounting for the Moroccan disaster.

Discontent with the monarchy, coupled with profound economic and social unrest, had kept Spain in a state of ferment throughout the previous year. From the beginning of 1931 it was evident that the crushing of the Jaca revolt of the previous December (see 1930 YEAR BOOK) had intensified rather than diminished revolutionary sentiment. Premier Berenguer, who had been chosen by Alfonso on Jan. 30, 1930, to liquidate the dictatorship, made repeated but unsuccessful efforts to conciliate republican sentiment. The martial law clamped down on all Spain after the December revolt was lifted, except in Madrid and Saragossa, on Jan. 24, 1931. The result was an immediate renewal of student riots and strikes and on February 4 all universities were closed for one month by royal decree.

The crux of the political situation lay in the demand of all parties and classes, except part of the aristocracy, the higher clergy, and the army, for the election of a Cortes (parliament) to draft a new constitution. It appeared certain that such a Cortes would not only bring up again the question of the King's responsibility for the Moroccan disaster but also would drastically curtail his powers. Alfonso chanced revolution rather than submit. The election decree issued by his Prime Minister on February 8 provided for the election

in March of a parliament to function only in conformity with the existing constitution.

The decree aroused a furor, especially among the anti-monarchists. The Socialists, the federation of labor, the Catalanian Left wing groups, and the Reformists agreed to abstain from voting. The Liberal leader, Count Romanones, Francisco Cambo, chief of the Catalan monarchists, and Marquis Alhucemas, Left Liberal head, gave notice that when the new Parliament met they would ask for the convocation of a constituent assembly. On February 14, the King signed a decree cancelling the elections, and the Berenguer Cabinet resigned. Faced with a Cabinet crisis in which his throne hung in the balance, the King suspended all constitutional guarantees. For two hectic days he conferred with one political leader after another in an effort to form a new Ministry. Finally, on February 16, he turned reluctantly to Don José Sanchez Guerra, a former Conservative Prime Minister, who accepted the task of forming a Cabinet. Sanchez Guerra, had demanded a Cortes with complete authority to determine whether Spain should have a monarchical or republican government. His delegation by the King to form a Cabinet implied Alfonso's acceptance of Sanchez Guerra's programme. On February 18, however, Alfonso changed his mind and again postponed the crisis by a third resort to dictatorship. He called on Admiral Juan Bautista Aznar, who assembled a royalist Cabinet, reestablished the censorship, and concentrated troops in Madrid.

**THE MUNICIPAL ELECTIONS.** The Aznar Government, on February 19, made a new attempt to salvage the monarchy through a return to constitutionalism. It announced that provincial and municipal elections would be held April 12, followed by the convening of a Cortes authorized to modify the constitution but not to abolish the monarchy. The stabilization of the peseta and possible autonomy for Catalonia were listed as other problems for the consideration of the Cortes.

Although few appeared to realize it in advance, the fate of the monarchy hung directly upon the outcome of the municipal elections. In preparation for the elections, the Government restored all constitutional guarantees for the first time in seven years. Freedom of the press, of speech, and of public assemblage was maintained throughout the campaign. The republicans eagerly seized the opportunity to broaden their propaganda among the people. They joined forces with the Socialists under an agreement concluded February 22 and laid careful plans for taking control of the government at the first favorable opportunity. Their powerful attack on the monarchy was led by Míeto Alcalá Zamora, a Minister in three monarchist Cabinets, who had turned republican in 1923 upon the establishment of the dictatorship.

The fervor of the republican campaign was heightened by the trial by court-martial at Jaca March 12 to 17 of 77 persons charged with participation in the December uprising. While crowds outside cheered the prisoners, the judges imposed sentence of death upon Capt. Salvadore Sediles and life imprisonment upon four others. The King immediately commuted the death sentence. A few days later, in Madrid, occurred the trial of the civilian members of the abortive provisional republican government of December. The defendants, including Alcalá Zamora, head



of the provisional junta, seized the occasion to press their charges against the monarchy. Their defense was that "in countries where there is no justice or legal authority, there can be no rebels." The defendants were sentenced to six months and one day's imprisonment. Released on parole immediately, they played a prominent part in the republican campaign.

The elections of April 12 resulted in a victory of the republican, socialist, and other anti-monarchist groups in 40 of the 50 Provinces of Spain. Returns issued by the Home Office gave the monarchists 22,150 seats in the municipal councils to 5875 for the republicans. The monarchist seats, however, were mainly in the small villages, which exert little influence upon the nation. The republicans triumphed in all of the large cities except Barcelona, where the Catalan Separatists won a majority, and in Cádiz, where the monarchists captured all seats. Even in Madrid, the republicans secured 30 seats, against 20 by the monarchists.

The unexpectedly overwhelming victory of the republican cause emboldened Alcalá Zamora and his colleagues to address a manifesto to the nation declaring that the election constituted a mandate for the republic and that they would strive energetically to bring it into being. Demonstrations against the King on the day following the election resulted in some places in skirmishes with the police. On April 14, the Aznar Cabinet resigned, and while the King and his advisers consulted anxiously with various political leaders, news came of the declaration of a republic at Barcelona, San Sebastian, Saragossa, Cordova, Granada, Huelva, Almeria, and other cities. The republicans rejected the King's offer to step down in favor of his son. Apparently Alfonso wavered between an effort to crush the opposition and acceptance of the will of the nation. As late as 6.45 P.M., Admiral Aznar stated that martial law would be established. But within two hours the King had renounced his power and Alcalá Zamora was announcing to the nation by radio from the Home Office the birth of the republic.

Alfonso did not formally abdicate. Realizing that his further presence in Spain meant civil war and bloodshed, he left it to the nation to decide by democratic methods whether he should ever return. That night he drove to Cartagena, taking ship to France and then to England. In London, he settled down patiently to await developments in Spain. Meanwhile he was not in need. The Provisional Government announced May 21 that the private fortune of the royal family, much of it deposited in foreign banks, amounted to \$8,497,417. By an overwhelming vote of the Constituent Cortes on Nov. 20, 1931, Alfonso was declared an outlaw, to be shot on sight if he ever returned to Spain.

**THE PROVISIONAL REPUBLIC.** Transition from monarchy to republic took place with an orderly efficiency astounding to foreign observers. The shadow cabinet, formed by the anti-monarchist coalition in anticipation of the crisis, was immediately recognized as the governing power throughout Spain (for membership, see under *Government* above). Peace and order such as Spain had not known for years reigned for three weeks after the advent of the republic. Among the first acts of the Cabinet was the issuance of a proclamation announcing elections in June for a Cortes authorized to draft a new constitution. Before the end of April, the provisional

régime had been recognized by the principal powers, including the United States, and Spanish diplomatic posts abroad had been filled by adherents of the republic.

Functioning by decree, the Cabinet arrested General Berenguer for his part in the execution of two leaders of the Jaca revolt, deprived all Cabinet officers appointed during the dictatorship of their pensions, and threw open the royal parks and large estates to the public. Amnesty was granted all political prisoners of the monarchy, and all exiles were invited to return to Spain. To safeguard Spain's natural resources from further control by foreign financial interests the Government assumed control of water power. It decided not to use a \$60,000,000 foreign loan negotiated March 26 by the monarchy with American and European banking interests for the purpose of stabilizing the peseta. The confiscation of ex-King Alfonso's personal property throughout Spain was ordered May 13.

The Provisional Government was confronted with many difficult problems. It faced the danger of both Communism and of monarchist reaction, the necessity for drastic readjustment of the intimate relations of Church and State, and the demands of Catalonia and the Basque Provinces for a federal instead of the unitary republic desired by the rest of Spain. The antiquated system of land tenure and farming methods pressed for reform. All the land was held by about 3,400,000 owners, including some 277,000 of the landed aristocracy on whose large estates the tenants were not far removed from serfdom. Overloaded with loyalist officers, the army constituted another menace to the republic as well as a heavy drain on the treasury. The weakness of the peseta and the precarious financial condition of the treasury upon the advent of the republic taxed the resources of the provisional régime.

The final decision upon the most fundamental problems was left to the Cortes, which convened July 14. In its few months of life, however, the Provisional Government drastically reduced the army, introduced full liberty of conscience in religious matters and education, and drew up plans for agrarian reform and for the betterment of the condition of industrial workers. It also prepared the draft of a new constitution to be submitted to the Cortes, together with a full record of transactions under and by the dictatorship, to allow the placing of responsibility. The army and navy were reorganized, the top-heavy officer personnel of the army being reduced from 22,000 to 7000. See **MILITARY PROGRESS.**

Provision was made for the opening of 30,000 new elementary schools within a year and plans were outlined for the reorganization by the Cortes of the system of university and secondary education. Another decree prohibited the further creation of ranks of nobility and provided that existing titles should carry no civic privileges. On June 4, about 1600 cathedrals, churches, castles, and other "historic and artistic monuments belonging to the nation's artistic treasures" were placed under the supervision of the Fine Arts Committee of the Ministry of Education, although actual ownership of them continued in the hands of those formerly in possession.

In Spanish Morocco (see **MOROCCO**), where the transformation from monarchical to republican control had been marked by fighting between republican forces and the Foreign Legion and unrest among the natives, a civilian high com-

missioner took the place of his military predecessors. The Moroccan military budget was cut from 300,000,000 to 100,000,000 pesetas (from about \$60,000,000 to \$20,000,000, calculated at par). The question of the retention of Morocco was left to the Cortes.

**ANTI-CLERICAL RIOTS.** The orderliness of the nation under the Provisional Government was broken on May 11 and 12, when mobs in Madrid and half a dozen other important cities burned convents, churches, and other ecclesiastical buildings, causing damage estimated at several million dollars. The outbreaks were preceded by a pastoral letter issued May 7 by Cardinal Segura y Saenz, Primate of Spain, urging all Catholics to vote only for candidates who would protect the interests of the Church. Minister of Justice de los Rios protested against the letter, on the ground that it constituted interference in politics, and demanded the recall of the primate, who was summoned to Rome immediately. Compulsory religious education in the public schools was abolished by a government decree May 8. On May 11, a gathering of monarchists to open their campaign for the June election was broken up by republican rioters, several monarchist noblemen being severely beaten. Inflamed by this incident, apparently, small groups of men and youths burned seven of the 170 convents in Madrid, from where the anti-clerical rioting spread to other cities. In most cases, both the police and the crowds looked on in apparent indifference. Martial law was declared in Madrid on May 12, but it was several days before the epidemic of attacks on church properties in other cities was ended.

The attacks upon church property involved the government in a serious controversy with the Vatican. On May 15, the Papal Nuncio delivered an energetic protest, stressing the failure of the government to afford adequate police protection. Two days later, Miquel Maura, Minister of the Interior and himself a devout Catholic, ordered the expulsion from Spain of the Bishop of Vitoria for alleged interference in politics. The proclamation of religious liberty throughout Spain on May 22 was considered by the Vatican a violation of the concordat governing relations between Spain and the Holy See. Cardinal Primate Segura returned to Spain June 12, but three days later was officially expelled by the government on the ground that his presence threatened to disturb public order. There had been an increasing number of clashes between Catholics and radicals in various parts of Spain. The Vatican again protested, asking that the Cardinal be readmitted. The request was rejected.

Despite these developments, the Provisional Government made no move to disestablish Roman Catholicism as the State Church, this problem being left by mutual consent to the Cortes. The State continued its contributions to the Church, which under the monarchy aggregated from 50,000,000 to 60,000,000 pesetas (\$9,650,000 to \$11,580,000 at par) annually. This policy aroused the ire of the Socialists and radicals and brought the two devout Catholic members of the Cabinet—Provisional President Alcalá Zamora and Minister of Interior Maura—into disfavor.

**THE CATALAN PROBLEM.** No less menacing to the future of the republic than the dispute with the Church was the problem of reconciling the claims of Catalan nationalism with the desire of republican leaders for a strong central govern-

ment for all Spain. For 400 years Catalonia (q.v.) had fought unsuccessfully to regain its ancient autonomy from the absolute kings of Spain. A Catalan republic was proclaimed early on the day of the collapse of the monarchy. Controversy between Barcelona and Madrid and among the Catalans themselves as to the form Catalan autonomy should take and its relations to the Spanish republic commenced immediately. The Madrid government conceded the right of Catalonia to its own language, flag, national anthem, and Cortes but insisted that the Catalans recognize the superior authority, and particularly the right of taxation, of the central government. The majority opinion in Catalonia held out for the right to make its own regional laws, the administration of civil and penal law according to the ancient Catalan code, a separate system of education, the power of imposing and collecting taxes for both the regional and central governments and of transmitting the latter sums to Madrid.

Elections for the regional Cortes were held May 24 and the first Catalan Generalidad Assembly in 400 years convened in Barcelona June 9, charged with the framing of a State constitution. The plan of Francisco Macia, Provisional President of Catalonia, was to present a completed constitution to the Spanish Cortes for either acceptance or rejection. This led the Madrid Government to join forces with the conservatives and moderates in Catalonia in demanding that the Catalan constitution be worked out in conference between representatives of Catalonia and of the other Spanish Provinces. On June 19, it was announced that the preliminary draft of the Spanish constitution prepared by the Madrid Government for submission to the Cortes provided for a unitary instead of a federal republic. Angered by the report, Catalan separatists rioted in Barcelona, where representatives of the Central Government remained in control. The Madrid Government inaugurated an open drive to break the power of Macia in Catalonia, sending Foreign Minister Llerroux to Barcelona on June 21 to introduce a coalition ticket in opposition to the candidates aligned with the Catalan leader.

**BASQUE MOVEMENT FOR AUTONOMY.** The Catalan demand for the establishment of a federal government at Madrid was reinforced by agitations for autonomy in various other historical regions, particularly in the Basque Provinces (q.v.) in northwestern Spain. Thirty thousand Basques from 1500 towns and villages gathered at Estella June 14 and approved a statute establishing the four Basque Provinces as a separate State within the Republic. The Basque statute likewise required ratification by the Spanish Cortes to become effective. It authorized the Madrid Government to control international affairs, including customs and monetary matters, the national debt, the telegraph and postal systems, and mercantile and penal laws. Inter-State disputes were admitted to be under Madrid's jurisdiction. But virtually all other powers, including taxation, defense, and control of the economic and political affairs of the region, were reserved to the proposed council-general, or legislative assembly, of the Basque State. Less vigorous movements for autonomy developed also in the Provinces of Valencia, Alicante, and Castellon, forming the ancient historical region of Valencia, the Balearic Islands, and Andalusia.

**THE GENERAL ELECTION.** With these important issues awaiting final decision by the Constituent Assembly, scheduled to convene July 14, the general election of June 28 for members of the Cortes drew near in an atmosphere of increasing tension. More than a thousand candidates, representing some 25 political parties, entered the lists for the 470 seats. Of these, 120 represented the Republican Right Wing under Alcalá Zamora and Señor Maura. The Socialist-Republican Alliance entered 115 candidates, the Socialists 104, the Catholic Party 58, the Communists 22, and the Monarchists only 6.

The extreme radical groups, particularly the powerful Syndicalist labor union (*Sindicato Unico*) and the Communist party, made a determined effort to swing the revolution sufficiently to the Left to enable them to wrest control from the more conservative Socialist-Republican leaders. Strikes and labor rioting reached alarming proportions. Inflammatory appeals were broadcast urging workers to prevent "the sabotage of the revolution." On May 28 Syndicalist workers seized the great street-car foundry and steel plant at Saragossa and held it throughout the day against Government troops, before withdrawing. Labor disorders were marked by armed clashes and a number of deaths. Runoff contests of the April 12 municipal election, held on June 1, resulted in disorders and bloodshed in many Provinces, but served to confirm the overwhelming Republican sentiment of the nation.

It became evident that the extremist element was getting out of hand as a result of the Provisional Government's policy of moderation and its effort to guarantee to all political parties the fullest scope for election propaganda. The Cabinet accordingly adopted more severe measures to curb the excesses of Communists, Syndicalists, and Monarchists. But it was not altogether successful. At Oviedo on June 19 a mob of 10,000 radicals stormed the Compoamor Theatre, where Melquiades Alvarez, leader of the important Reformist (liberal Monarchist) party, was holding a campaign rally. Troops were called out to restore order after one person was killed, 16 injured, and Señor Alvarez himself had narrowly escaped death. Two days later the Reformists withdrew from the election.

With cities and towns littered with handbills and campaign posters and echoing to the noise of torchlight parades and mass meetings, the final days found Spain in the grip of intense excitement. On the eve of the elections occurred an abortive revolt at the Seville military airdrome, which was nipped in the bud by General Sanjurjo, head of the Civil Guard and special envoy of the Madrid Government.

Although marked by sporadic rioting, in which some 10 persons were killed, the elections of June 28 were on the whole orderly and admittedly fair. The verdict of the April municipal elections, which overthrew the Monarchy, was overwhelmingly confirmed, while the defeat of all Communist candidates allayed the fears of those who believed that Spain was headed toward a dictatorship of the proletariat. The Liberal, Radical, and Socialist coalition, which had controlled the Provisional Government, made a clean sweep of most of the Provinces and all members of the Government were elected. The Socialists, headed by Finance Minister Indalecio Prieto, captured 113 seats, thus forming the largest party group. There were 86 Radical deputies,

under the aggressive leadership of Minister of Foreign Affairs Alejandro Lerroux; 54 Radical Socialists under Minister of Labor Marcelino Domingo; 41 Catalan members owing allegiance to Colonel Macia; 25 members of War Minister Manuel Azana's Accion Republicana; and a fairly strong grouping of Right Republicans under Provisional President Alcalá Zamora and Minister of Interior Miguel Maura.

In Catalonia, Colonel Macia's autonomist party, with the backing of the revolutionary *Sindicato Unico*, scored a decisive victory, as did the autonomist candidates in the Basque Provinces. The Basque delegation of 10 deputies included five priests. The Monarchists won but five seats.

**AFTERMATH OF THE ELECTION.** The Provisional Government immediately turned its attention to plans for the convening of the Constituent Assembly July 14. With commendable foresight it had previously appointed committees to prepare a draft constitution and a project for land reform for submission to the Cortes. The draft constitution, published June 29, provided in general for a liberal republican system of government, similar in many respects to that of the United States.

The Socialists were deterred from breaking away from the Republican-Socialist coalition by a wave of Syndicalist violence which swept the country following the general election. It became evident that only a firm stand by the Government could prevent the Syndicalists and Communists from undermining its entire accomplishments. The coalition accordingly agreed to present a united front against the extremists pending the adoption of a Constitution and the inauguration of a strictly constitutional régime. It was the Socialists, acting through their *Union General de Trabajadores*, who formed the main bulwark of the new Republic against deliberate efforts of the *Sindicato Unico* to precipitate a workers' revolution before the end of the year.

The Syndicalists were not affiliated with the Communist International, as was the Spanish Communist party. They sought to take violent control of the land, factories, and workshops and to form a proletarian state along partly communistic and partly anarchistic lines. Victorious in the general election in Catalonia through their alliance with Colonel Macia, they now attempted to undermine the Government throughout Spain by a series of general strikes, attacks upon religious institutions, and resistance to governmental authority. At Corunna and Manresa, birthplace of the Jesuit order, anti-religious riots were quelled on July 2 and 4. A nationwide telephone strike was called for July 6, the Syndicalists demanding virtually complete control of the Compañia Telefónica Nacional, a subsidiary of the American-controlled International Telephone and Telegraph Company. Dockhands in Barcelona walked out the same day, and in various cities other Syndicalist strikes caused a temporary paralysis of business. In all places, however, Socialist workers resisted the strike appeal and remained to assist employers in furnishing emergency telephone and other services. Armed clashes between Syndicalist strikers and Socialist workers frequently ensued. The strikers cut a number of telephone trunk lines, badly paralyzing the service.

A nation-wide general strike was called by the *Sindicato Unico* on the eve of the convening of

the Cortes. The Government met the threat effectively by arresting radical agitators throughout the country; later Syndicalist headquarters in all the Provinces were closed, and a Government decree made it illegal to strike unless 10 days' notice was given. In Seville and the surrounding province a series of armed encounters between strikers and police, in which 30 were killed and 200 wounded, was followed by the declaration of martial law on July 22. By the end of the month the Syndicalist offensive had been repulsed almost everywhere and order was restored. At no time was the Government in serious danger of collapse. Business and commerce throughout the country was seriously disrupted, however. Thousands of workers were on the verge of starvation in Southern Spain and in Barcelona and vicinity the stoppage of industry was followed by widespread suffering.

**THE CONSTITUENT CORTES.** Republican enthusiasm reached its height when the 470 Deputies assembled in the historic Chamber of Deputies in Madrid July 14 to draft the new Constitution. But the Cortes did not begin to function until July 28, when the examination of the Deputies' credentials was completed. Then the Provisional Government formally resigned, but on receiving (July 30) an overwhelming vote of confidence and approval of its reforms, Alcalá Zamora's Cabinet reassumed its governmental functions.

One of the first problems to cause dissension in the new Cortes was that of the relations of Church and State. On August 6 the parliamentary commission appointed to frame a constitution for submission to the Cortes decided upon a clause providing for the expulsion of the religious orders and the confiscation of church property. The Catholics launched a vigorous campaign for the defeat of the measure and on August 15, simultaneously with the publication of the commission's draft constitution, the Bishops of Spain issued a pastoral letter urging Catholics to defend their rights in the new Constitution. The anti-clerical forces struck back on August 20 with a governmental decree prohibiting the sale, transfer, or mortgage of church properties. This action was intended to forestall the sale of the Church's extensive property and security holdings previous to the settlement of the question by the Cortes. It followed the alleged interception of a letter from Cardinal Segura y Saenz in France instructing the Spanish clergy to dispose of their holdings. The decree was immediately protested by the exiled primate, whose recall by the Vatican was then demanded by the Provisional Government. In the Basque Provinces and Navarre, strongholds of clericalism, there were menacing anti-Government demonstrations. The Government was obliged to suppress many Basque newspapers and to send 28,000 troops into the disaffected Provinces.

As a peace offering the Papal Nuncio in Madrid announced September 30 that the Vatican had accepted Cardinal Segura y Saenz's resignation as Primate of Spain. Despite this, the Cortes on October 13 voted 287 to 41 to end the centuries-old union of the Spanish State and the Roman Catholic Church, a union dating back to the reign of Ferdinand and Isabella and the expulsion of the Moors. The following day the Cortes by a vote of 178 to 59 accepted Article XXIV of the new Constitution, which drastically restricted the activities of church orders and provided for the expulsion of the Jesuit order.

Although approving the separation of Church and State, Provisional President Alcalá Zamora resigned in protest against the adoption of Article XXIV. A new Provisional Government was immediately formed by Manuel Azana, who retained his former post of Minister of War. Only one new figure appeared in the Azana Government—that of Jose Giralt as Minister of Marine. Cesares Quiroga, the former Minister of Marine, was shifted to the important Interior portfolio in place of Miguel Maura, another devout Catholic, who resigned. The religious and the governmental crisis was marked by anti-clerical demonstrations in Madrid, by the withdrawal of the Basque representatives from the Cortes, and by increasing unrest in the north of Spain. The quiet assurance given by Premier Azana that "the Government will know how to protect itself if the republic is attacked" and his reputation for forceful action contributed to the subsidence of the crisis. Article XXIV ended State support of the Church, made it impossible for religious orders to teach, expelled the Jesuits, and by forbidding other religious orders to take part in industry and commerce made it difficult for them to continue. The property of churches and religious orders, other than Jesuits, was not seized, and freedom of worship was guaranteed.

**THE BARCELONA STRIKE.** On September 3 there broke out in Barcelona a great strike which partly eliminated two leading obstacles to the successful organization of a Spanish republic—the possibility of a violent social upheaval and the reluctance of Catalonia to cooperate with the republican leaders at Madrid. A split in the ranks of the *Sindicato Unico* on September 1 lessened the danger of a social revolution. But the events at Barcelona demonstrated that the republican régime was more than able to smash revolutionary outbreaks; furthermore they indicated that the Catalan autonomist leaders were dependent upon aid from the rest of Spain to end class warfare and anarchy.

For three days, September 3-5, Barcelona was in the grip of a revolutionary general strike which aimed at the establishment of a Soviet government and the taking over of factories and other industries by the radical workers. About 10,000 troops of the Madrid Government were rushed into the city and more than two score persons were killed and many injured in ensuing clashes before order was restored.

**THE REGIONAL SETTLEMENT.** The people of Catalonia in a plebiscite held August 2 voted almost unanimously in favor of a statute for Catalan autonomy. On August 14, Colonel Macia presented the statute to the Provisional Government in Madrid, with the demand that it be incorporated in the new Constitution. He received a cool reception in Madrid, but President Alcalá Zamora on August 18 presented the Catalan statute to the Cortes with a statement that the presentation signified "peace and accord." There was little peace in the Cortes, however, when the final vote on that section of the Constitution defining regional rights was taken September 26. Twice the Catalan delegates arose to withdraw from the Cortes—once when the socialists pressed their demand for central control of labor affairs and again when Finance Minister Prieto insisted upon national control of the Catalan fiduciary system and Bourse.

Meanwhile in Barcelona troops of the Madrid Government were mobilized to prevent an at-

tempt to establish an independent republic which it was feared would follow the withdrawal of the Catalan delegates from the Cortes. However, the Cortes finally approved a compromise clause which designated Spain as "an integral republic with ample facilities for regional autonomy." It was agreed that the interpretation of this phrase and the determination of the final status of regions desiring autonomy should be postponed until after the Constitution was completed.

OTHER CONSTITUTIONAL PROVISIONS. Other clauses of the Constitution approved by the Cortes in October and November extended the suffrage to women of 23 years and older, authorized divorce by mutual consent, and established Castilian as the official language to be taught in all primary and secondary schools while permitting autonomous regions to teach the regional language as well. A land law code provided for the expropriation and ultimate socialization of lands, industries, or other properties "when the interests of national economy dictate," but not without payment to the owners. On October 27, the Cortes voted 140 to 83 in favor of a parliament of but one chamber. It was decided (October 29) that the President was to be chosen by an electoral college, elected by direct suffrage, and by an equal number of Deputies from the Cortes, meeting in joint session. He was to be elected for six years and invested with broad powers. A popular referendum on any question except foreign affairs and the religious articles of the Constitution was made mandatory on petition of 15 per cent of the electorate. On November 3, the Cortes took the revolutionary step of incorporating in the Constitution Spain's obligations under the League of Nations as a fundamental principle of the republic. It decreed that war might be declared by the President only if such action was in accord with the law of the League, if it was beyond question defensive, and if the dispute had first been submitted to arbitration by the League. It was further stated that no treaty regarding war might be made except in conformity with the general laws of the League. The new flag adopted consisted of three horizontal bands of red, yellow, and dark purple, with a coat of arms in the centre.

Nine days behind its scheduled date, the Cortes completed voting on the Constitution (December 1) and eight days later it approved the basic law in its entirety. However, the civil rights and liberties chapters of the Constitution were suspended, pending enactment of legislation to put the Constitution into full effect. On December 10 Alcalá Zamora was elected Constitutional President by the Cortes, receiving 362 votes out of a possible 466. He was formally inaugurated the following day. On December 15 a new Cabinet was formed by Señor Azana, who had submitted his Government's resignation to President Alcalá Zamora on December 12. Other members of the new Cabinet were: Foreign Affairs, Luis de Zulueta (Independent); Finance, Jaime Carner (Catalan party); Justice, Alvaro de Albornoz (Radical Socialist); Navy, Jose Giral (Republican Action); Interior, Santiago Casares Quiroga (Gallegan); Public Instruction, Fernando de los Rios (Socialist); Labor, Francisco Largo Caballero (Socialist); Agriculture, Industry, and Commerce, Marcelino Domingo (Radical Socialist); Public Works, Indalecio Prieto (Socialist).

THE CURRENCY AND EXCHANGE PROBLEM. Throughout the year, the Provisional Govern-

ment was harassed by the declining exchange value of the peseta, with the consequent disruption of industry and commerce and lowering of the standard of living. The peseta (par value \$0.193) was circulated mostly in the form of notes of the semi-private Bank of Spain, the sole bank of issue. The peseta had never been on the gold standard and even before the World War there were noteworthy fluctuations in its value. The average exchange value declined from \$0.1659 in 1928 to \$0.1468 in 1929, \$0.1167 in 1930, and to \$0.0880 for August, 1931, the lowest point in the twentieth century. A slight recovery was noted in subsequent months, the average rate for October being \$0.0896. In its efforts to meet the exchange and currency crisis, the Government came into conflict with the directors of the Bank of Spain and on November 1 the Cabinet voted to introduce a bill placing the bank more completely under the control of the Government. It was disclosed that \$60,000,000 in gold had been shipped to the Bank of France since the founding of the Republic as security for loans.

OTHER EVENTS. The loans floated by the Provisional Government in France offered one indication of the orientation of Spain in the direction of France and away from Italy. In November a new commercial treaty was concluded with France which was highly favorable to French imports. The United States Ambassador to Madrid on November 11 protested to Foreign Minister Lerroux against Spain's decision not to grant "most-favored-nation" rights to the United States in connection with the French treaty. On Dec. 23, 1931, the Spanish tariff, already the highest in Europe, was raised to new high levels, as a result of tariff increases by Great Britain and France. Don Jaime of Bourbon (q.v.), Carlist pretender to the throne of Spain, died in Paris Oct. 2, 1931.

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See UNEMPLOYMENT.

SPANISH ACADEMY. See SPANISH LITERATURE.

#### SPANISH-AMERICAN LITERATURES.

Again we remind our readers that the facts here presented must not be considered exhaustive, nor must the omission of some of the countries be taken as evidence that they produced nothing in 1931. Gloria Bayardo, celebrated elocutionist, has collected *Cien poemas escogidos*, which are the poems she recites. Some critics claim that these one hundred poems represent the best of the best poets in all Spanish America. Of very great value is *Spain and Spanish America in the Libraries of the University of California: A Catalogue of Books: II, The general and departmental libraries*.

ARGENTINA. Again Argentina offers materials of interest in several fields. *Fiction*. Manuel Gálvez (author of *Los caminos de la muerte* and *Humaitá*) completes his epic trilogy in prose, *Escenas de la guerra del Paraguay*, with the powerful *Jornadas de agonía* (great fiction and real history), and produces also *Miércoles Santo* (keen study of sundry characters passing through the confessional on Good Friday); Pedro



Echagüe, *Dos novelas regionales* (the first, *La rinoonada*, is more historical, the second, *La Chapaney*, is richer, more profound and more original in its concept); Rafael Cano, *Del tiempo de Naupa* (well written realistic, even naturalistic, treatment of provincial customs of Northern Argentina); Carlos M. Lastra, *Un muchacho cualquiera* (story of an average Argentine boy, whom the author depicts as typical of the nation).

Victoria Gucovsky, *El Santo de la Higuera* (extremely fine study of the poorer classes in the Province of Córdoba; the author is unexpectedly masculine in the painting of scenes between men, but her finest qualities show up in her pictures of child-life among the proletariat of the cities); Delgado Fito, *Hijos de Pobres* (wholly interesting, sort of biography); and Jacinta and Matilde Cordone, *Cuentos* (their first book—short stories with great depth of feeling, which give promise of even better work later). The *El Cristo invisible* of Ricardo Rojas, which raised a great discussion, has appeared in an English translation by Webster E. Browning, with an introduction about the author and the work by Robert E. Speer.

**Drama.** Two Argentine theatrical companies had very successful seasons in the mother country: that of Azucena Marzani, and that of Enrique Rosas, who is successful not only as actor but also as author. Armando Discépolo and Rafael J. de Rosas produced very successfully in Barcelona the three-act play *Giacomo* (fine contrasts between persons who dream only of money, and the person who in the midst of adversity preserves his illusions of other days of splendor and happiness). José J. Podestá, aged and popular actor, produced his memoirs entitled *Medio siglo de farándula* (important contribution to the history of the Argentine national drama, which he considers as beginning with the pantomime *Juan Moreira*, first played in 1884).

**Poetry.** Rafael Jijena Sánchez (author of *Achalay*, in which already the voice of the land was heard), *Versos simples* (which is even more healthily of the soil—sturdy Argentine, with roots in the lyricism of fifteenth-century Spain); José Carlos Mauhó and Adolfo Capdevielle, *Antología de la poesía femenina argentina* (95 poetesses are represented by works printed without comment, leaving to others the study of their several merits); Leopoldo Velasco, *El triunfo del ensueño* (60 sonnets, 10 décimas, and 20 other compositions—very spiritual, especially the *Sonetos bíblicos*—the author knows his Bible); and Teófilo Hiroux Funes, *Angulo de sombra* (many types of verse).

**Erudition.** Julia García Games (publicist), *Como los he visto yo* (very important studies at first hand of more than a dozen contemporary Chilean writers—promises a second series); Carlos F. Melo (Director of the Biblioteca Nacional de Buenos Aires), *La resurrección de Ocitanía* (solid study of the Félibrige movement headed by the great Provençal poet Frédéric Mistral); José A. Merediz, *La transformación española de "El Greco"* (serious study to be used in addition to that of M. B. Cossio); Juan Carlos Rébora (author of a brilliant series of studies: *La Familia*, *El Estatuto de la Mujer*, and *La Emancipación de la Mujer*) has added a worthy fourth volume: *La Herencia* (a juridico-philosophical study by a philosophical thinker and jurist); and Hugo Wast, *Confidencias de un novicista* (a recital of personal experiences).

**BOLIVIA.** The Academia Boliviana, Correspondiente of the Academia Española de la Lengua, elected to membership Daniel Sánchez Bustamante (a great publicist, statesman, and author), and Daniel Salamanca and Juan Francisco Bedregal (distinguished authors).

**CHILE.** Francisco Contreras published three important works: *Rubén Darío, su vida y su obra*; *Valéry Larbaud, son oeuvre*; and *L'esprit de l'Amérique Espagnole*. In the Academia Chilena, Correspondiente of the Academia Española de la Lengua, there have been several changes: to fill the vacancy caused by the death of the great bibliographer José Toribio Medina, Alberto Edwards was elected; and the death of Crescente Errázuriz, Archbishop of Santiago de Chile brought about the election of Tomás Thayer Ojeda, to fill his seat in the Academy, and the choice of the renowned philologist, Miguel Luis Amunátegui Reyes, to succeed him as Director.

**CUBA.** José Antonio Ramos (whose *Coaybay* won the Premio Minerva of Habana in 1927) published *Las impurezas de la realidad* (not quite equal to the earlier work). Francisco Navarro, *La rebelión del hombre: Un drama futuro—Desequilibrio, en dos cuadros—Despertar, en dos cuadros*. Graziella Barinaga y Ponce de León (who published in 1927 (see YEAR BOOK for 1927) a careful study of *Fray Candil*) turned to verse in a beautiful volume *De la fuente infinita*. The learned Director of the Academia Nacional de Artes y Letras de Cuba, José Manuel Carbonell, continuing his studies of early Cuban authors (see YEAR BOOK for 1929), published *Los poetas de "El Laúd del Desterrado,"* which treats of Quintero, Teurbe Tolon, Santacilia, Turla, Castellón, and Zenea.

The publicist and jurisconsult Diego Vicente Tejera (*hijo*) continued his studies with *Delito de lesiones*. Eliseo Giberga, *Obras* (vol. i contained his *Discursos políticos*; vol. ii, his *Discursos parlamentarios* previous to Cuba's independence), vol. iii, *Estudios, artículos, entrevistas, y manifestos políticos*, and vol. iv, *Trabajos jurídicos y literarios*. Ignacio José de Urrutia y Montoya, *Obras*, vols. i and ii (published by the Cuban Academy of History).

**DOMINICAN REPUBLIC.** Samuel Montefiore Waxman, *A Bibliography of the Belles-Lettres of Santo Domingo*.

**ECUADOR.** Leonidas Pallares Arteta, whose *Mis nietos* appeared in 1929, published vol. ii of his *Obras*. José María Velasco Ibarra took his seat in the Academia Ecuatoriana, Correspondiente de la Academia Española de la Lengua, reading a discourse on *Joás Enrique Rodó*. Modesto Chavez Franco, *Crónicas del Guayaquil Antiguo*.

**GUATEMALA.** Two new members entered the Academia Guatemalteca, Correspondiente de la Academia Española de la Lengua: the jurisconsult, Luis Beltranena; and the journalist, Federico Hernández de León. Also Arturo Castillo was elected vice Miguel Angel Urrutia, recently deceased.

**MEXICO.** Too late for last year's account we learned that the poet Balbino Dávalos and the humanist Ezequiel A. Chávez had taken their seats in the Academia Mexicana, Correspondiente de la Academia Española de la Lengua. This year Carlos González Peña took his seat. Jesús Guzmán y Raz Guzmán published Tomo II of his important *Bibliografía de la reforma, la intervención, y el imperio*. The distinguished diplomat, Alfonso Reyes, published *El testimonio de Juan Peña*



(an autobiographical episode related with great charm and providing much food for thought). Also Balbino Dávalos, *La rima en la poesía clásica latina*; Carlos González Peña, *Luis G. Inclán en la novela mexicana*; Alvaro Leonor Ochoa, *En las sendas del monstruo*; Jefferson Rea Spell, *The Life and Works of José Joaquín Fernández de Lizardi*; and Felipe Teixidor, *En Libris y Bibliotecas de México*, and Roberto Ramos, *Bibliografía de la Revolución Mexicana*, which were respectively numbers 20 and 21 of *Monografías bibliográficas mexicanas*.

NICARAGUA. Two new members took their seats in the Academia Nicaragüense, Correspondiente de la Academia Española de la Lengua: the celebrated poet Santiago Argüello, and the erudite and cultured teacher and publicist Pablo Hurtado. Jerónimo Aguilar Cortés published an original novel *Ramón Díaz*.

PANAMA. Dr. Pablo Arosemena, *Escritos*, 2 vols. (state papers, discourses, and studies by this outstanding diplomat, statesman, and quondam president); Nicolás Victoria J., vol. 2 of his *Escritos* (series of discourses, articles, and essays); Juan Antonio Susto and Simón Eliet edited the former's work *La Vida y La Obra del Dr. Gil Columbe*. The Instituto Nacional de Panamá published the very important volume *Documentos Históricos sobre la Independencia del Istmo de Panamá* (which every American should read so that he might have a more solidly grounded opinion on this question). Hector Conte Bermúdez, *La Creación de Bolivia y La Constitución Boliviana en el Istmo de Panamá* (very readable, well-documented, short presentation of this important question).

PERU. In the purely literary field few works have come to hand: César Vallejo, *Tungsteno* (novel of advanced social tendencies in a Peruvian atmosphere); Xavier Abril, *Hollywood* (literary prose of a distinctly renaissance spirit); and Felipe Sassone (who, despite his long residence in Spain, belongs to Peru), *La Maricastaña* (creation of a very admirable type of womanhood—unusual topic beautifully handled—a great triumph for the author and for the actress Hortensia Gelabert); *Adán, o el drama empieza mañana* (one of his best works), and *Un momento* (performed by Rosario Pino and Emilio Thuillier). Angélica Palma wrote a delightful work, *Fernán Caballero, la novelista novelable*.

Peruvian production in the field of the essay on sociology, history and economics has been intense because of the interest of the younger generation in studying national problems, especially those related to the Peruvian farmer. Jorge Basadre, *Perú, Problema y Posibilidad* (a beautiful work wherein the history of Peru, in the service of the social interpretation of to-day, indicates the courses this nation will pursue); Uriel García, *El nudo Indio* (studies the Peruvian Andes and the farmer therein, making a brilliant exposition of the landscape and the soul of the Inca of to-day).

URUGUAY. Justino Zavala Muniz, *Crónica de Reja* (novel, giving a very fine penetrating study of Uruguayan life). Arturo Scarone, Director of the Biblioteca Nacional of Montevideo, *Bibliografía de Rodó* (two very fine volumes); Alfred Coester, *Tentative Bibliography of the Belles-Lettres of Uruguay*.

VENEZUELA. Arturo Uslar Pietri (one of the most promising of the new generation in Venezuela, whose first work was *Barrabás y otros*

*relatos*), *Las Lanzas Coloradas* (an historical novel treating an episode in the War of Independence; and J. Gil Fortoul, *Historia Constitucional de Venezuela* (a new edition published by order of the President of Venezuela on the occasion of the centenary of Bolívar's death).

The Academia Venezolana, Correspondiente de la Academia Española de la Lengua, suffered several losses through death: Jesús Semprún (great, vigorous, and profound critic, editor of *Cultura Venezolana*); B. Tavera Acosta (historian, archæologist, linguist, corresponding member of the Academy of History of Madrid, and Senator of the Republic); and Juan E. Arcia (Secretary of the Venezuelan Academy). On the other hand, two members-elect took their seats: Juan José Abreu, and José Manuel Núñez.

SPANISH LANGUAGE. See PHILOLOGY, MODERN.

SPANISH LITERATURE. For the sixth year in succession, the dramatic output for 1931 ran ahead of that of the other branches; but this year fiction crept up on erudition, until they seemed to be about on a par.

DRAMA. Forty years ago *Realidad* by B. Pérez Galdós failed, but it was successfully revived this year by the great Argentine actress Lola Membrives. Interesting and very successful revivals of plays of the Golden Age were as follows: Antonio and Manuel Machado reworked Lope de Vega's *El perro del hortelano*, which was excellently played by María Guerrero, junior; Margarita Xirgu was very successful with Calderón de la Barca's auto, *El Gran Teatro del Mundo* and Tirso de Molina's historic play *La Prudencia en la mujer*; and two splendid revivals in the Plaza de la Armería in the open air—Calderón de la Barca's *El Alcalde de Zalamea*, by the great Enrique Borrás and his company, and Calderón's *La Vida es sueño*, by the celebrated Ricardo Calvo and his company.

The older generation was still active, as witness J. Benavente, *De muy buena familia* (a great success), *Literatura* (successful, but less dramatic), and *Cuando los hijos de Eva no son los hijos de Adán* (vigorous, clamorous success, but so different from last year's calm and placid triumph, *La melodía del jazz-band*, that it seems to be by a different author); the Álvarez Quintero brothers, *El peligro rosa* and *Madracelva* (poetic drama, glorification of maternity, written almost wholly in romances, first performed by Lola Membrives on the forty-second anniversary of the first performance in Seville of their first play: *Egrima y amor*); Manuel and Antonio Machado, *La prima Fernanda* (political satire, verse play, excellently performed by Irene López Heredia); Eduardo Marquina, *Fuente escondida* (very successful verse comedy, played by Margarita Xirgu); Joaquín Dicenta, *Pluma al viento* (verse play); Carlos Arniches, *Vivir de ilusiones* (delightful); Luis Fernández de Ardevín and Valentín de Pedro, *Manon Lescaut* (very successful), and *Estampa romántica*; Manuel Linares Rivas, *Déjate querer, hombre!* (although successful, it adds nothing to his reputation), and *Todo Madrid lo sabía* (daring defense of adultery as a sacrifice for the benefit of others); Pedro Muñoz Seca, *Todo para ti* (very successful), and with Pérez Fernández, *Mi padre* (light comedy, very funny and risqué); Ramón del Valle-Inclán, *Farsa y licencia de la reina castiga*, and *El embrujado* (extraordinary success); Luis de Vargas, *El reloj de oro*, and *La de los claveles dobles*; José

Fernández del Villar, *Mi casa es un infierno* (great success), and *Los Reyes Católicos* (keen satire on modern courtship in small towns); Pilar Millán Astray, *Los amores de la Nati* (one of her great successes, performed by the company of the young María Guerrero and Fernando Díaz de Mendoza); Francisco Serrano Anguita, *Papá Gutiérrez* (excellently performed), *Juan de las Viñas* (political satire not related to the immediate present, acted by Eugenia Zuffoli and Juan Bonafé), and *Tierra en los ojos* (great success, plot based on Santa Teresa's words: "The earth in our eyes prevents our seeing God.")

FICTION. Some of the older authors continued active: Pío Baroja, *La venta de Mirambel* and *Los confidentes audaces* (both belonging to the series *Memorias de un hombre de acción*); Concha Espina, *Copa de horizontes* (short stories from many lands, excellent technique and psychology); Azorín, *Pueblo* (*novela de los que trabajan y sufren*); V. Blasco Ibáñez, *El fantasma de las alas de oro* (posthumous work); José Francés, *Rostros de las nieblas* (collection of stories written between 1925 and 1930); W. Fernández Flórez, *El malvado carabel*; Francisco Camba, *Machicha Monroy* (very highly praised); Pedro Mata, *Chamberí*; Alfonso Hernández Catá, *Manicomio* (book of short stories); and Matilde Muñoz, *La virgen muerta* (intense picture of life in a fishing village).

Others who were favorably received were: Ramón María Tenreiro, *La ley del pecado* (tragic, excellent, lofty moral); Artemio Precioso, *Los españoles en el destierro*; César M. Aronada, *La turbina* (beautiful); Felix del Valle, *El camino hacia mi mismo* (interesting moral); Antonio de Hoyos, *Seguro contra naufragio*; Luis de Oteyza *Antictpolis* (keen study of life in New York, as a form of living to which all great cities will have to come); José de Burgos Mira, *Monstruosidad* (new treatment of the *Don Juan* legend, with prologue by José Francés); Darío Fernández Flórez (young writer), *Inquietud* (very successful book of novels); Adolfo Botín y Polanco, *Virazón*; José M. Salaverría, *La virgen de Aránzazu*; Manuel Bueno, *Poniente solar* (beautiful); Herminio Madina-veitia, *De la casta del Cid*; and Eduardo Barriobero y Herrán, *Historia ejemplar y atormentada del "Caballero con la mano al pecho."*

In addition to those already cited, there were five other women who call for attention: Leonor Canalejas, *Ignacio* (*historia novelada*); Luisa Carnés, *Natacha* (very interesting study of women in the hands of fate); Julia García Herberos, *Sor Angélica* (tragic, powerful, with lofty ideals); Sofía Casanova, *Como en la vida* (interesting); and Rosa Arciniega de Granda, *Engranajes* (highly praised).

POETRY. Spain still does much of her best verse in the drama. Of non-dramatic verse the following may be noted: Fernando Valera, *Salmos de la noche espiritual* (exquisite verse and heartwarming content); Maruja Vidal, *Los látigos invisibles* (beautiful); Emilio Carrere, *Pandercetas de España* (very highly praised verse-etchings, inspired by profound feelings); Alfonso Camín (an Asturian), *Antología poética* (contains 130 poems that give a clear idea of his literary personality); Concha Menéndez Cuesta, *Canciones de mar y tierra* (praised as though from a born poet); Jesús Cancio (montañés), *Romancero del mar* (beautiful); and

Ángel Lázaro, *El molino que no muele* (highly praised).

ERUDITION. Among the most interesting productions are these: Conde de Romanones, *Salamanca, conquistador de riquezas, gran señor* (life of José de Salamanca y Mayol, man-of-affairs, financier and statesman); Ramón Gómez de la Serna, *Azorín* (useful, long list of outstanding contemporaries with dates and photographs); Pedro Bach y Rita, *The Works of Pere Torroella* (careful study of important bilingual Catalan writer of second half of fifteenth century); Barbara Matulka, *The Novels of Juan de Flores and their European Diffusion* (lengthy study of late fifteenth century Spanish author); W. S. Hendrix, *Las rimas de Bécquer y la influencia de Byron*; Julián Paz, *Catálogo de la colección de documentos inéditos para la historia de España* (2 vols.); Abubéquer de Tortosa, *Lámpara de los Príncipes* (translation by Maximiliano Alarcón, 2 vols.); Adolfo Posada, *Hacia un nuevo dorchio político—reflexiones y comentarios*; Luis Araquistain, *El ocaso de un régimen* (bitterly anti-monarchical, suppressed by the Government); Gabriel Maura Gamazo, *Bosquejo histórico de la dictadura* (fifth, corrected edition of this important work); Alejandro Lerroux, *Pequeñas tragedias de mi vida* (first volume of mémoires of one of the most important personages in the Republican Government); Manuel Azaña, *Plumas y palabras* (mémoires and studies by the provisional President of the Spanish Republic); Marqués de Villa-Urrutia, *Eugenia de Guzmán, Emperatriz de los franceses*; Juan de Castro, *El duque de Alba* (instructive short life of the Great Duke of Alba), and *Evocaciones de la gran guerra*.

SPANISH ACADEMY. Ignacio Bolívar, the great naturalist, read his entrance discourse (*El lenguaje de la historia natural*), and took his seat, vice E. Gómez Baquero. The great dramatist Eduardo Marquina was unanimously elected, vice Pedro Novo y Colsón, the naval expert, dramatist, and historian, who died early in the year. Later, the journalist, José Francos Rodríguez, also died. The Spanish Academy awarded the Duke de Alba Prize to Justo García Soriano, for his *Vocabulario del dialecto murciano*. The Fastenrath Prize was awarded to Emilio García Gómez, professor at the University of Granada, for his *Un texto árabe occidental de la leyenda de Alejandro*. The "Piquer" Prize was awarded to Francisco Serrano Anguita for his comedy *Manos de plata*.

NECROLOGY. Aside from the deaths just mentioned, the following must be listed: Courtenay De Kalb (q.v.) (scholarly American Hispanist and mining engineer); Enrique García Álvarez (great comic author, master of the *género chico*); Emilio Mesejo (popular actor, creator of the rôle of Julián in the *Verbena de la paloma*); Pierre Paris (great French Hispanist, archaeologist, and Director of the Institut Français in Madrid); Mario Méndez Bejarano (author of *Vida y obras de Don José Blanco y Crespo*); José Zahonero (author and journalist); Ramón Godo Lallana, Conde de Godo (illustrious Catalan journalist and financier); and Santiago Rusiñol (the beloved Catalan painter, dramatist, and poet of *melancolía*). See SPANISH-AMERICAN LITERATURE.

SPECTROSCOPY. See CHEMISTRY; PHYSICS.

SPECULATION. See FINANCIAL REVIEW.

SPEECH. See PHILOLOGY, MODERN.

**SPEED-BOAT RACING.** See **MOTORBOATING.**

**SPENCER, ANNA GARLIN.** An American minister and sociologist, died in New York City, Feb. 12, 1931. She was born in Attleboro, Mass., Apr. 17, 1851, and early became engaged in newspaper work, being a contributor to the Providence (R. I.) *Journal* from 1869 to 1878. Following her marriage to the Rev. William H. Spencer in 1878, she was associated with him as writer, teacher, and occasional preacher in Unitarian churches in Haverhill, Mass., Florence, Mass., and Troy, N. Y. In 1891 she was ordained to the Unitarian ministry and was installed as minister of the Bell Street Chapel, Providence, R. I., which she had organized two years previously. Later removing to New York City, she was associate leader of the Society for Ethical Culture from 1903 to 1909 and associate director and staff lecturer at the New York School of Philanthropy from 1903 to 1910. She was also director of the Institute of Municipal and Social Service in Milwaukee during 1910-11.

In 1913 she became Hackley professor of sociology and ethics at the Meadville (Pa.) Theological School, and in 1918 lecturer at the University of Chicago. From 1920 to 1928 she was special lecturer in social science at Teachers College, Columbia University, and at the time of her death was head of the division of family relations of the American Social Hygiene Association.

**SPENCER, ROBERT.** An American landscape painter, died by suicide in New Hope, Pa., July 11, 1931. He was born in Harvard, Neb., Dec. 1, 1879, and received his art training at the National Academy of Design school in New York City (1899-1901) and at the New York School of Art (1903-05), studying under Chase, DuMond, Henri, Garber, Francis Jones, and F. Luis Mora. He became a National Academician in 1920. Although catalogued as a landscapist, he was really a *genre* painter who portrayed the homely, intimate and, on the whole, romantic life of the people in whom he was interested. Among his works are "Building the Bridge" in the Metropolitan Museum of Art, New York City; "Along the Canal, New Hope" in the Detroit Institute of Arts; "The Huckster Cart" in the Art Institute of Chicago; "The Red Boat" in the Corcoran Gallery, Washington; "The Tower" in the Carnegie Institute, Pittsburgh; "The White Tenement" in the Brooklyn Museum; and "The Green River" in the Albright Art Gallery, Buffalo.

**SPIDERS.** See **ZOOLOGY: ENTOMOLOGY, ECONOMIC.**

**SPILLMAN, WILLIAM JASPER.** An American agricultural economist, died in Washington, D. C., July 11, 1931. He was born in Lawrence Co., Mo., Oct. 23, 1863, and was graduated from the University of Missouri in 1886, receiving the D. Sc. degree from Temple University in 1890. He was professor of agriculture at the Washington State College from 1894 to 1901. In 1902 he became associated with the U. S. Department of Agriculture as agrostologist in charge of grass and forage plant investigations in the Bureau of Plant Industry, and from 1915 to 1918 was chief of the Office of Farm Management. He then resigned to become editor of the *Farm Journal*, but reentered the Department of Agriculture in 1921.

In 1924 he was appointed agricultural economist in the Bureau of Agricultural Economics, becoming principal agricultural economist in 1928. His researches included special studies in

the heredity of plants, and he published in 1901, as a result of his independent discovery of Mendel's law of recombination, *Quantitative Studies on Distribution of Parental Characters in Hybrid Offspring*. In 1920 he discovered the mathematical form of the law of diminishing returns with relation to the results of the use of fertilizers on farms. He also edited the heredity section of the *American Naturalist* during the period 1908-15.

**SPIRITUALISM.** See **PSYCHICAL RESEARCH.**

**SPITSBERGEN.** See **SVALBARD.**

**SPORTS.** Articles covering the activities in the various sports during 1931 will be found under such titles as **ATHLETICS, BASEBALL, FOOTBALL, GOLF, RACING, TENNIS, YACHTING; UNIVERSITIES AND COLLEGES.**

**SQUASH RACQUETS, SQUASH TENNIS, RACQUETS.** See **COURT GAMES.**

**STABILIZATION OF AGRICULTURAL PRODUCTS.** See **AGRICULTURE** under *Federal Farm Board.*

**STAINIERITE.** See **MINERALOGY.**

**STAMPS, ANNIVERSARY.** See **CELEBRATIONS.**

**STANDARDS.** See **PHYSICS.**

**STANFORD UNIVERSITY.** A nonsectarian institution for the higher education of men and women in Palo Alto, Calif., founded in 1891 in memory of Leland Stanford, Jr. The enrollment for the autumn quarter of 1931 was 3519 and for the summer quarter, 1135. The faculty numbered 558. The productive funds of the university amounted to \$30,500,000, and the budget income for the year, including fees, was \$3,073,000. The library contained 546,932 volumes (including the Hoover War Library). Acting president, Robert Eckles Swain, Ph.D., executive head of the chemistry department, who was appointed to serve during the leave of absence of Ray Lyman Wilbur.

**STARS.** See **ASTRONOMY.**

**STATE BANKS.** See **BANKS AND BANKING.**

**STATE LEGISLATION.** See articles on various States; **OLD AGE PENSIONS.**

**STATE TAXES.** See **TAXATION.**

**STATISTICAL ASSOCIATION, AMERICAN.** An organization founded in Boston in 1830 to foster an interest in statistics and to promote scientific methods of collecting and interpreting statistical data. Among the committees maintained during 1931 were: The joint advisory committee on the census; the committee on governmental labor statistics; the committee on institutional statistics; the committee on dependency and child welfare statistics; and the committee on the *Encyclopaedia of the Social Sciences* which, along with other societies, was engaged as an advisory and sponsoring body in the preparation of that work. The official publications are the *Journal of the American Statistical Association* and the *Annals of Mathematical Statistics*, each issued quarterly.

The association's ninety-third annual meeting was held in Washington, D. C., Dec. 28-30, 1931. The principal topics of discussion included: "The Depression: The Functioning of Gold"; "Future Population and Business Planning"; "Technological Change as a Factor in Unemployment"; "The Depression: Banks and Credit"; "Old Age in America"; "Measuring Unemployment"; and "Prospects for Prosperity." The officers of the association for 1932 were: President, Irving Fisher; vice presidents, Seymour L. Andrew, William L. Crum, Lowell J. Reed,

Horace Secrist, Leon E. Truesdell, and Mary van Kleeck; secretary-treasurer, Willford I. King; editor, Frank Alexander Ross. Headquarters are in the Commerce Building of New York University, 236 Wooster Street, New York City.

**STATISTICS. INDEX NUMBERS OF WAGES.** The U. S. Bureau of Labor Statistics prepared the following index numbers of wages per hour from 1840 to 1929. The year 1913 was used as the base year. These figures clearly indicate that there has been a general trend of hourly earnings upward. In the 90 years for which the figures have been prepared there has been an increase of fully 700 per cent.

**INDEX NUMBERS OF WAGES PER HOUR, 1840 TO 1929 (EXCLUSIVE OF AGRICULTURE)**

[On currency basis during Civil War period, 1913 = 100]

Year	Index number	Year	Index number
1840	83	1885	64
1841	84	1886	64
1842	83	1887	67
1843	83	1888	67
1844	82	1889	68
1845	83	1890	69
1846	84	1891	69
1847	84	1892	69
1848	85	1893	69
1849	86	1894	67
1850	85	1895	68
1851	84	1896	69
1852	85	1897	69
1853	85	1898	69
1854	87	1899	70
1855	88	1900	73
1856	89	1901	74
1857	40	1902	77
1858	39	1903	80
1859	39	1904	80
1860	39	1905	82
1861	40	1906	85
1862	41	1907	89
1863	44	1908	89
1864	50	1909	90
1865	58	1910	93
1866	61	1911	95
1867	63	1912	97
1868	65	1913	100
1869	66	1914	102
1870	67	1915	103
1871	68	1916	111
1872	69	1917	128
1873	69	1918	162
1874	67	1919	184
1875	67	1920	234
1876	64	1921	218
1877	61	1922	208
1878	60	1923	217
1879	59	1924	223
1880	60	1925	226
1881	62	1926	229
1882	63	1927	231
1883	64	1928	232
1884	64	1929	233*

\* Subject to revision.

**REAL WAGES PER HOUR.** The U. S. Bureau of Labor Statistics computed the accompanying index of wages per hour from 1913 to 1929, using 1913 as a base. The table indicates that in 1917 money wages were 28 per cent higher than in 1913, while the cost of living was 42.4 per cent higher, making a real wage of 89.9. It will be observed that in 1929 the index figure for real wages, by contrast, was 136.4.

**NUMBER OF GAINFUL WORKERS.** According to the 1930 census, there were in the United States 98,723,047 persons 10 years of age and over, of whom 48,832,589 were returned as gainful workers or 49.5 per cent of the total in the group 10 years and over. Of the whole number of gainful workers, 38,053,795 were males and 10,778,794 were females. The percentage of male population 10 years and over gainfully employed in 1930

**INDEX NUMBERS OF WAGES PER HOUR, COST OF LIVING, AND REAL WAGES**

Year	Index numbers of— Wages per hour	Cost of living	Real wages
1913	100	100.0	100.0
1914	102	103.0	99.0
1915	103	105.1	98.0
1916	111	118.3	93.8
1917	128	142.4	89.9
1918	162	174.4	92.9
1919	184	188.3	97.7
1920	234	208.5	112.2
1921	218	177.3	123.0
1922	208	167.3	124.3
1923	217	171.0	126.9
1924	223	170.7	130.6
1925	226	175.7	128.6
1926	229	175.2	130.7
1927	231	172.7	133.8
1928	232	170.7	135.9
1929	233	170.8	136.4

was 70.2 per cent; the percentage of female population 10 years and over gainfully employed in the same year was 22.1 per cent. In 1910, 53.3 per cent of the population 10 years and over was gainfully employed; 81.3 per cent of the male population 10 years and over was gainfully employed; 23.4 per cent of the female population 10 years and over was gainfully employed. The accompanying table presents the gainful workers in the main industry groups by sex in the United States for 1930:

**GAINFUL WORKERS IN THE MAIN INDUSTRY GROUPS, BY SEX, FOR THE UNITED STATES, 1930**

Industry group	Male	Female	Per cent Male	Female
All industries	38,053,795	10,778,794	100.0	100.0
Agriculture	9,568,347	913,976	25.1	8.5
Forestry and fishing	260,876	3,249	0.7	...
Extraction of minerals	1,147,770	10,294	3.0	0.1
Manufacturing and mechanical industries	11,901,247	2,416,288	31.3	22.4
Transportation	3,990,875	447,780	10.5	4.2
Trade	5,820,642	1,716,384	15.3	15.9
Public service (not elsewhere classified)	934,581	123,323	2.5	1.1
Professional service	1,663,049	1,762,795	4.4	16.4
Domestic and personal service	1,662,707	3,149,391	4.4	29.2
Industry not specified	1,097,701	235,364	2.9	2.2

See CENSUS; STATISTICAL ASSOCIATION, AMERICAN.

**STATUTE OF WESTMINSTER.** See GREAT BRITAIN under *History*.

**STEAMBOAT INSPECTION.** See SAFETY AT SEA.

**STEAM BOILERS.** See BOILERS, STEAM.

**STEAM ENGINES.** See POWER PLANTS and BOILERS.

**STEAM TURBINES.** There was little change of major importance in steam-turbine practice during 1931, but many improvements and refinements in design were evident and turbine performance showed still greater reliability. Maximum sizes were not increased and the 208,000-kilowatt cross-compound unit installed at State Line Station, near Chicago, still held the record for capacity. There were, however, several relatively large units, of 105,000 to 160,000 kilowatts capacity, installed or on order, and the 110,000-kilowatt, vertical-compound turbine-generator that was placed in service during the summer at the Rouge plant of the Ford Motor

Company established a record both as the largest 1400-pound machine and the largest turbine installed in an industrial power plant. Two other vertical compound units, each of 50,000 kilowatts, in which the high-pressure element is superimposed on the low-pressure element, were placed in service at Station A of the Pacific Gas & Electric Co., San Francisco. At the Charles R. Huntley Station in Buffalo there were installed two 80,000-kilowatt turbine-generators, which are the largest single-cylinder machines yet built.

In Europe, while sizes had not approached those in the United States, there was nevertheless a trend toward larger units of 50,000 to 75,000 kilowatts capacity. Foreign practice leads in the sizes of turbines of high rotative speed, several having been built of 50,000 kilowatts capacity to run at 3000 r.p.m., whereas the largest 3600 r.p.m. machine in operation in the United States is 15,000 kilowatts. One of 18,000 kilowatts is, however, being built.

Blading materials received much attention and numerous investigations were under way with the object of ascertaining the materials best suited to withstand erosion and corrosion and at the same time possessing the required strength to withstand the high rotative stresses. The advent of higher steam temperatures has introduced still another factor. In the two 160,000-kilowatt units installed at the Hudson Avenue Station in Brooklyn, N. Y., provision was made for draining moisture from each stage of the low-pressure elements with a view to minimizing the erosion of the low-pressure blading. Welding was gaining favor in both turbine and condenser construction, and three-stage blading was replacing that of a greater number of stages.

Under POWER PLANTS mention has been made of the two new mercury-steam installations, one at Schenectady, N. Y., and the other at Kearney, N. J. The mercury turbines in each case are of 20,000 kilowatts capacity, operating at a mercury pressure of 125 pounds per square inch and a temperature of 958° F. The former will be installed outdoors at the same elevation as the boiler, whereas at Kearney the turbine will be housed and installed at a higher elevation than the boiler, so that the condensed mercury will return by gravity to the boiler.

**STEEL.** See IRON AND STEEL.

**STELLAR CONSTITUTION AND EVOLUTION.** See ASTRONOMY.

**STEVENS INSTITUTE OF TECHNOLOGY.** A college of engineering in Hoboken, N. J., founded in 1870. The college offers an unspecialized course in the fundamentals of engineering to provide basic training for the practice of the profession in its several branches. The enrollment for the autumn of 1931 was 525, including 22 graduate students, and for the summer session of that year, 94. There were 65 members on the teaching staff. The productive funds amounted to \$3,300,000, and the income for 1930-31, including fees from students, was \$496,000. The library contained 30,000 volumes. President, Harvey Nathaniel Davis, Ph.D.

**STOCK EXCHANGE.** See FINANCIAL REVIEW.

**STOCKS AND BONDS.** See FINANCIAL REVIEW.

**STODDARD, JOHN L (AWSON).** An American lecturer and author, died near Merano, Italy, June 5, 1931. He was born in Brookline, Mass.,

Apr. 24, 1850, was graduated from Williams College in 1871, and later studied at Yale Divinity School. He traveled extensively and for nearly 20 years was one of the foremost lecturers in the United States on travel subjects. Among his publications are *Red Letter Days Abroad* (1884); *Glimpses of the World* (1892); *Stoddard Lectures on Travel Aboard and in America* (15 vols., 1898-1909); *The Stoddard Library, an Anthology* (12 vols., 1910); *Poems* (1911); and *Evening of Life* (1929). Following his conversion to the Roman Catholic Church, he wrote *Rebuilding a Lost Faith* (1921); *Two Arguments for Catholicism* (1927); *Life of St. Paul* (1928); and *Life of Pope Gregory the Great* (1929).

**STOKES, REAR ADMIRAL CHARLES FRANCIS, U. S. N., RET.** An American naval surgeon, died in Brooklyn, N. Y., Oct. 29, 1931. He was born in New York City Feb. 20, 1863, and was graduated from the College of Physicians and Surgeons of Columbia University in 1884. Entering the U. S. Navy as assistant surgeon in 1889, he was operating surgeon aboard the ambulance ship *Solace* during the Spanish-American War. From 1903 to 1906 he was personal surgeon to President Roosevelt. He commanded the U. S. Naval Hospital at San Juan, Porto Rico, during 1906-08 and the hospital ship of the Atlantic Fleet during its cruise around the world in 1908. In 1910 he was made surgeon-general and chief of the Bureau of Medicine and Surgery, with the rank of rear admiral. Following his retirement in 1917, he practiced in New York City.

**STORMS.** See METEOROLOGY.

**STRAITS SETTLEMENTS.** A crown colony of British Malaya (q.v.), comprising the Settlements of Singapore (including Christmas Island, Cocos or Keeling Islands, and Labuan), Penang (including Province Wellesley and the Dindings), and Malacca. The Settlements were divided by area and population (1928) as follows: Singapore, 281 square miles and 559,270 inhabitants; Penang, 571 and 342,023; Malacca, 720 and 194,342. Christmas Island (area 58 square miles; population 1421 in 1928) lies in the Indian Ocean 223 miles southeast of Java Head. The entire population is engaged in the production of phosphate of lime. Labuan, an island six miles off the northwest coast of Borneo, has an area of 36 square miles and a population of 6029 (1929). The Cocos or Keeling Islands (population about 800) lie 1161 miles southwest of Singapore. The total area of the Straits Settlements is 1571 square miles; population in 1931, 1,065,568, more than half of whom are Chinese.

The capital, Singapore, (population 445,778 in 1931) is one of the ten leading ports of the world. Penang (Georgetown), with 123,069 inhabitants in 1921, and Malacca, population 21,200, are the chief towns of the other two settlements. Immigrants from China (1929) totaled 293,167, from India 114,252; the excess of births over deaths was 12,558.

Foreign trade and production statistics are included in those for British Malaya. For 1930 state revenue declined to 32,408,000 Straits dollars and expenditure was 39,240,000 Straits dollars (1 Straits dollar exchanged at about \$0.56 U. S. in 1930). The public debt on Jan. 1, 1930, totaled £18,027,020, of which £9,355,000 represented loans to the Federated Malay States.

At the beginning of 1930, the Settlements had 7176 miles of highway (2040 miles of asphalt).

The net tonnage of merchant ships of over 50 tons entering and clearing Singapore in 1930 was 31,755,526.

The colony is administered by a Governor, assisted by a nominated Executive Council and a Legislative Council, all the members of which are *ex officio* or nominated except two elected by the Chambers of Commerce of Singapore and Penang. The Governor is also High Commissioner for the Malay States and British Agent for British North Borneo and Sarawak. Governor in 1931, Sir Cecil Clementi, appointed February, 1930.

**STRATTON, SAMUEL WESLEY.** An American physicist, died in Boston, Mass., Oct. 18, 1931. He was born in Litchfield, Ill., July 18, 1861, and was graduated from the University of Illinois in 1884. The following year he became connected with that institution as instructor in mathematics and in 1889 was appointed professor of physics and electrical engineering. In 1892 he was called to the University of Chicago, where he served successively as assistant professor, associate professor, and professor of physics until 1901. He then organized the U. S. Bureau of Standards in Washington, having previously interested Lyman J. Gage, then Secretary of the Treasury, in such a plan, and acted as director of that bureau during its notable development until 1923 when he became president of the Massachusetts Institute of Technology. In 1930 he was made chairman of the corporation of that institution.

During the Spanish-American War he served in the U. S. Navy with the rank of lieutenant, and during the World War was secretary of the committee for aeronautics and a member of the executive board of the National Research Council.

**STRAUS, NATHAN.** An American merchant and philanthropist, died in New York City, Jan. 11, 1931. He was born in Rhenish Bavaria, Germany, Jan. 31, 1848, and six years later went to the United States with his parents. After graduating from Packard's Business College in 1866, he was employed in his father's importing business in New York City. In 1887 he and his brother Isidor purchased the controlling interest of the department store of R. H. Macy & Co., and in 1893 they organized the department store of Abraham & Straus in Brooklyn. Following his brother's death on the *Titanic*, he devoted most of his time to philanthropic activities.

He had established and maintained in New York City, from 1892 to 1920, a system of distribution of sterilized milk for the children of the poor, and had extended his idea not only to other American cities but to other countries by installing pasteurization plants in England, Ireland, Germany, Palestine, Cuba, and the Philippines. After 1918 he devoted much of his fortune to rebuilding Palestine as a Jewish national home.

**STREETS.** See **ROADS AND STREETS.**

**STRIKES AND LOCKOUTS.** The accompanying tabulation indicates that, aside from the year 1928, the actual number of strikes in the United States reported in 1930 was less than for any other of the previous 15 years. The number of workers involved was also fewer for this year than for any other. The relative number of disputes and the relative number of employees on strike for each year from 1916 to 1930 is shown in Table I from the *Monthly Labor Review*, for which 1916 figures serve as a base.

Strikes occurred with greatest frequency in the coal mining, clothing, building, and textile indus-

# I. RELATIVE NUMBER OF DISPUTES AND OF EMPLOYEES INVOLVED, 1916 TO 1930

Year	Relative number of— Disputes	Employees
1916	100	100
1917	117	77
1918	88	78
1919	96	260
1920	90	91
1921	68	69
1922	29	101
1923	41	47
1924	33	41
1925	34	27
1926	27	21
1927	19	22
1928	17	22
1929	24	15
1930	17	10

tries, and over 90 per cent of the total number of persons involved during 1930 were to be found in these four groups. Industrial disputes continued to centre largely about the questions of wages, hours of employment, or recognition of the union. Strike settlements in 1930 showed a material loss to employees, when the figures are compared with the results in 1929. Forty-four per cent of the strikes in 1930 were settled in favor of the employers as against 40 per cent in 1929; 25 per cent of the strikes in 1930 were settled in favor of the workers as against 29 per cent in 1929; the number of strikes in which a compromise settlement was reached was 24 per cent in 1930 as compared with 25 per cent in 1929. In 1930, 41 per cent of all strikes were concluded in 6 days and 66 per cent in 14 days. Table II shows the relation of workers on strike to labor unions over the period 1916-1930.

Table III shows the number of workers involved in strikes over the period being discussed.

# III. NUMBER OF DISPUTES BEGINNING IN EACH YEAR FOR WHICH NUMBER OF EMPLOYEES IS REPORTED, AND TOTAL AND AVERAGE NUMBER INVOLVED, 1916 TO 1930

Year	Number of disputes	Number of employees	Average number of employees per dispute
1916	2,667	1,599,917	600
1917	2,325	1,227,254	528
1918	2,151	1,239,989	576
1919	2,665	4,160,348	1,561
1920	2,226	1,463,054	657
1921	1,785	1,099,247	616
1922	899	1,612,562	1,794
1923	1,199	756,584	631
1924	898	654,641	729
1925	1,012	428,416	423
1926	783	329,592	421
1927	734	349,434	476
1928	629	357,145	568
1929	903	230,463	255
1930	653	158,114	242

In 1930, 25,529 workers in the building trades were directly involved in industrial disputes; in the clothing industry the number was 54,177; in the metal trades, 2142; in the coal mining industry, 35,403; in the textile trades, 11,553. On the other hand, in the iron and steel industry, only 940 persons were involved in industrial disputes in 1930; in the lumber industry the number was 452; in printing and publishing it was 160; in transportation (steam and electric) it was 767. Table IV indicates the duration of disputes for the period from 1916 to 1930 being discussed.



## II. RELATION OF WORKERS TO LABOR UNIONS

Number of disputes

	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
Relation of workers to union															
Connected with unions .....	2,458	2,392	1,903	2,033	2,506	2,038	844	1,265	1,063	1,018	823	614	534	711	539
Not connected with unions .....	446	209	362	143	137	62	37	77	69	142	93	67	66	157	98
Organized after dispute began .....	71	55	26	30	8	5	5	18	14	16	19	16	4	20	15
Union and nonunion workers .....							12	29	31	38	15	5	4	15	6
Not reported .....	314	1,794	1,062	1,424	760	280	214	164	72	87	85	32	21	.....	....
Total .....	3,789	4,450	3,353	3,630	3,411	2,385	1,112	1,553	1,249	1,301	1,035	734	629	903	653

## IV. NUMBER OF DISPUTES FOR WHICH DURATION IS KNOWN, AND TOTAL AND AVERAGE DURATION

Year in which disputes ended	Number of disputes for which duration is reported	Total duration (days)	Average duration (days)
1916 .....	2,116	49,680	23
1917 .....	1,485	26,981	19
1918 .....	1,709	29,895	17
1919 .....	1,855	62,930	34
1920 .....	1,321	51,893	39
1921 .....	1,258	64,231	51
1922 .....	580	21,436	37
1923 .....	968	23,177	24
1924 .....	957	28,588	30
1925 .....	879	23,809	27
1926 .....	738	18,805	25
1927 .....	669	15,865	24
1928 .....	656	17,997	27
1929 .....	918	18,507	20
1930 .....	667	12,292	18

Table V, from the *Monthly Labor Review* for February, 1932, shows that 817 industrial disputes occurred during the year ended Dec. 31, 1931, as against 653 in 1930, that the number of workers involved in industrial disputes rose to 277,553 from 158,114 in 1930, and the number of man-days lost increased to 6,463,785 from 2,730,368.

## V. INDUSTRIAL DISPUTES BEGINNING IN AND IN EFFECT AT END OF EACH MONTH, JANUARY, 1930, TO DECEMBER, 1931, AND TOTAL NUMBER OF DISPUTES, WORKERS, AND MAN-DAYS LOST IN THE YEARS 1927 TO 1931

Month and year	Number of disputes		Number of workers involved in disputes		Number of man-days lost in disputes existing in month or year
	Beginning in month or year	In effect at end of month	Beginning in month or year	In effect at end of month	
1927: Total	734	..	349,434	.....	37,799,394
1928: Total	629	..	357,145	.....	31,556,947
1929: Total	903	..	230,468	.....	9,975,213
1930: Total	653	..	158,114	.....	2,730,368
1931: Total*	817	..	277,553	.....	6,463,785
1931					
January ..	56	20	10,147	2,927	181,031
February ..	52	34	19,984	12,512	228,329
March ....	45	27	26,121	28,139	422,545
April ....	60	39	26,442	22,604	769,720
May .....	106	49	27,588	15,735	402,437
June .....	81	51	18,437	17,071	506,097
July .....	67	54	49,574	58,995	666,809
August ..	76	43	10,977	17,003	1,213,120
September ..	110	59	35,859	37,164	491,024
October ..	70	41	33,548	28,696	1,088,063
November*	52	35	13,679	14,363	355,406
December*	42	44	5,197	4,935	189,704

\* Preliminary figures subject to change.

Among the more important strikes of the year 1931 were the following:

**Bituminous Coal Miners.** The most important industrial dispute in recent years was the group of strikes carried on among bituminous coal miners in northern West Virginia, western Pennsylvania and eastern Ohio. Beginning in May, these strikes continued throughout the year and in West Virginia particularly took on all the aspects of class warfare, including armed conflict, wholesale arrests, and the trial and conviction of striking miners charged with homicide. These industrial disputes grew out of the depressed condition of the industry, unsatisfactory wages, and the low standards of living among the unemployed miners and their families.

While the formal demands of the striking miners included higher wages and the right to the check-off system, as well as union recognition and better working conditions, what was actually at the heart of the difficulty was the demand of the workmen for the right to proper liv-

ing conditions. The striking men were organized by the United Mine Workers of America (an A. F. of L. union) and a rival organization known as the National Miners' Union. The end of the year saw no cessation of the dispute and the failure of the Federal authorities to bring the issue to a conclusion was not among the least of the factors to elicit widespread public disapproval. The general charge that the law officers in the strike area, particularly in West Virginia, were openly working in the interests of the operators was popularly accepted as true with the result that the sympathies of the American people were plainly in support of the striking miners.

That the struggle was bound to end unfavorably for the miners was admitted in view of the fact that the bituminous coal industry was actually in a bankrupt condition, owing to the large opening of submarginal mines and accompanying over-production in recent years. There were too many men in the industry—operators as well as miners—with the result that profits on the one hand and the living wage on the other were impossible, unless a rigorous contraction first took place.

**Pocketbook Workers, New York City.** On May 28, 2500 pocketbook workers, members of the International Pocketbook Workers Union, went on strike, following negotiations with their employers for a new trade agreement. The manufacturers demanded a 25 per cent reduction in wages; the workers on their part sought a 40-hour week and the establishment of a system of unemployment insurance. A settlement was reached on June 10 when the workers voted to accept a new trade agreement which called for a 7½ per cent to 15 per cent wage reduction; the establishment of an unemployment insurance fund to be supported equally by the union and employers; an increase in the number of apprentices; and permission to the employers to discharge 10 per cent of their workers every six months.

**Hosiery Workers, Philadelphia.** In February, more than 3000 hosiery workers in some 85 plants went on strike in protest against the existence of open shop conditions. By the end of August the strike was practically over and was unsuccessful as far as the cause of the workers was concerned on account of low production in the industry for the preceding half year.

**Silk Workers, New Jersey.** Several hundred silk workers in Paterson, under the leadership of the National Textile Workers' Union, struck on July 22 for an 8-hour day, a 5-day week, increased wages, restoration of previous wage cuts, unemployment relief and insurance. Before the month was over the ranks of the strikers numbered some 1500 persons. An additional 6500 workers, affiliated with the Associated Silk Workers and the United Textile Workers, went on strike July 27, their demands including a 44-hour week with wage increases. On September 15, it was estimated that approximately 4000 workers had returned to their plants, based on recognition of the Associated Silk Workers and United Textile Workers Unions and a 44-hour week. A strike of some 3000 workers in Allentown, Pa., which began on May 1, was over by September 1. The workers had struck against wage reductions running up to 16½ per cent. Reports to the Department of Labor indicated that, except for recognition of the union, the strikers failed in their demand to have the wage cuts rescinded.

**Clothing Workers, New York City.** On July 29, some 30,000 men's clothing workers in New York City and vicinity went on strike in protest against the existence of sweat shop conditions and for the purpose of establishing a more perfect union control over the industry. Between the union and the New York Clothing Manufacturers' Exchange, the principal employing group, a trade agreement was effected the next day which called for the signing of a contract for two years ending June 30, 1933. The principal terms of this new agreement authorized the imposition of a penalty by the impartial chairman upon any manufacturer sending work to a non-union contracting firm and also gave permission to the employers to participate in fixing rates for each labor operation in the production of garments. By August 21, additional settlements had been made with independent proprietors and the strike was virtually over.

**Hosiery Workers, New Jersey.** In New Jersey in September some 8000 workers participated in an outlaws strike in protest against the inauguration of a new trade agreement which carried wage reductions from 30 per cent to 45 per cent. This agreement was signed on October 7 by the Full Fashioned Hosiery Manufacturers Association of America, an organization consisting of some 60 manufacturers, and the American Federation of Full Fashioned Hosiery Workers (an A. F. of L. union). The agreement called for the arbitration of all disputes and named an impartial arbitrator of the industry to serve for the term of one year. By October 12, most of these outlaws strikes had ended with the workers accepting the wage reduction provided for in the trade agreement.

**Textile Workers, Massachusetts.** In September, strikes broke out in practically every textile mill in Lawrence and vicinity against the announced intention of the op-

erators of carrying out a wage reduction of 10 per cent. By October, some 20,000 workers were on strike in Lawrence, Andover, North Andover, Dracut and Lowell. By October 18, all but one of the important mills involved were operating about 50 per cent capacity with approximately 10,000 workers and the strike was virtually over.

**GREAT BRITAIN.** Industrial disputes in Great Britain and Northern Ireland in 1930 showed a decline as compared with 1929. The number of disputes was 422, as against 431 in 1929; the number of workers involved was 308,700, against 533,800; and the duration (in working days) of all disputes during the year was 4,399,000, compared with 8,287,000 in 1929. The principal strikes during 1930 were in the coal-mining industry, where 148,600 workers were involved in 150 disputes lasting 663,000 days, and in the wool textile industry, where 122,200 workers were involved in seven disputes lasting 3,279,000 days. In the preceding year there were 35 strikes and lockouts in the cotton industry, involving 392,200 workers and lasting 6,642,000 days, and 153 industrial disputes in the coal-mining industry, involving 78,500 workers and lasting 576,000 days.

**CANADA.** In 1930, there occurred only 67 strikes and lockouts in the Dominion involving 13,768 workers. This was the lowest number since 1900, except for 1914 and 1915. The time lost in working days in 1930 was 91,797.

See LABOR ARBITRATION AND CONCILIATION.

**STROGANOFF SALE.** See ART SALES.

**STUDENTS IN UNIVERSITIES AND COLLEGES.** See UNIVERSITIES AND COLLEGES.

**STUDY, COURSES OF.** See EDUCATION IN THE UNITED STATES; UNIVERSITIES AND COLLEGES.

**STURTITE.** See MINERALOGY.

**SUBMARINE BOAT.** See NAVAL PROGRESS.

**SUBWAYS.** See RAPID TRANSIT; TUNNELS.

**SUCCESSION STATES.** See LITTLE ENTENTE.

**SUDAN, ANGLO-EGYPTIAN.** See ANGLO-EGYPTIAN SUDAN.

**SUDAN, FRENCH.** See FRENCH SUDAN.

**SUEZ CANAL.** A still further heavy decline in traffic was shown in the preliminary report for 1931 of the Compagnie Universelle du Canal Maritime de Suez. During the year 5366 ships, with a gross tonnage of 41,743,051 and a net tonnage of 30,027,966, passed through the canal, as compared with 5761 ships, with a gross tonnage of 43,946,570 and a net tonnage of 31,668,769 in 1930. The movement of merchandise in 1931 was 25,332,000 metric tons, as compared with 28,511,000 metric tons in 1930. Total transit and navigation receipts amounted to 930,849,000 French francs in 1931, as compared with 1,037,720,000 French francs in 1930. (The French franc equaled \$0.0392.) The decrease in transit receipts during the year may be partly accounted for by the reduction in rates in September, 1930, from 7 to 6.65 gold francs per net ton for loaded vessels and from 4.50 to 3.3325 gold francs per ton for vessels going through in ballast. (One gold franc equaled \$0.193.) This reduction brought the tolls close to the pre-war rates for loaded ships (6.25 gold francs per ton in 1913) and below the pre-war rates for vessels in ballast. In 1931, largely on the insistence of British ship-owners, the company decided further to reduce the transit rates temporarily 10 per cent from Nov. 15, 1931, to July 1, 1932; the new rates were 6 gold francs per ton on loaded ships and 3 gold francs per ton on ships in ballast. The table on page 762 gives the preliminary figures for Suez Canal traffic for 1931 and the final comparative figures for several years earlier.

## SUEZ CANAL TRAFFIC

Year	Transits Number	Net tonnage Tons	Cargo traffic Metric tons	Tolls Gold francs*
1931	5366	30,027,966	25,332,000	930,848,000
1930	5761	31,668,759	28,511,000	1,037,720,000
1929	6274	33,466,014	34,516,000	1,115,920,000
1928	6084	31,906,000	32,622,000	221,090,000
1927	5544	28,965,000	29,524,000	208,650,000
1926	4345	20,743,245	21,860,000	162,613,850
1919	3986	16,018,802	18,973,000	136,969,015
1912	5373	20,275,120	25,444,000	132,929,341
1909	4239	15,407,527	19,924,000	117,754,888

\* One gold franc equals \$0.193.

† In French francs, each equaling \$0.0392.

**SUFFRAGE.** See JAPAN, TURKEY, SPAIN, and SOUTH AFRICA under *History*.

**SUGAR.** The world's sugar production in 1930-1931 according to estimates by Willett and Gray given in short tons was 32,098,796 tons comprising 13,098,014 tons of beet sugar and 19,000,782 tons of cane sugar. The same authorities in a preliminary estimate placed the production of 1931-1932 at 29,036,245 tons including 10,500,325 tons of beet sugar and 18,525,920 tons of cane sugar and representing a reduction of 9.5 per cent from the yields of the preceding year. In the beet sugar production this reduction amounted to 19.8 per cent and in the cane sugar production to 2.5 per cent. The yields of beet sugar in 1930-1931 in the leading countries not including the United States were reported as follows: Germany, 2,832,022 tons; Soviet Republics, 2,251,368 tons; France, 1,339,724 tons; Czechoslovakia, 1,260,773 tons and Poland, 886,985 tons. Similarly the cane sugar production was 3,559,360 tons in British India, 3,496,648 tons in Cuba, 3,184,160 tons in Java; 1,014,821 tons in Formosa and Japan; 1,008,000 tons in Brazil and 996,289 tons in Hawaii. The preliminary estimates for 1931-1932 placed the beet sugar yield at 2,408,000 tons in the Soviet Republics, 1,848,000 tons in Germany, 1,019,000 tons in France, 930,000 tons in Czechoslovakia, and 627,200 tons in Poland and the cane sugar production at 3,472,000 tons in British India, 3,360,000 tons in Cuba, 2,800,000 tons in Java, 1,092,000 tons in Brazil, 1,030,400 tons in Formosa and Japan and 1,008,000 tons in Hawaii. In the eight countries which are signatories to the Chadbourne agreement, the total production estimated for 1931-1932 was over 2,200,000 tons below that of 1930-1931. The Chadbourne agreement entered into during the year had for its purpose a reduction of production to bring prices to the producer to a more profitable basis. The countries adhering to the Chadbourne plan were Czechoslovakia, Germany, Poland, Belgium, Netherlands, Cuba, Java, and Peru. See CUBA.

In the United States the cane sugar production of Louisiana in 1931 as estimated by the Department of Agriculture was 156,000 short tons in comparison with 200,000 tons the year before. The cane crop of 1931 was 2,760,000 tons and of 1930, 3,101,000 tons. The acreage of sugar cane was 188,000 acres of which 154,000 acres were grown for sugar, 20,000 acres for sirup and 14,000 acres for cane to be used for planting. The cane area in 1931 was 188,000 acres and the average yield per acre 14.7 tons. The average farm price on December 1 was 3.60 per ton, making the total value of the cane crop \$9,948,000. The production of sugar cane sirup in eight States reporting was 14,859,000 gallons. At the average farm price on December 1 of 49.3 cents per gallon the total

value of the sirup produced was \$7,331,000. The estimate of sorgo sirup production in the 22 States reporting was 17,818,000 gallons, produced on 259,000 acres and at the rate of 68.8 gallons per acre. At the December 1 price of 43 cents per gallon this yield was valued at \$7,654,000.

The beet sugar production of the United States in 1931 was estimated at 1,117,000 tons compared with 1,208,000 tons the year before. The sugar beet crop was placed at 7,933,000 tons from 720,000 acres, the average yield being 11 tons per acre. The average sucrose content of the sliced beets was given as 15.97 per cent which was better than in the two preceding years. At the average farm price on December 1 of \$5.92 per ton the sugar beet crop was worth \$40,958,000.

The 1931 production of maple sugar in nine States reporting was estimated at 1,653,000 pounds from 12,218,000 trees. At the average farm value of 26 cents per pound on December 1 the total value of the crop was \$429,000. The maple sirup production was placed at 2,157,000 gallons which at the average farm price of \$1.72 per gallon on December 1 was worth \$3,715,000.

The exports of the United States in 1930-1931 according to preliminary estimates included 70,000 tons of sugar, 947,000 pounds of sirup and 7,466,000 gallons of molasses and the imports 1000 tons of beet sugar, 863,000 tons of cane sugar from the Philippine Islands and the Virgin Islands, 263,000 pounds of dextrose, lactose, and levulose, 9,157,000 gallons of edible molasses and 207,844,000 gallons of molasses for other than human consumption.

**SUICIDE.** See CRIME.

**SULLIVAN, JAMES.** An American educator, died in Albany, N. Y., Oct. 8, 1931. He was born in Baltimore, Md., Feb. 13, 1373, and was graduated from Harvard in 1894, receiving the Ph.D. degree in 1898. He also attended the Ecole des Chartes in Paris and the University of Berlin. After acting until 1899 as instructor in history and government at Harvard, he became teacher of that subject in New York City high schools. In 1916 he was appointed State historian and director of archives and history for the University of the State of New York, and in 1923 assistant commissioner for secondary education in New York State. From 1926 until his retirement in May, 1931, he was assistant commissioner for higher and professional education in New York State.

**SULPHUR.** Production, shipments, and exports of sulphur in the United States in 1931 showed marked decreases in comparison with 1930, according to the U. S. Bureau of Mines. Production amounted to 2,128,930 long tons, a decrease of 17 per cent from the record output of 2,558,981 tons in 1930. Shipments declined from 1,989,917 tons, valued at about \$35,800,000, in 1930, to 1,376,526 tons, valued at \$24,800,000, in 1931, or 31 per cent both in quantity and in value, and were the smallest recorded since 1922. As in 1930, Texas was the only sulphur-producing State. The average quoted price for sulphur was unchanged at \$18 a ton f.o.b. mines throughout the year. Open prices were \$1 to \$3 a ton higher and prices for sulphur exported were given as \$22 a ton f.a.s. Atlantic ports.

Exports of sulphur or brimstone in 1931 totaled 407,586 long tons, as against 593,312

tons in 1930, a decrease of some 31 per cent. Canada received 111,958 tons in 1931; Germany, 82,218 tons; France, 73,457 tons; United Kingdom, 23,635 tons; Australia, 21,362 tons; Netherlands, 20,524 tons; and New Zealand, 17,093 tons. Exports of crushed, ground, refined, sublimed and flowers of sulphur in 1931 were 27,197,699 pounds, a decrease from 35,870,359 pounds in 1930. No imports of sulphur and sulphur ore were recorded for the year 1931.

The world production of sulphur in 1930 was estimated at slightly more than 3,000,000 long tons. Italy produced 343,834 tons, of which 246,814 tons came from Sicily; Japan, 60,000 tons; Chile, 16,000 tons; and Spain, 10,000 tons. The sulphur mines of Italy were increasing their production.

**SUMATRA.** See NETHERLAND EAST INDIES.

**SUN.** See ASTRONOMY.

**SUNDAY-SCHOOL UNION, AMERICAN.** A nonsectarian society organized in 1817 to establish and maintain Sunday schools in the rural and mountain sections of the United States and to publish and circulate moral and religious literature. Its board of managers and missionary force are composed of men representing many of the Protestant denominations. For the year ending Feb. 28, 1931, 818 schools were organized and 581 reorganized, with a total of 4428 teachers and 43,061 pupils. There were 217 young people's societies established; 166 preaching stations opened; 23 churches of various denominations organized; and 9 churches built. The organization maintained approximately 6000 Sunday schools in every State but two. The most important of its publications is the *Sunday-School World*. Another publication, *The Sunday-School Missionary*, is sent to all contributors to the work. The officers in 1931 were: President, E. Clarence Miller; vice presidents, James M. Snyder and Robert L. Latimer; secretary of missions, Elliott D. Parkhill; editor of publications, Arthur M. Baker; treasurer, John H. Talley. National headquarters are at 1816 Chestnut Street, Philadelphia, Pa.

**SUN LAMPS.** See ELECTRIC LIGHTING.

**SUN SPOTS.** See PHYSICS.

**SUPERPHOSPHATE.** See FERTILIZERS.

**SUPREME COURT, UNITED STATES.** See UNITED STATES; and LAW, PROGRESS OF.

**SURETYSHIP.** See INSURANCE.

**SURGEONS, AMERICAN COLLEGE OF.** A college or guild (not a teaching institution), organized in 1913 by some 500 surgeons of North America. Admission to fellowship is on the basis of merit only, with reference to professional ability and moral and ethical fitness. In 1931 fellows and honorary fellows, including representatives from practically every country of the world and from every branch of surgery, constituted a body of some 10,000 surgeons.

Opportunities for the advancement of knowledge in the field of surgery are afforded at the annual congress of the college where a scientific programme is combined with a series of clinics in local hospitals. There are also held throughout the year sectional meetings of the same character but on a smaller scale. The twenty-first annual congress was held in New York City Oct. 12-16, 1931, with an attendance of nearly 3000 surgeons. Conferences were held on graduate and undergraduate teaching of surgery, cancer clinics, industrial medicine and traumatic

surgery, ophthalmology and oto-laryngology, and hospital standardization.

The official journal of the college is *Surgery, Gynecology, and Obstetrics*. The officers for 1931-32 were: President, Dr. Allen B. Kanavel, Chicago; president-elect, Dr. J. Bentley Squier, New York City; vice presidents, Dr. Eldridge L. Eliason, Philadelphia, and Dr. Ross Millar, Ottawa; treasurer, Dr. Frederic A. Besley, Waukegan, Ill. Dr. Franklin H. Martin was director general and Dr. Malcolm T. MacEachern and Dr. Bowman C. Crowell, associate directors. Headquarters are at 40 East Erie Street, Chicago.

**SURGERY, PROGRESS OF.** Leading developments in surgery during the year 1931 are summarized in the following paragraphs dealing with topics selected as of unusual and general significance.

**APPENDICITIS AND PERITONITIS.** In the three and a half decades that have elapsed since Reginald Fitz of Boston made his classical studies on inflammation of the appendix vermiformis, which showed clearly its causative relationship to abscesses in the region of the cecum so often associated with peritonitis (a condition previously but poorly understood and called vaguely "typhlitis" or "peri-typhlitis"), the medical profession and for that matter even the laity, have become quite familiar with this disease and its frequent serious consequences. It did not take long for the importance of early operation to be recognized, and it is of course now advised by both physicians and surgeons. It is, therefore, somewhat disconcerting to find that the death rate from appendicitis has been increasing and that during 1930 it was one of the highest recorded in 20 years. A statistical chart prepared by Dr. Louis I. Dublin of the Metropolitan Life Insurance Company shows this rather graphically. He found that "the mortality rate has been increasing since 1911 at practically every age period, more so in childhood and in adult life after age 35 than at other ages. This fact has been observed for both males and females. . . . By comparison of the rate for the five latest years (1926 to 1930) with the one for the five earliest years (1911 to 1915), it is shown that fatal appendicitis among white males is now 20 per cent higher than formerly; and among white females, the appendicitis death rate is 16 per cent higher."

The cause of this alarming phenomenon is not at all clear. It is difficult to know whether there has been a real increase in the incidence of the disease, or whether fatal cases are more uniformly recognized and reported. Dr. John Homans of Boston suggests that the reason may lie "perhaps in the inherent difficulty, in many instances, of making a diagnosis, and in a false feeling of security, on the part of many persons, lay and medical, that the problem of appendicitis has been solved." At any rate, several factors important in increasing the mortality rate are well recognized, and a recent study from Philadelphia suggests very strongly that certain methods of public health propaganda may well serve to reduce the incidence of severe forms of the disease.

Dr. John O. Bowers, in an attempt to analyze the high death rate from acute appendicitis, reviewed a series of 5121 cases admitted to 27 different hospitals in Philadelphia (*Jr. Am. Med. Assn.*, 1931, vol. 1, p. 1461.) His first and most significant conclusion was that the percentage of mortality varied directly with the length of time

allowed to elapse between the onset of symptoms and operation. The untoward effect of delay in operating is well brought out by a comparison of the following statistical studies:

Series	Average age (years)	Hours elapsed before operation	Hours elapsed before operation in fatal cases	Death rate
1 (5,121 cases)	24.6	61.17	95.6	5.97%
2 (1,002 cases)	26.2	81.17	153.0	8.70%

The mortality rate is 45.5 per cent higher in the second group, which came to operation after a longer interval than the first. Of those who were operated upon within 24 hours of the onset of the disease, 1 in 39 died; within 48 hours, 1 in 17; within 72 hours, 1 in 13; and over 72 hours, 1 in 9. Peritonitis, either local or general, is responsible for death in over 99 per cent of the fatal cases, and other factors (anæsthesia, hemorrhage, heart failure) for less than one half of one per cent. Ninety-nine out of a hundred patients are safe, Bowers believes, if they are operated upon within 12 hours.

Perhaps the second most important factor in the production of a high death rate was the injudicious administration of cathartics and laxatives. (It is interesting that Fitz so long ago recognized the dangers of purgation in acute appendicitis.) Of the fatal cases in which a history concerning cathartics had been obtained, 98.4 per cent were found to have had a laxative of some sort. Bowers says: "It would be presuming too much to say that laxatives caused the death of all these patients, but delay and laxatives were the cause of most of them. Localization of the infection takes place when the intestines are quiet; increased peristalsis, increased intra-appendiceal tension, perforation, general peritonitis, overwhelming intoxication, and death follow the administration of laxatives." He found also that the death rate was higher in those with recurrent attacks than in those who were operated upon during the first attack; and further that in general the more experienced surgeons had a lower mortality than the less experienced ones.

Bowers outlines the following measures in a plan for the reduction of the mortality rate in acute appendicitis. First, the necessity of informing the public of the "dangers of delay in seeking medical advice and of the dangers of using laxatives in the presence of abdominal pain." Second, instruction to pharmacists and to pharmacy students regarding the necessity of inquiring of customers whether cathartics which are dispensed are to be used for the relief of abdominal pain. Third, a more intensive study on the part of the surgical staffs of general hospitals of the disease and its complication. And finally, a periodic survey of the results of treatment.

The results to be obtained by intelligent and intensive propaganda are suggested by the report, shown in the accompanying statistical study,

	Before letter	After letter	Reduction
Average time between onset of symptoms and operation	75.6 hours	56.8	24.8%
Percentage of perforations	45	24	46.6%
Mortality	5.41%	3.12%	42.3%

of one Philadelphia hospital, which sent a letter regarding the danger of delay and catharsis to all its former patients.

The recent study of Melleney and his co-workers at the Presbyterian Hospital in New York on the bacteriology of peritonitis, a condition most commonly encountered as a sequel of acute appendicitis, is of considerable interest and importance. By taking both cultures and smears from the peritoneal cavity at the time of operation, he was able to obtain a more exact idea of the organisms involved in the inflammatory process than most of the previous investigators.

Peritonitis is as a rule, he found, a polymicrobial disease—the most common organisms being the colon bacillus, the bacillus of Welch, and the green streptococcus, although in some cases only one organism is found. He was not able to correlate the severity of the infection with the type of bacteria present, but felt that in the common mixed infections the organisms might bear a symbiotic relationship to each other—that is, that the growth of one might favor the growth of the others. This problem, he feels, is a fertile one for further study.

Whether or not the appendix had perforated seemed to be the chief factor in determining the extent of the subsequent peritonitis. In those cases where the appendix had not ruptured at the time of operation (although it might be markedly inflamed or even gangrenous), there were as a rule few organisms, and the mortality rate was low; where rupture had occurred there were many organisms, the peritonitis usually proved to be severe, and the death rate was high.

The mortality rate also varied with the extent of peritonitis found at operation. Of those with a well localized peritoneal inflammation, none of his series died; of those with appendiceal abscess, one-sixth died; and of those with a generalized peritonitis, one-third died.

Melleney also found a high death rate in cases of peritonitis caused by perforation of abdominal viscera other than the appendix. He had several cases of perforation of the small intestine, which were all followed by a severe peritonitis, and those of the lower part of the small intestine (ileum) ended fatally. In contrast, the majority of patients with perforations of the large bowel recovered. Two patients with perforations of the gall bladder died.

In this series the severity of the inflammatory process seemed to vary directly with age. The mortality was especially marked in those over 40, while no patient under 20 died. (Melleney's cases did not, however, include infants or small children.) Melleney emphasized, as have others, the extreme importance of early operation as a prophylactic measure against the development of peritonitis following appendicitis.

STUDIES ON THE RESULTS OF TONSILLECTOMY. The question of the benefits to be expected from tonsillectomy has long been a moot one. In certain cases where the tonsils are obviously diseased and are the seat of frequently recurring attacks of inflammation, the indication for removal seems definite. There has been a growing tendency on the part of physicians in recent years, however, to advise "prophylactic" tonsillectomy in the hope of preventing certain conditions such as upper respiratory infections, rheumatic fever, and the infectious diseases of childhood. This whole problem has been the subject of editorial comment in the *Journal of the American Medical As-*

sociation on two occasions during the year (1931 V. 2, pp. 784 and 1893).

The first study mentioned was that of Selkirk and Mitchell of the University of Cincinnati College of Medicine, who made a detailed investigation of a series of children three years after tonsillectomy, comparing them carefully with a control group and considering such factors as age, sex, race, period after tonsillectomy, and others (*Am. Jr. Dis. Child.* 42: 9 July, 1931). They found that while there was a decrease in the incidence of colds, sore throats, and nasal obstruction in the group who had been operated upon, sinus infections, headache, and joint pains (possibly related to rheumatic fever) were more prevalent among them than among those who had not been subjected to tonsillectomy. They were frankly critical of previous reports of the beneficial results of tonsillectomy, which they felt were not in the main adequately controlled. The editor of the *Journal* concluded: "It would seem that the conclusions drawn from some of the studies, which are widely quoted as showing the effects of tonsillectomy, are decidedly open to question because of failure to consider other factors in evaluating the results."

Cunningham of the University of California studied the effects of tonsillectomy as shown by 14,000 women students examined on admission to the university during the last 10 years. Only white females under 35 years of age were included. She found that these women could be divided into three groups roughly equal in number. One-third had had tonsillectomy, another third had diseased tonsils at the time of examination, while the tonsils of the last third were apparently normal.

The incidence of physical signs of heart disease was smallest in the group with normal tonsils and about equal in the other two groups. The group who had had tonsillectomies gave a much higher percentage of histories of rheumatic fever than did the other two groups, which were about equal in this respect. As far as a history of diseases of the respiratory tract, otitis media, and the infectious diseases of childhood was concerned, the tonsillectomized group again showed the highest incidence. Tonsillectomy early in childhood did not decrease the frequency of occurrence of measles, mumps, chicken pox, whooping cough, influenza, or pneumonia, although it did seem to lower the incidence of scarlet fever and diphtheria.

As a result of studies such as these there "seems to be a growing tendency to question the value of tonsillectomy as a prophylactic measure against infectious diseases and as a cure for rheumatism, chorea, and carditis." They would seem to indicate "that tonsillectomy is a useful procedure, but the benefits, when a large control group is compared, are not so striking as could be desired."

Brief mention may be made of a report on tonsillectomy by means of electro-coagulation, a method which has had a considerable vogue in the last few years. Silvers (*Arch. Otol.* 12: 511, 1930) has detailed his experience with this procedure during the past six years. He finds it to be a safe and reliable one when complications contraindicate the usual operative method. He mentions as the advantage of electro-coagulation the fact that the procedure may be carried on in any desired number of treatments, the absence of any shock or pain, the prevention of hemorrhage, and the avoidance of anæsthesia. Among the dis-

advantages are the fact that the procedure cannot be completed in one treatment, that it is more expensive and time consuming, and that it requires a considerable degree of skill and experience with that particular technique. The method, while certainly applicable in selected cases, cannot be said to have the value or general usefulness of operative removal.

**SURGICAL SHOCK.** Blalock and others at the Vanderbilt University Medical School published several papers on the mechanism of the production of surgical shock which will probably change rather radically the general opinion as to the fundamental nature of this condition. Shock is seen as a rule after severe trauma, after extensive burns, and after serious injury to the central nervous system. Its most striking clinical features are extreme prostration and apathy, with very low blood pressure. Previous investigators, including such prominent physiologists as Cannon and Bayliss, have been of the opinion that the fall in blood pressure was the result of absorption of a toxin, probably similar in nature to histamin, from the traumatized tissues.

Blalock, in a series of interesting experiments, has shown that this is probably not the case in the first two types of shock, but that instead the local loss of blood plasma is the really important factor. In studying the effects of mild and severe trauma to an extremity, of trauma to the intestines, and of burns, in deeply anesthetized dogs (which were always sacrificed at the conclusion of the experiment), he found that there was a loss of fluid at or near the site of injury amounting to 1.6 per cent to 4 per cent of the total body weight. This fluid had the same chemical constituents as the blood plasma, and furthermore removal of equivalent amounts of whole blood in other animals, or of blood plasma, produced comparable drops in blood pressure.

These studies have definite therapeutic implications. If the symptoms of shock are caused by loss of fluids from the circulation, it is obvious that replacement of such fluids is indicated. For this purpose, blood transfusion serves best, although in the absence of a suitable donor the intravenous injection of normal saline solution is of considerable value. As a matter of fact, such measures as these already have a wide clinical usage. Blalock's work gives them a valid scientific basis. (Several papers in *Arch. Surg.* April, 1931; summary, *Jr. Am. Med. Assn.*, Dec. 12, 1931, p. 1794.)

Underhill at Yale studied especially the relation of loss of body fluids to burns. He found that in extensive burns the blood becomes highly concentrated, due to a loss of plasma brought about by increased permeability of damaged blood vessels of small size (the capillaries). He found that in burns involving one-sixth of the body surface as much as 70 per cent of the total body fluids might be lost. Certain secondary features associated with severe burns, such as ulcers of the stomach and intestine and hemorrhages in other parts of the body, are due, Underhill thinks, to an increase in the temperature of the circulating blood, which may amount in some instances to as much as several degrees Centigrade, rather than to the absorption of toxins from charred tissue as previously supposed. Early death from burns is probably directly due to extreme loss of blood plasma.

**DIAGNOSIS OF GALL BLADDER DISEASE BY DUODENAL INTUBATION.** There has been a revival of interest during the last two years in the



use of duodenal drainage as a means of study in diseases of the gall bladder and biliary passages. Since the work of Meltzer and of Lyon, it has been known that bile from the biliary ducts and also probably from the gall bladder may be obtained by introducing into the duodenum near the orifice of the common bile duct a solution of concentrated magnesium sulphate. Lyon used this method in the treatment of cases of chronic cholecystitis, so called "non-surgical drainage of the gall bladder," but its value as a therapeutic agent has never had a wide clinical acceptance. Recently observers have studied the composition of bile obtained in this fashion and have found that in cases of stone in the gall bladder or bile ducts it almost always contained crystals of cholesterol which could be easily identified under the microscope. It also usually contained masses of amorphous material, so called calcium-bilirubin pigment. Both of these substances are common constituents of gall stones.

Bockus and his co-workers in Philadelphia have reported the interesting results of their use of this method in a fairly large series of patients suspected of having gall stones and later operated upon (*Jr. Am. Med. Assn.* vol. i, 1931, p. 311). In 124 cases in which cholesterol crystals, calcium-bilirubin pigment, or both were found in bile obtained from a tube introduced through the mouth into the duodenum, the percentages of accurate diagnosis of gall stones were as shown in the following table.

In the presence of crystals alone .....	89%
In the presence of pigment alone .....	90%
In the presence of both .....	100%

In 148 cases of cholelithiasis proved at operation, a positive diagnosis of stone had been reached in 83.2 per cent by means of a study of bile obtained by duodenal intubation and in only 29.2 per cent by X-ray (oral cholecystogram). This is not, however, an absolutely accurate index of the value of the two methods for these reasons: First, because the cholecystogram may often indicate definite gall bladder disease without actually demonstrating calculi; and second, because with a different technique (that is, by administering the gall bladder dye for the X-ray test by vein instead of by mouth) a considerably higher percentage of cases of cholelithiasis may be recognized. There is no doubt, however, that this method of directly studying the bile is a useful one, particularly in cases where there is a discrepancy between the clinical picture and the roentgenological findings.

**NEW METHODS OF ABDOMINAL DIAGNOSIS BY X-RAY.** Certain of the newer aspects of roentgenological diagnosis in diseases of the abdomen are discussed in the *Journal of the American Medical Association* (Feb. 7, 1931, p. 443). A method for demonstrating the outline of the pelvis of the kidney by the intravenous administration of a dye has found wider usage, and has been pretty generally accepted as a valuable diagnostic agent, when for any reason cystoscopy with catheterization of the ureters and retrograde injection is contraindicated. This new dye, introduced by Swick and Von Lichtenberg as "uroselectan," has been accepted under the name "Iopax."

A useful method of diagnosing polypoid lesions and polyposis of the large bowel was emphasized in the United States by Weber.

Ordinarily the large bowel is studied roentgenologically by introducing an opaque substance (barium sulphate given as an enema) and watching its course through the colon with the fluoroscope. This shows the outline of the bowel and makes evident any deformities in contour. It does not, however, show non-deforming soft masses, such as polyps. If after the barium has been expelled, air is introduced in the colon, these masses coated with barium can be readily identified. Their diagnosis is of considerable importance, because they are definitely precancerous lesions.

Other observers have been able to diagnose the presence of an intestinal parasite, ascaris, the common round worm found in children, by the presence of string-like filling defects in the small intestine, after barium has been given by mouth.

Kirklin of the Mayo Clinic has established certain criteria for the diagnosis of papillomata and other tumors of the gall bladder by means of the cholecystogram, a method of examination now widely used in the diagnosis of chronic inflammation of the gall bladder and of gall stones. Of 20 cases diagnosed as tumor of the gall bladder by X-ray, four came to operation and in every case the diagnosis was correct.

**SIMPLE TEST FOR DIFFERENTIATION OF TYPES OF ARTERIAL DISEASE.** A point of considerable importance in the study of peripheral circulatory diseases (due to arterio-sclerosis, diabetes, thrombo-angiitis obliterans, or Raynaud's disease), both from the standpoint of prognosis and of treatment, is the relative importance of actual anatomical occlusion of the lumen of the vessel and of spasm of its muscular coats. If the poor circulation is due essentially to organic disease of the vessel wall, the outlook is poor and treatment is in the main palliative. If, on the other hand, the vascular obstruction is chiefly functional and due to vaso-constriction, the chance for permanent relief is much better and treatment is directed towards the relief of the spasm. This can be accomplished by exciting the nerve centres which carry vaso-constrictor fibres to the involved vessels. It has been known for some time that these vaso-constrictor impulses temporarily disappear when the temperature is elevated artificially (as done, for instance, by Brown of the Mayo Clinic by the injection of typhoid vaccine which causes a chill followed by hyperthermia), and also during general or spinal anaesthesia. By determining the extent of the rise in temperature of the affected extremity while spasm of the vessel wall is being temporarily inhibited, one may obtain an idea of the extent to which the circulatory impairment is caused by vaso-constriction—that is, limbs affected chiefly by actual occlusive arterio-sclerotic processes will show little rise in temperature, while those in which the lumina of the arteries is not organically compromised will show a considerable elevation of temperature.

Morton and Scott of the University of Rochester Medical School described a simple method of differentiating spasm and occlusion. They found that by injecting novocaine into the posterior tibial nerve as it passes the ankle—a comparatively easy procedure—they could block the vaso-constrictor fibres to the area supplied by that nerve, that is, the sole of the foot. By a series of determinations on normal individuals they established the degree of temperature rise which might be expected. By comparing the rise

actually obtained in patients with circulatory diseases of the feet with the normally expected one, they were able to judge pretty accurately the rôle vaso-constriction played, and what value they might expect from excision of the vaso-constrictor nerve centres in the lumbar spine. Their test may be used with ambulatory patients and offers a valuable aid in clinical diagnosis. (*Jr. Am. Med. Assn.* Oct. 24, 1931, p. 1212.)

**TREATMENT OF ANGINA PECTORIS BY PARAVERTEBRAL ALCOHOL INJECTION.** Laewen, in Germany, tried in 1922 the use of novocaine, injected through the back in such a way as to be deposited along the sensory nerve roots to supply the heart, in the treatment of the severe attacks of cardiac pain known as angina pectoris. Although the anæsthetic effect of this drug is short lived, his results and those of others who soon made further use of this method suggested that this form of attack might be a favorable one. In 1926 Swetlow, in the United States, suggested the use of the injection of alcohol in a similar fashion, in the hope of obtaining permanent degeneration of the nerve fibres carrying the pain impulses. Since then a number of patients have been treated in this fashion (particularly by Swetlow, and by White and others at the Massachusetts General Hospital). Levy and Moore of the Presbyterian Hospital in New York summarized the results of previous writers and reported the results in nine of their own cases (*Arch. Int. Med.* July, 1931, p. 146).

The whole problem of angina pectoris is an exceedingly puzzling and complicated one, and that as yet there is no very definite knowledge of the mechanism which causes the agonizing attacks of pain which these patients suffer. Nor for that matter is the route pain fibres coming from the heart traverse absolutely established, although their course is roughly known. Again it must be understood that relief of pain by destroying nerve tracts does not affect the underlying pathological process, which often ends fatally. It might, however, make the remaining days of the sufferer more endurable.

Moore and Levy studied 66 cases—57 from the literature and nine of their own. Of 49 of these in which adequate data were available, they found that 51 per cent obtained complete or almost complete relief from pain. Improvement was observed in 34 per cent, while in the remaining 15 per cent the procedure gave no relief whatsoever. The duration of relief from pain was quite variable. Their most successful injection gave complete relief for 16 months. Most of the patients, following injection, have a painful neuritis of the chest wall lasting as long as six weeks. (There is of course no comparison of the intensity of this pain with the agonizing paroxysms of angina.) They conclude: "Paravertebral injection of alcohol offers a reasonably good hope of some relief to patients with paroxysmal cardiac pain. Final judgment as to its value and limitations must be reserved until more cases have been observed over a longer period of time."

**SURINAM**, sŭ'rĭ-nām', **DUTCH GUIANA**, gĕ-ā'nā. A possession of The Netherlands on the north coast of South America lying between French Guiana on the east and British Guiana on the west, bounded on the south by Brazil. Area, 54,291 square miles; population, Dec. 31, 1929, about 151,350, inclusive of Negroes and Indians in the forests. Paramaribo, the capital, had 46,953 inhabitants. In 1929, there were

4331 births, 2032 deaths, and 460 marriages. Among the chief products are sugar, cacao, bananas, coffee, rice, maize, rum, cotton, bauxite, gold, and balata. In 1930 imports increased by 6 per cent to 9,188,476 florins and exports declined by about 19 per cent to 8,399,803 florins (1 florin equals \$0.402 at par). United States statistics showed exports to Surinam in 1930 of \$867,000 (\$897,000 in 1929) and imports from Surinam of \$1,538,000 (\$1,171,000). Local revenues are insufficient to meet expenditures and Holland provides an annual subvention. The budget for 1931 estimated expenditure at 8,165,000 guilders, local revenue at 4,744,000 guilders, and the subvention at 2,855,000 guilders (1 guilder equals 0.4020 at par). A total of 216 vessels of 244,794 registered tons entered the ports in 1929. Paramaribo is a regular stop on the weekly air service connecting Miami and Buenos Aires. The executive authority rests with a governor and an assisting council, both nominated by the Crown. Governor in 1931, Dr. A. A. L. Rutgers, appointed Apr. 1, 1928.

**SURREALISTES.** See FRENCH LITERATURE.  
**SVALBARD (SPITSBERGEN).** An Arctic archipelago under Norwegian sovereignty, situated from 240 to 480 miles north of Norway between 10 and 35 degrees east longitude and 74 and 81 degrees north latitude. Area, about 25,000 square miles; population, 749 in winter of 1927-28; administrative headquarters, Green Harbor. Coal deposits on West Spitsbergen, estimated at 8,000,000,000 tons, are mined the year round. Exports in the summer of 1929 totaled 236,000 metric tons.

**SWAIN, GEORGE FILLMORE.** An American civil engineer, died in Ashland, N. H., July 1, 1931. He was born in San Francisco, Calif., Mar. 2, 1857, and was graduated from the Massachusetts Institute of Technology in 1877, subsequently studying three years at the Royal Polytechnic School in Berlin, Germany. Upon his return he settled in Boston, where he served as instructor in civil engineering at the Massachusetts Institute of Technology from 1881 to 1883, assistant professor from 1883 to 1887, and professor from 1887 to 1914. He was a member of the Boston Transit Commission from 1894 to 1918, being chairman during 1914-18.

In 1909 he became professor of civil engineering at Harvard, retiring as professor emeritus in 1929. He was the author of "Report on the Water Power of the Atlantic Watershed" in vol. xvii of the *Tenth United States Census; Conservation of Water by Storage* (1915); *The Young Man and Civil Engineering* (1922); *Strength of Materials* (1924); *Fundamental Properties of Materials* (1924); and *Stresses, Graphical Statics and Masonry* (1927).

**SWARTHMORE COLLEGE.** A nonsectarian institution for the higher education of men and women in Swarthmore, Pa., founded in 1864 by the Society of Friends. The 1931-32 enrollment was 566. The teaching staff numbered 75. The total endowment was \$7,500,000. The library contained 76,000 volumes. President, Frank Aydelotte, LL.D.

**SWAZILAND**, swā'zē-lānd. A British protectorate in the southeastern corner of Transvaal Province, South Africa. Area, 6704 square miles; population at the 1921 census, 112,951 (2205 Europeans). Capital, Mbabane. The Resident Commissioner, appointed by the British High Commissioner to South Africa, represents the

British Crown. Resident Commissioner in 1931, T. Ainsworth Dickson, appointed October, 1928.

**SWEDEN.** A constitutional monarchy occupying the eastern and larger part of the Scandinavian peninsula. Capital, Stockholm; reigning sovereign in 1931, King Gustaf V.

**AREA AND POPULATION.** With a gross area of 173,174 square miles (land area, 158,510 square miles), Sweden had a population at the census of 1930 of 6,141,516, as compared with 5,904,489 in 1920. For the five years 1925 to 1929, births averaged 99,274 annually and deaths 73,445, the rates per 1000 inhabitants being 16.3 and 12.1, respectively. During the same period immigrants averaged 5613 annually and emigrants 12,461. The chief cities, with their 1930 populations, are: Stockholm, 502,207; Göteborg, 243,690; Malmö, 127,870; Norrköping, 61,710; and Helsingborg, 56,123.

**EDUCATION.** Of a total of 872,691 children of school age (7 to 14 years) in 1929, 753,421 were attending school. There were in addition 29,054 students in Government high schools and 7947 in the four universities, besides the enrollment in private and technical schools.

**PRODUCTION.** About one-half of the population is engaged in agriculture. Cultivated land in 1930 totaled 9,193,000 acres, or 9.1 per cent of the total land area. The aggregate value of field crops in 1930 was equivalent to \$258,108,000; the chief crops in order of value were hay, oats, wheat, potatoes, and rye. Barley, sugar beets, and forage roots are other important crops. Iron, coal, and arsenic are the chief mineral products, the output of iron ore in 1929 being 11,408,000 metric tons; coal, 390,975 tons. The value of all industrial production in 1929 was estimated at 5,677,000,000 kronor (\$1,521,436,000). The output of the principal industries in 1930 was: Pig iron, 456,800 metric tons (489,700 in 1929); steel, 602,900 tons (693,900); wood pulp, 2,145,000 tons (2,540,000); ships (launched), 131,898 gross tons (107,246). Machinery, margarine, textiles, and matches are other important manufactured articles. Water power resources are estimated at 15,300,000 horse power, of which 1,544,000 horse power were developed in 1929. All Swedish export industries were forced to reduce production in 1931. See **UNEMPLOYMENT**.

**COMMERCE.** According to preliminary figures for 1931, imports totaled 1,439,400,000 kronor and exports 1,127,400,000 kronor (1 krona equaled \$0.2680 at par), against 1,663,797,000 kronor and 1,549,925,000 kronor, respectively, for 1930. In 1930, Germany maintained its position as the chief supplier of Swedish imports, followed by the United Kingdom and the United States, while in the export trade the United Kingdom ranked first, Germany second, and the United States third. Exports in order of value were wood pulp, sawn wood, iron ore, machinery (other than electric), iron and steel, and electric machinery. Coal and coke, iron and steel, nonferrous metals, coffee, fruits and nuts, and gasoline were the chief imports.

**FINANCE.** The budget for the fiscal year ended June 30, 1932, as adopted by Parliament, balanced at 874,254,000 kronor (\$234,300,000), as compared with the 1930-31 estimates balancing at 813,367,000 kronor (\$217,982,000). At the end of the 1930-31 fiscal year, there was a budget surplus of 12,200,000 kronor. Expenditures during the year for amortization of debt totaled 31,900,000 crowns, and the cash fund at the end of

the year was 75,900,000 kronor. All Swedish state enterprises were operated at a profit in the calendar year 1930, the aggregate income being 454,540,000 kronor, expenditures 341,770,000 kronor, and profit 112,760,000 kronor. The national debt on June 30, 1931, was 1,846,000,000 kronor, an increase of 45,000,000 kronor since June 30, 1930.

**COMMUNICATIONS.** At the beginning of 1931, there were 10,482 miles of railway line, of which 4164 miles were state owned. Electrification of the trunk line from Stockholm south to Trelleborg and several important feeder lines was authorized by Parliament on Feb. 4, 1931. Highways extended 47,139 miles, of which 1678 miles were paved or oiled. Planes operated by civil air lines flew 258,308 miles in 1930, carrying 3172 passengers and 265,650 pounds of mail and goods. The merchant marine on June 30, 1930, consisted of 1417 vessels, of 1,623,038 gross tons capacity; earnings of the merchant marine during 1930 totaled 296,100,000 kronor (323,900,000 kronor in 1929). In 1929, 33,841 vessels, of 18,022,000 net registered tons, entered the ports in foreign trade, and 33,876 vessels, of 18,068,000 tons, cleared.

**GOVERNMENT.** Executive power is vested in the King, who acts through a responsible ministry known as the Council of State, at the head of which is the Minister of State, or Premier. Legislative power is in the Diet (Riksdag) of two chambers. Premier in 1931, Carl Gustav Ekman (People's party), who assumed office June 7, 1930. The standing of the parties in the Lower Chamber following the election of September, 1928, was: Social Democratic, 90; Conservative, 73; People's, 28; Agrarian, 27; Communist, 8; Liberal, 4; total, 230. In the Upper Chamber, there were 54 Social Democrats, 50 Conservatives, 23 People's party members, 17 Agrarians, 5 Liberals, and 1 Communist; total, 150.

**HISTORY.** Swedish developments during 1931 were marked particularly by the abandonment of the gold standard on September 28, following similar action by the British government a week earlier, and a clash between troops and strikers at Adalen May 14, in which six strikers were killed and five wounded. The Swedish krona had been closely linked with the pound sterling and the depreciation of the pound added to the already strained exchange position of the Bank of Sweden. Restriction of foreign exchange transactions was placed in effect November 19 by the Governor of the Bank of Sweden.

The clash between strikers and troops was said to have been the first such encounter since 1848 in which blood had been shed. It followed a long struggle between striking mill workers and their employers in northern Sweden and the employment of strikebreakers to load wood pulp for shipment to the United States. According to the report of a Government committee of inquiry, the troops, when threatened with attack, fired into the ground and ricocheting bullets caused the fatalities. The incident was followed by strikes in numerous parts of the country and by Communist-led demonstrations in Stockholm May 19, in which 40 persons were wounded.

A split in the Conservative party ranks occurred early in the year and on March 3 the formation of a new "Free Rights" party was announced by the dissenting minority. The group was led by Dr. Arne Forsell, a member of the Diet. The new party obtained little support in

the Stockholm municipal election on March 19, in which the Socialists continued their recent gains at the expense of the Conservatives and Liberals. On April 11, both houses of the Diet ratified the Oslo pact, signed in December, 1930, under which Norway, Sweden, Denmark, the Netherlands, and Belgium agreed not to increase tariffs without first consulting the other signatories. On July 12 occurred the death of Archbishop Nathan Söderblom (q.v.), noted Swedish churchman and peace leader. See NAVAL PROGRESS.

**SWEDENBORGIANS.** See NEW JERUSALEM, CHURCH OF THE.

**SWEDISH LITERATURE.** See. SCANDINAVIAN LITERATURE.

**SWIMMING.** Swimming records were shattered with great regularity in 1931. Since the International Amateur Swimming Federation would not meet until June, 1932, world's records were not officially charted.

Miss Katherine Rawls, of Hollywood, Calif., was an unknown when the women's outdoor championships started at Bronx Beach, New York, in July, but lowered two world's records. First Miss Rawls defeated Miss Eleanor Holm of the Women's Swimming Association in the 300-meter medley race, traversing the distance in 4:45½ against the existing record of 4:49½. Then in the 220-yard breaststroke event Miss Rawls scored conclusively over Miss Margaret Hoffman, of Scranton, Pa., lowering the world's standard from 3:17 to 3:13½. Miss Helene Madison of Seattle, Wash., again headed the list of women swimmers, slashing her own and other records 26 times in free-style events. Outstanding among these races was the cutting of the 100-meter and 440-yard free-style marks from 1:08 to 1:06 and 5:48½ to 5:31. Miss Joan McSheehy of New York University and Whitinsville, Mass. did the 200-meter backstroke in 3:02½ as compared with the American record of 3:03½. That was slower than the world's record attributed to Miss Holm of 2:58½.

Important among the men's performances during 1931 were the lowering of the 800-meter relay figures for club fours to 9:21½ from 9:27 (the Olympic standard is 9:36½) by a Hollywood A. C. four and for national teams from 9:20½ to 9:17 by a quartet made up of Maiola and Manuella Ralili, Johnny Howland, and James Gillhula; the shattering of the time for 400-meter backstroke from 5:48½ to 5:31 by George Kojac, of the New York Athletic Club; and the lowering of the 220-yard breaststroke mark from 2:48½ to 2:44½ by Leonard Spence, also of the New York A. C. One of the most important occurrences of the year was the defeat of the United States team in an intercountry meet with Japan at Tokyo in August, 40 to 21.

Miss Georgia Coleman of the Los Angeles Athletic Club won both the outdoor and indoor national diving championships and Michael Galitzen (Mickey Reilly) gained men's honors.

The Hollywood Athletic Club was supreme in men's water sports, winning both the indoor and outdoor national team titles. The New York Athletic Club captured both the indoor and outdoor water polo crowns. The Women's Swimming Association topped all competitors in women's team events, outdoors and indoors. Miss Madison was the premier woman performer, and Clarence Crabbe was the outstanding swimmer among men, in the amateur championships.

George Kojac of Rutgers University was the individual star of the intercollegiate season, lowering the college mark for 100-yard free style to 0:52½, the 220-yard to 2:142½, and the quarter-mile record to 4:55, besides helping his teammates lower the existing college mark for the 400-yard relay to 3:38½. John Schmeiler of the University of Michigan bettered the world's record for 200-yards breaststroke when he thrashed the distance in 2:31½. This was ½ of a second faster than the mark set by Walter Spence in 1927.

The University of Michigan won the National Collegiate championship meet as well as in the Western Conference race, but the Yale University team, easy victor in the Eastern Intercollegiate League and a nonparticipant in the N. C. A. A. meet, was generally recognized as one of the finest collegiate contingents ever assembled. Stanford University won premier honors in the Pacific Coast Conference race. In college water polo, Navy, Dartmouth, and Pennsylvania ended the season in a tie for the Intercollegiate Swimming Association lead and Illinois and Northwestern went through the Big Ten campaign undefeated. Stanford defeated all foes on the West coast.

In the professional ranks George Young of Toronto won the \$15,000, 15-mile Canadian National swim at Toronto, Ont., covering the distance in 8 hours, 8 min. and 26 secs. Bill Goll of New York was second and Warner Anderson of Sydney, Nova Scotia, third. These three were the only swimmers in the starting field of 180 to finish, because of the extreme coldness of the water. In the 10-mile women's swim at Toronto, Miss Margaret Rainor, of Philadelphia, 1930 winner, won in 4:50:44, with Mrs. E. H. Gary of New York, second, and Miss E. McGarry, of New York, third. Thirty-three started in this race.

**SWINE.** See LIVESTOCK.

**SWITZERLAND.** A federated republic in the centre of Europe, bounded by Germany on the north, France on the west, Italy on the south, and Austria on the east. Capital, Bern (Berne).

**AREA AND POPULATION.** With an area of 15,940 square miles, Switzerland had a census population on Dec. 1, 1930, of 4,077,099, as compared with 3,886,099 on Dec. 1, 1920. The estimated population of the principal cities at the census of 1930 was: Zurich, 245,600; Basel, 147,200; Geneva, 131,700; Bern, 111,100; Lausanne, 75,600. Births in 1930 numbered 69,855; deaths 46,939; marriages, 32,132; excess of births over deaths, 22,916. Except for the period during and immediately following the World War, both birth and mortality rates have shown a steady decline since 1900. Of the 1920 population, 2,750,622 spoke German, 824,320 French, 238,544 Italian, 42,940 Romansch, and 23,894 other languages. In the same year, Protestants comprised 57 per cent of the population, Roman Catholics, 41 per cent; Jews, 0.5 per cent.

**EDUCATION.** For the school year 1929-30, there were 4368 primary schools, with 471,867 pupils; 610 secondary and lower middle schools, with 59,374 pupils; and 198 higher middle schools of various kinds, with 20,143 pupils. There are also various complementary, vocational, trade, and art schools. The seven universities, with their enrollments in 1929-30, were: Basel, 1050; Zurich, 1601; Bern, 1365; Geneva, 925; Lausanne, 823; Fribourg, 607; and Neuchâtel, 276.

**PRODUCTION.** The arable land aggregates about

1,250,000 acres and was divided in 1920 among some 212,290 peasant proprietors. Of a total working population of 1,950,000, 26 per cent were engaged in agriculture and 44 per cent in industry. Forest land in 1928 totaled 2,225,000 acres; grass land and pasturage, about 4,143,000 acres. Dairying and cattle-raising are the principal agricultural occupations. Livestock in 1931 included 1,609,073 cattle, 924,271 swine, 140,023 horses, 3689 mules, 183,838 sheep, and 235,827 goats. Cereals, potatoes, fruit, sugar beets, and wine grapes are grown. The value of all agricultural production in 1930 was placed at 1,385,000,000 francs (1 franc equals \$0.193 at par), as compared with 1,479,000,000 francs in 1929.

Salt, iron ore, and manganese are the chief minerals produced. There were in 1929, 8514 manufacturing establishments, with 309,083 employees and a motive power of 1,754,844 horse power, engaged in the production of a wide variety of products. Machinery, textiles, chemicals, watches, and clocks were the principal lines. Swiss watchmakers produce about 90 per cent of the world output and export 95 per cent of their production. Most Swiss industries in 1930 and 1931 were badly depressed as a result of reduced demands for their products in foreign markets. Exports of watches and watch movements declined 24 per cent in value in 1930, compared with 1929, whereas by total number the decline was 15 per cent. In 1931 the value of watch and watch movement exports was nearly 50 per cent less than in 1930 and there were grave doubts as to the future of the industry, which in 1929 gave employment to 57,000 workers.

COMMERCE. While exports in 1930 declined to 1,767,502,000 francs from 2,104,454,000 francs in 1929, imports slumped less sharply to 2,664,202,000 francs from 2,783,848,000 francs in 1929. The adverse balance of trade, which was 679,394,000 francs in 1929, increased to 896,700,000 francs in the following year. Precious metals are not included in the above totals. Leading imports, in order of value in 1930, were: Cereals, mineral substances, iron work, silk goods, woolen goods, animal food substances, cotton goods, and chemicals. The chief exports, in order of value, were silk goods, clocks and watches, machinery, cotton goods, and animal food substances. Preliminary trade returns for 1931 placed exports at 1,348,000,000 francs and imports at 2,251,000,000 francs, leaving an adverse balance of 903,000,000 francs. This was offset by about 400,000,000 francs expended in Switzerland during the year by approximately 1,000,000 tourists, export of water power, returns on oversea investments, etc. Trade is carried on chiefly with Germany, Great Britain, France, and the United States.

FINANCE. According to the *Statistisches Jahrbuch der Schweiz* for 1930, actual receipts for that year totaled 433,106,234 francs, as compared with the budget estimate of 383,000,000, while expenditures amounted to 426,374,014 francs, as against the estimate of 382,780,000. The actual surplus was 6,732,220 francs (about \$1,293,000), as compared with an actual surplus of 23,990,767 francs in the previous year. The budget for 1931 estimated receipts at 395,500,000 francs and expenditures at 403,200,000 francs, the estimated deficit being 7,700,000 francs. The national debt at the beginning of 1931 totaled 4,919,138,000 francs, of which 2,825,899,000 francs represented the debt of the Federal Railways. A year earlier the total debt stood at 4,901,729,000 francs and

the railway debt at 2,829,179,000 francs. The Swiss franc has a par value of \$0.192948 United States currency; in 1930 the average exchange value was \$0.1938. The 1932 budget estimates placed expenditures at 418,000,000 francs and revenue at 9,000,000 francs less.

COMMUNICATIONS. The Swiss Federal Railways during 1930 operated about 1828 miles of line, carried 127,137,000 passengers (126,550,000 in 1929) and 18,782,000 metric tons of freight, and earned gross receipts of 418,546,000 francs (431,358,000 francs in 1929). About 67 per cent of the system is electrified. Highways extended about 9233 miles in 1930.

GOVERNMENT. Legislative authority is vested in a parliament of two chambers—the Council of States and the National Council. The Council of States is composed of 44 members, two delegates being chosen and paid by each of the 22 cantons. The National Council consisted of 198 members elected by the direct suffrage of the people; by changes effected in August, 1930, the term of the National Council was extended to four years (from three years) and the membership was fixed at the rate of one for every 22,000 electors, making a total of 187 members. The Federal Assembly delegates chief executive authority to a Federal Council of seven members elected for three years. The chief magistrates are the President of the Confederation and the Vice President of the Council, who are elected by the Federal Assembly for one year. President in 1931, Dr. H. Hüeberlin; Vice President of the Council, Dr. Giuseppe Motta.

HISTORY. Economic conditions in Switzerland suddenly became severe in the third quarter of 1931, partly as a result of the financial crises in Germany, Austria, and Great Britain, all important markets for Swiss industry. Bad weather during the summer reduced the number of tourists, depressing the important hotel industry and curtailing earnings of the Government railways. These losses, plus heavy contributions of the Government to the watch industry, to banks, and to agriculture, and the necessity for relief for the 20,000 unemployed (estimated in October) caused a considerable budget deficit. Government coöperation in the merger of two leading Geneva banks reopened the old controversy about state control of banks, causing uneasiness in financial circles. The watch industry was reorganized through the formation of a superholding trust, toward which the Government contributed 6,000,000 francs without interest. It also secured representation on the board of directors through a loan of 7,000,000 francs.

The general election of Oct. 25, 1931, resulted in losses by the bourgeois groups in the National Council. The standing of the parties following the election, with the previous representation in parentheses, was: Radical Democrats, 52 (58); Social Democrats, 49 (50); Catholics, 44 (46); Agrarians, 30 (31); other parties, 12 (13). The new Council contained 11 fewer members than its predecessor. The total popular vote rose from 804,607 in 1928 to 849,800, of which the Social Democrats captured 240,572, a gain of 25,141; the Radical Democrats, 230,698, a gain of 10,563; the Catholics 183,765, a gain of 11,249; the Agrarians 131,285, a gain of 4324; and the Communists, 15,831, a gain of 1013. On Dec. 17, 1931, Dr. Giuseppe Motta (Catholic) was elected President for 1932. He held the same post in 1915,



1920, and 1927. Vice President for 1932, Edmund Schulthess (Radical Democrat). See UNEMPLOYMENT.

**SWOPE PLAN.** See UNEMPLOYMENT.

**SYMPHONY ORCHESTRA.** See MUSIC.

**SYNDICALISM.** See SPAIN under *History*.

**SYNTHETIC COTTON, SYNTHETIC RUBBER, ETC.** See CHEMISTRY, INDUSTRIAL.

**SYRACUSE UNIVERSITY.** A nonsectarian institution of higher learning for men and women in Syracuse, N. Y., founded in 1870. The 1931 autumn enrollment was 5423; the extension school enrollment was 1474, and the summer session enrollment was 2287. The faculty numbered 632 for the year 1930-31. The productive funds of the university amounted to \$5,082,623, while the income for the year was \$1,922,104. The library contained 198,774 volumes and more than 75,000 pamphlets. Chancellor, Charles Wesley Flint, D.D., LL.D.

**SYRIA.** A mandated territory of France in western Asia, bounded by the Mediterranean on the west, Palestine on the south, Iraq on the east, and Turkey on the north. The total area is about 60,000 square miles, with a population in 1929 of 2,831,022, divided administratively as follows: Republic of Syria (population, 1,696,638), Republic of Lebanon (862,618, including 342,388 Christians and 292,247 Moslems); Latakia, formerly Alawiyya (286,920); and Jebel Druze (51,780). Comprised within the Republic of Syria is the autonomous Sanjak of Alexandretta. The population is mainly of Arabic origin. Arabic is the chief language and about 1,514,755 are Moslems in religion. The principal towns are Damascus, the capital of the Syrian Republic, with 193,912 inhabitants; Aleppo, 177,313; Beirut (Beyrouth), capital of Lebanon and seat of the central government, 134,655; and Homs, 52,792.

**EDUCATION.** Public elementary schools in 1929 numbered 610, with 47,702 pupils; private elementary schools, 1441, with 97,754 pupils; public secondary schools, 15, with 2058 pupils; private secondary schools, 58, with 11,491 pupils. There are some 17 public and private lycées, with 1447 pupils, and two universities at Beirut, one American, with 1521 students in 1931, and one French, with 450 students in 1929. A Syrian university at Damascus had 402 students (1929).

**PRODUCTION.** Agriculture and livestock raising are the principal occupations, there being about 7719 square miles under cultivation. Yields of the chief crops in 1930, in metric tons, with figures for 1929 in parentheses, were: Wheat, 527,400 (443,300); barley, 480,000 (519,600); corn, 43,200 (41,800); oranges, 33,000 (44,000); lemons, 36,000 (40,000); olives, 32,800 (85,600); grapes, 162,000 (not available); olive oil, 6500 (16,900); potatoes, 34,000 (57,800). Other products are bananas, prunes, pears, apples, licorice root, silk cocoons, cotton (2230 metric tons in 1930), chick peas, tobacco, hemp, sugar cane, and sesame. Sheep in 1929 numbered 2,239,000.

**COMMERCE.** Imports in 1930 were valued at 63,526,300 Syrian-Lebanese paper pounds (\$49,804,600), compared with 72,998,400 pounds (\$57,230,700) in 1929, while exports totaled 22,663,900 pounds (\$17,708,500), as against 25,506,080 pounds (\$19,996,800) in the previous year. The Syrian-Lebanese pound exchanged at \$0.784 in 1930. Imports declined 13 per cent in value from 1929 and export values 11.1 per cent. The adverse trade balance for the year totaled 40,862,400 Syrian-Lebanese pounds, compared with 47,492,-

320 pounds in 1929. Imports in 1930 came chiefly from France (15.3 per cent of the total), the United Kingdom (11.3), Italy (8.4), Turkey (7.8), and the United States (7.2). The United States in 1929 ranked second as a source of imports. Exports in 1930 went chiefly to Egypt (20.4 per cent of the total), France (19.1), Palestine (18.1), Italy (6.3), the United States (6).

**FINANCE.** Preliminary returns for 1930 placed Government receipts at 18,694,920 Syrian-Lebanese pounds, expenditures at 16,578,740 pounds, and the surplus at 2,116,180 pounds. Final returns for 1929 were: Receipts, 24,126,100 Syrian-Lebanese pounds; expenditures, 20,025,800 pounds; surplus, 4,100,300 pounds. Estimates for 1931 balanced at 18,311,240 Syrian-Lebanese pounds. Revenues for the Republic of Syria in 1931 were estimated at 10,545,950 pounds (12,748,210 in 1930) and expenditures at 8,957,630 pounds (10,567,190). By an agreement signed Jan. 19, 1929, Syria assumed 10,870,000 Turkish gold pounds (\$47,938,000) of the Ottoman Debt.

**COMMUNICATIONS.** Railway lines in operation in 1930 totaled 548 miles, while highways consisted of 1450 miles of macadam, 70 miles of graded or drained dirt and gravel roads, and 3900 miles of unimproved dirt roads. There is an extensive motor traffic across the Syrian desert between Beirut and Bagdad (15,227 passengers were carried in 1929). A weekly air-mail service operates between Beirut and Marseilles.

**GOVERNMENT.** The Constitution of the Syrian Republic adopted May 14, 1930, granted the republic powers equivalent to those of an independent state, except that control of foreign relations and similar functions were retained by France conterminous with her exercise of the mandate. There is a legislature, elected for four years, which in turn elects a president for a term of five years. The president must always be a Moslem. The Constitution of the Republic of Lebanon, as modified May 8, 1929, vests executive power in a president elected for six years by the Chamber of Deputies, and legislative power in the Chamber, composed partly of elected delegates and partly of presidential appointees. Latakia and Jebel Druze, with capitals at Latakia and El Suweda, respectively, are administered by French governors, assisted by partly nominated and partly elected councils. A French army is in occupation of the entire country, however, and final power rests with the French High Commissioner. High Commissioner in 1931, Henri Ponsot, appointed Oct. 12, 1926.

**HISTORY.** Indications that France was preparing to follow Great Britain's example in Iraq and renounce its mandate over Syria multiplied during the year. A report that France was about to renounce the mandate and conclude a treaty of alliance with Syria was published by the Havas News Agency late in August, but was declared "inexact and premature" by Paris officials. However, the French Government reported to the League of Nations mandates commission that it would be prepared to terminate the Syrian mandate "at a not very distant date." High Commissioner Ponsot, speaking before a Syrian conference May 28, cautiously suggested a unification of the several Syrian states in preparation for the admission of Syria as a member of the League of Nations.

Decrees issued Nov. 19 and 20, 1931, by the High Commissioner paved the way for the election in January, 1932, of legislative bodies for



the Syrian State provided for in the organic statute of May, 1930. A consultative council of 11 members was established to assist the High Commissioner in putting the statute into effect and the government of the Syrian Republic was reorganized pending the establishment of the 1930 Constitution. Violence and bloodshed marked the electoral campaign, the chief issue being whether Syria should remain a republic or become a monarchy.

A 70-year agreement between the Lebanese Government and the Iraq Petroleum Company, governing the construction and operation of a pipeline from the Mosul oil fields in Iraq to one of the Lebanese ports, was ratified by the Lebanese Parliament in May. Toward the end of April, violent anti-Italian demonstrations at Tripoli, a Lebanese port near Beirut, cost the lives of five gendarmes engaged in protecting the Italian Consulate. Seventeen other gendarmes and ten demonstrators were wounded. The disturbances arose in connection with alleged Italian atrocities against the Moslems in Cyrenaica (q.v.). Dissensions within the Greek Orthodox community resulted in the election of two rival Patriarchs of Antioch early in 1931 in succession to Patriarch Gregory IV, who died Nov. 29, 1928. In part, the dispute was traceable to a movement in Lebanon for a self-governing Greek Orthodox Church independent of control from Damascus. See *ARCHAEOLOGY*.

**TADZHIKISTAN**, TAJIKISTAN, or TADZHIK SOCIALIST SOVIET REPUBLIC. See *SOVIET CENTRAL ASIA*.

**TAHITI**. See *OCEANIA*, *FRENCH ESTABLISHMENTS IN*.

**TAIWAN**. See *FORMOSA*.

**TALKING PICTURES**. See *MOTION PICTURES*.

**TANGANYIKA** (tān'gān-yē'ka) **TERRITORY**. An African territory administered by Great Britain under a mandate of the League of Nations, formerly German East Africa. Area, about 374,000 square miles. The native population (mainly of mixed Bantu race) was estimated at 4,794,000 in 1929 (4,107,000 at census of 1921). Preliminary returns of a census of non-natives taken in April, 1931, showed 5189 male and 2974 female Europeans, a total of 8163, compared with 2447 in 1921. There were 23,288 Indians, 1727 Goanese, 7000 Arabs, and 877 other non-natives. Capital, Dar-es-Salaam, with a population of 25,000. The capital and Tanga are the chief seaports.

The principal export crops are sisal (exports of 45,728 tons valued at £1,485,593 in 1929), coffee, cotton, ground-nuts, copra, grains, and sisim. Bananas, tea, tobacco, and numerous vegetables are produced also. Livestock in 1929 included 4,867,444 cattle, 2,134,490 sheep, and 2,906,638 goats. Diamonds, gold, salt, mica, and tin are mined. There are 4071 square miles of forest land, much of it containing valuable timber. Imports in 1930 were valued at £3,982,605 and exports at £2,897,938, including a transit trade of £2,552,113. Revenue in 1929-30 amounted to £1,992,675 and expenditure to £2,084,898. Budget estimates for 1930-31 placed revenue at £1,833,590 and expenditure at £2,192,431.

In March, 1931, an air-mail line between Croydon, England, and Mwanza, Tanganyika, was inaugurated. The territory is administered by a governor assisted by a nominated executive council. A legislative council of 13 official and 10 non-

official members was constituted Oct. 1, 1926. Governor in 1931, Lieut.-Col. Sir George Stewart Symes, appointed January, 1931. For the British Government's proposal for the union of Tanganyika, Kenya, and Uganda, see under *KENYA*.

**TANGIER**. See *MOROCCO*.

**TANNER**, JOSEPH ROBSON. A British historian, died in Aldeburgh, Suffolk, Jan. 15, 1931. He was born in Frome, Somerset, July 28, 1860, and attended St. John's College, Cambridge, where he was appointed Fellow in 1886, assistant tutor in 1895, and tutor in 1900. In 1907 he was made a member of the council of the university. He was lecturer on history at St. John's College from 1883 to 1921 and was also lecturer on Indian history to the Indian Civil Service students from 1885 to 1893. He had been joint editor of the *Cambridge Medieval History* since 1918. An authority on Samuel Pepys, his publications include *Samuel Pepys and the Royal Navy* (Lees Knowles lectures, 1920); *Mr. Pepys, an Introduction to the Diary* (1925); *Private Correspondence of Samuel Pepys, 1679-1703* (1926); *Pepys's Naval Minutes* (1926); and *Further Correspondence of Samuel Pepys, 1662-1679* (1929). He was distinguished for his work on English constitutional development, publishing *Tudor Constitutional Documents, 1485-1603* (1922); *English Constitutional Conflicts, 1603-1689* (1928); and *Constitutional Documents of the Reign of James I* (1930).

**TANNU-TUVA PEOPLE'S REPUBLIC**. See *MONGOLIA under Outer Mongolia*.

**TARIFFS**. See *CANADA*, *GREAT BRITAIN*, *SPAIN*, *FRANCE*, and *ITALY under History*.

**TASMANIA**, tāz-mā'nī-d. A state of the Australian Commonwealth, consisting of the island of that name and several small islands. Area, including the island of Macquarie (170 square miles), 26,215 square miles; population, according to the census of 1921, 213,780; estimated on Jan. 1, 1931, 220,644, an increase of 1579 during 1930. In that year births numbered 4786; deaths, 1948; and the excess of emigration over immigration, 1250. Capital, Hobart, with a population including suburbs (Jan. 1, 1930), of 57,500.

In 1928, 499 state primary schools provided free and compulsory education to 31,977 pupils; 65 private schools had 6566 pupils. The University of Tasmania enrolled 233 students, and five high schools and three technical schools, 3151. Agricultural and pastoral products in 1928-29 had an estimated net value of £5,307,080, manufactures £3,555,294, mineral products £1,518,464. Minerals produced in 1930 were valued at £1,103,157. Copper, silver and lead, tin, gold, and coal are the chief minerals exploited. In 1929-30, there were 845 factories employing 10,820 workers whose output was valued at £8,560,452 of which £3,562,225 included the value added in process of manufacture.

Direct overseas imports in 1929-30 were valued at £1,834,530 and exports at £2,970,913; for 1930-31, imports were £790,902 and exports £2,317,472. Refined metals, preserved fruits, wool, and confectionery are the leading exports. For the fiscal year ended June 30, 1930, revenue totaled £2,956,272 and expenditure £2,981,992, including net loan expenditure of £146,853; for the 1931-32 budget, see *Australia under Finance*. The net state public debt on June 30, 1930, was £22,080,849.

Executive power is vested in a governor, acting through a responsible ministry, and legisla-

tive power in a parliament of two houses. Governor in 1931 (vacant); Premier and Treasurer, J. C. McPhee, whose Nationalist Government was retained in office following its victory in the election of May 9, 1931. In the election, in which greater freedom for Tasmania under the Commonwealth Federation was an outstanding issue, voting was compulsory for the first time in the history of the state. The Nationalists won about 18 seats out of 30 in the House of Assembly; the Labor party opposition held the remainder. See AUSTRALIA.

**TAUBER, RICHARD.** See *MUSIC under Artists.*

**TAXATION.** The rapid progress of the economic depression brought during 1931 many changes of considerable importance in the field of taxation, while even more extensive alterations were evidently likely to be the result of the modifications of budget conditions which proceeded from inability on the part of tax contributors to keep up their payments on the same scale as in the past. On the one hand, large new demands were made for additional funds, to be used in giving employment and relieving distress, while, the ordinary resources of supply having shown their inadequacy, there was a drift toward the renewal of old and abandoned forms of taxation, as well as toward the accentuation of types of taxes that had been found to be undesirable in ordinary times, on account of their so-called "nuisance" character. During the year there were legislative sessions in 44 States, while in 14 of these States tax commissions, previously appointed, made report of their investigations and findings. At the close of the year there was still doubt in many minds whither, and how far, the new tendencies in taxation and the effort to enlarge State revenues for so-called "social purposes" would lead the nation.

**STATE INCOME TAXES.** While the definite impetus to enlargement of income taxes did not appear with full force in some of the States until toward the end of the year, so that final action was pushed forward into 1932, it was evident comparatively early in 1931 that the demand for enlargement would be strong in many directions. Advance in rates occurred in six States. Oregon, where a former rate of 5 per cent was enlarged to 8 per cent on corporations; Wisconsin, where a change in method of measuring income was introduced largely with the purpose of raising rates indirectly, and where an additional advance of one half of 1 per cent was made in individual incomes up to \$12,000 with a full 1 per cent in all above that amount; Oklahoma, where there was an advance on all incomes above \$5000 by amounts ranging from three-fourths of 1 per cent to 5 per cent on the largest incomes (over \$100,000); North Carolina, where there was an advance of 1 per cent for corporations and from slightly less to a figure about the same for individuals, according to size of income; Georgia, where the rate was made an independent one of 1 to 5 per cent instead of being dependent on Federal rates (thus a practical increase); and Missouri, where a 1 per cent increase was enacted. In New York it was proposed by the Governor that an addition of 50 per cent of its own amount be made in the State income tax in order to provide relief for the unemployed (later raised to 100%), while similar action was taken elsewhere. On the whole, the income tax upon individual incomes has continued to take deeper and deeper root. Three States (Vermont, Utah, and Idaho)

introduced the corporation income tax during 1931. Rates were fixed at 1 to 4 per cent in Idaho and Utah, and in Vermont at 2 to 4 per cent.

**INHERITANCE TAXATION.** New introduction of inheritance taxation occurred during 1931 in Florida and Alabama, while six other States entered into the arrangements allowed by federal law whereunder an income-tax State may be credited with 80 per cent of the total amount collected by the Federal government. In general, the tendency during the year was distinctly toward the notion of enacting inheritance tax rates on a basis of equality with those of the Federal government, the proceeds of the tax then to be shared between the two grades of government in the manner provided by law. Extended rearrangement of inheritance taxation occurred in Indiana, with large changes in rates and readjustments on different grades of income. In Indiana and in Iowa advances of rates occurred, while in Delaware there was a small reduction. Readjustments further took place in sundry other States, owing to Supreme Court decisions which tended to alter the administration or working of the tax; and several States entered into reciprocity arrangements with others, whereby the various governments concerned undertook to establish identity in the treatment of one another's citizens as to inheritance taxation.

**SALES TAXES.** In view of the general outcry for more sources of revenue, and the consequent search for means of getting funds, the revival of sales tax agitation was to be expected. Nevertheless, the actual introduction of the tax has not been as widespread as had been anticipated. North Carolina was the only State during the year to introduce the measure for the first time, a graduated tax on wholesale and retail dealers amounting to about one-tenth of 1 per cent on gross sales being provided. Tobacco sales taxes were established in Texas and Ohio, while in one or two States rates were cut down and in Georgia, after a three years' trial, the sales tax was entirely abolished. Excise taxes on various products such as oleomargarine and others were introduced, not however, it would seem, primarily for revenue purposes, in 14 agricultural States. Taxation upon "luxuries" has been debated for a long time, but not a great deal of progress was made during 1931, save with a half-hearted license-tax on cosmetics. In some cases, the latter taxes were intended to be prohibitory, and in others producers of revenue.

A form of taxation which has increased popularity is that on electric power. Excise taxes were placed by Vermont, Idaho, and South Carolina on electricity in proportion to kilowatt hours used. Value of franchises on the part of gas and electric companies affords the basis of utility taxation in New Hampshire, where such taxation was introduced during the year. Rates on telephone lines were enlarged in Wisconsin, and adjustments of rates on various public service companies were made in several States, including Wisconsin and North Dakota. Gasoline taxation continued popular and advances in rate were made in varying amounts in Massachusetts, North Carolina, North Dakota, Washington, Wisconsin, Maine, Arkansas, Kansas, and Arizona, while redistribution of proceeds and administrative changes were undertaken elsewhere.

**SPECIAL TAXES.** There was a renewed effort to subject transportation to special taxes during the year and, in accordance with this tendency,

new taxes were levied on all common carriers in Pennsylvania, Kansas, Michigan, Wyoming, Colorado, Alabama, and Georgia. This was in addition to previous taxes on registrations, franchises, and other elements in transportation. Taxes on trucks and on registrations generally were announced in Wisconsin, South Dakota, Illinois, Florida, New Mexico, and Nebraska, while readjustments took place in other States. On banks, the long-standing controversy about taxation showed but little alteration. In several States minor changes in rates took place, but the general problem of mutuality of arrangements between the Federal government and the States continued under advisement, with some States sending representatives to discuss the subject with Congress during the winter of 1931. Two States, Florida and Alabama, introduced the chain store tax, but elsewhere the fact that the subject was still under investigation by the Supreme Court of the United States temporarily halted the movement toward generalizing this form of taxation.

**INTANGIBLE PROPERTY.** Some ground was gained by intangible property taxation in 1931, although the obvious difficulties and disadvantages of this type of taxation restrained other States from experimenting further with it. However, Oregon after experience with an unconstitutional law, adopted a new intangible tax at 8 per cent. Florida adopted a tax of five mills and Ohio established a similar tax of varying amounts in lieu of an income tax. Constitutional amendments were to be presented at next elections in three States with reference to a plan of income taxation alternating with intangible property taxation. Corporation franchise taxation was slightly modified in a number of other States, although nowhere in as striking or fundamental a way as in those already named.

**STATE TAX COMMISSIONS.** The general progress toward the establishment of State tax commissions on a permanent, instead of a temporary basis, which had been previously noted, continued during the year. Tax commissioners or boards of tax appeals were appointed in 1931 in several States, and investigation of taxes and methods of enlarging yield became more and more active in most States. Reorganization of financial practice

of the income tax in retroactive form, owing to a deficit estimated at \$2,150,000,000 to June 30. Conditions which gave rise to this situation were indicated by the Secretary of the Treasury in his annual report at the close of the year, as follows:

Receipts from taxation were \$818,200,000 less in 1931 than in 1930, while receipts from all other sources declined \$42,800,000. Receipts from taxation, strictly speaking, represent that portion of the Government revenue which is derived from authorized levies upon the people primarily to secure funds for the conduct of Government activities. Such levies are composed of customs duties, income taxes, and miscellaneous internal revenue taxes. . . . Taxes on the income of individuals and corporations furnish more than half of the receipts. In the fiscal year 1931 income taxes amounted to \$1,860,400,000 as compared with \$2,411,000,000 in 1930, a decline of \$550,600,000. The receipts from back taxes increased about \$6,600,000, from \$231,500,000 in 1930 to \$238,100,000 in 1931.

Receipts from current income taxes on corporations were \$891,500,000 in 1931 as compared with \$1,117,800,000 in 1930, a decline of \$226,300,000. Over 90 per cent of this decrease was due to lower collections in the second half of the fiscal year. Collections during the first half of the year, which were based on 1929 incomes, decreased only \$19,700,000, or about 4 per cent as compared with the corresponding period of the fiscal year 1930. Although the decline in business activity began in the middle of 1929, corporation incomes for that year showed sufficient increase to offset largely the effect of reduction in the tax rate applicable to incomes for 1929. In the second half of the fiscal year 1931, however, collections, which were based on calendar year 1930 incomes, began to reflect the full effect of the depression and showed a decline of \$206,600,000, or 38 per cent from the corresponding period of the preceding year.

Comparison of indicated collections for the full calendar year 1931 with collections in 1930, after adjustment for differences in tax rates on incomes for these two periods, discloses a decline of approximately 45 per cent in taxable incomes of corporations between 1929 and 1930. The further marked recession in business activity which has taken place during the calendar year 1931 will be reflected in income tax collections during the calendar year 1932, and will thus affect both the fiscal years 1932 and 1933. It may be observed that when recovery in business commences, Federal income tax collections will display a corresponding lag in reflecting increased taxable incomes.

Concentration of income tax burdens was continued in depression as in time of greater prosperity. The following table shows the number of returns, amount of tax, and percentage of change for the calendar years 1928 and 1930 by major net income classes as published in the preliminary Statistics of Income for these years.

COMPARISON OF THE NUMBER OF RETURNS AND THE AMOUNT OF INCOME TAX FOR THE CALENDAR YEARS 1928 AND 1930, INDIVIDUAL RETURNS OF NET INCOME OF \$5,000 AND OVER

[Returns filed to Aug. 31, 1929 and 1931, respectively. For sake of comparability with available figures for 1930, preliminary rather than final figures are used for 1928]

Net income classes (thousand dollars)	Number of returns		Income tax (thousand dollars)		Percentage decrease	
	1928	1930	1928	1930	Number of returns	Income tax
5-10 .....	561,114	505,715	21,345	16,591	9.9	22.8
10-100 .....	859,576	251,490	409,058	208,133	80.1	49.1
100 and over .....	15,780	6,152	700,341	287,716	61.0	66.1
Total .....	986,470	763,357	1,130,743	462,440	18.5	59.1

and assignment of specific duties to tax bodies and commissions took place in several States, notably in Maine. The general field of investigation produced several tax reports by special commissions.

**FEDERAL TAX RECEIPTS.** While no new legislation on taxation was adopted during the year by the federal government, the close of the year brought strong recommendation from the President and from the Treasury for an enlargement

**TAXONOMY.** See BOTANY; ZOÖLOGY.

**TAYLOR, DEEMS.** See MUSIC under *Opera*.

**TEACHING.** See EDUCATION in THE UNITED STATES.

**TELEGRAPH.** The most interesting development in the telegraph field was the introduction and rapid growth of Teletypewriter service by which any subscriber may write out a letter on a typewriter and have the message delivered in type in the correspondent's office coincident with

the original typewriting. Each subscriber has a typewriter transmitter and a printer for receiving and these are connected through a "central" as are subscribers' telephones to all other similar subscribers on this system. To send a message, the sender types the call number of the desired correspondent and as soon as the line is connected through, he starts to type as if writing an ordinary letter, each stroke of the typewriter printing a similar symbol in the distant office. The message was charged for on the basis of the time the circuit was in use.

Another new device was the automatic printer concentrator, by which the various channels of a multiplex system may be repeated and sent out over individual single wires for distribution to points not on the multiplex line. Printing telegraph circuits are used. This would give many small offices in outlying towns direct connection with the large centres.

Carrier-current circuits were added to the New York-Washington line so that 40 new telegraph channels were provided on the previous four-wire system.

In cable telegraphy, a high speed duplex cable was put into service between Newfoundland and the Azores. Cable printers were added to three cables to South America and two of the fastest cables from New York to London were equipped with printers. The speed of the fastest transatlantic cable of the Commercial Cable Company was increased by 30 per cent and converted to two-channel operation. The new building for the International Telephone & Telegraph Co. on Broad Street, New York, was completed and housed what was said to be the largest cable and radio operating centre in the world.

**TEL-EL-AMARNA.** See ARCHAEOLOGY.

**TELEMETERING.** See ELECTRICAL TRANSMISSION AND DISTRIBUTION.

**TELEPHONY.** During 1931 overseas telephone service was further extended to bring additional regions of the world into voice communication with telephone users in the United States. These extensions included—Latvia, the whole of Italy (instead of merely northern Italy, Rome, and Vatican City which were previously accessible), the principal cities of Rumania, Rio de Janeiro (Brazil), the Canary Islands, Bermuda, the Hawaiian Islands, the Islands of Java and Sumatra in the Dutch East Indies, and the Island of Sicily. There were approximately 35,900,000 telephones in service throughout the world on Dec. 31, 1931; and about 92 per cent of these could be reached from any telephone connected with the Bell System in the United States. Ship-shore service was extended to additional liners during 1931, and plans were under way for the establishment of such service to tugboats and other small craft in the harbors of New York, Boston, San Francisco, Seattle, and Los Angeles.

On Dec. 23, 1931, a telephone conversation between Washington and Honolulu was established with a personal exchange of greetings between Secretary Ray Lyman Wilbur of the U. S. Department of the Interior and Governor Lawrence M. Judd. Wire working between Washington and San Francisco some 3000 miles, and a short wave radio channel from San Francisco to Honolulu, 2500 miles further, were employed.

The severe depression in general business during 1931 was felt to a relatively limited extent by the telephone industry in the United States. There

was a decline during the year of about 1½ per cent in the number of telephones in service, but the mileage of telephone wire and the total investment in telephone plant and equipment showed increases. On Dec. 31, 1931, the total telephones in the United States numbered about 19,900,000 with 85,000,000 miles of telephone wire in service. Telephone plant and equipment represented a total investment at that date of more than \$4,700,000,000. Telephone traffic averaged 82,500,000 conversations a day during 1931. Of these, about 79,200,000 were local conversations and the remaining 3,300,000 were toll conversations. By the end of 1931, nearly one-third of all the telephones in the United States were served from dial system central offices. In the Bell System, about one-fifth of the subscribers' telephones were of the handset type.

During 1931 continued progress was made in extending the telephone cable network, notably in the completion of cable extensions from Chicago and St. Louis to Omaha and Kansas City. Tape-armored cable, laid directly in the ground without conduits, was extensively utilized in residential areas in order to keep the telephone lines out of sight. An additional submarine telephone cable connecting the United States with Cuba was placed in service during the year. The cable is non-loaded. Whereas the three previously existing cables on this route provided one telephone channel each, the new cable afforded three such channels. Paragutta, an improved insulating material developed by Bell System research workers, was used in the construction of this cable.

In the latter part of 1931, the Bell System inaugurated switched teletypewriter service. This service utilized methods similar to those used in long distance telephony. See TELEGRAPH.

**TELESCOPES.** See ASTRONOMY.

**TELETYPEWRITER.** See TELEGRAPH.

**TELEVISION.** During 1930 and 1931 television was slowly but steadily progressing. The essential features of television transmission and reception remained unchanged. The main progress was in the improvements in mechanical and electrical details.

The Bell Telephone Laboratories constantly strove to improve the quality of the picture. They successfully demonstrated two-way television over a distance of several miles, using wire transmission. The so-called flying spot scanning method was used with a 72-hole disk giving a 72-line picture. A transmitter and receiver were mounted in the same booth so that the two persons communicating could see each other's faces as they carried on their conversation. To demonstrate the quality of the picture, two people known to each other but unaware of their proposed meeting were connected by this two-way television. They could easily recognize each other. A further demonstration was had in the ability of experienced persons to read each other's lips or converse by means of hand signs.

Although these things were possible with the system demonstrated, the quality of the picture was far from that desired. The detail was sufficient only for transmitting the face or hand satisfactorily. Full-length pictures of persons were still disappointing. To improve the quality of the picture, it was necessary to increase the number of lines making up the picture. If this was done by increasing the number of holes in the scanning disk, the practical difficulties increased

extremely rapidly. The largest number of holes used at the end of 1931 was 120, hardly double the number used two years earlier. The two main difficulties limiting the number of holes that could be used successfully were the inability of the electrical equipment to transmit satisfactorily the higher frequency variations, and the increased amount of light necessary at both the transmitting and receiving ends.

One method tried to overcome these difficulties was that of making use of several television channels at the same time. The Bell Telephone Laboratories used three channels and could thus transmit a 108-line picture with the facilities equivalent to three 36-line systems. This was actually done by having a disk with prisms to direct the light at either end to the proper photo-cell or neon tube of the three necessary. The three channels were operating simultaneously so that three lines of the picture were being transmitted at the same time. This method overcame sufficiently the difficulties due to using a large number of holes with one channel, but introduced a new one which was that of making the three channels exactly the same. This proved to be just as serious as the difficulties in the one-channel system. Also, of course, the amount of equipment necessary was increased almost threefold. In spite of the technical possibilities of this three-channel system, the 72-line single-channel system previously mentioned was the most successful system demonstrated.

The systems just discussed gave pictures a few inches in size, which could be viewed by only a very few persons. In order to project a larger picture, the flying-spot method was applied to receiving. The scanning disk carried lenses in place of the usual holes, and focused the light from a very intense point-source neon lamp on a screen in the proper position. This type of neon lamp was called a crater lamp. It was similar in its operation to the usual lamp, the difference being that the glow was concentrated in a crater in the electrodes, giving a very intense but small light.

The General Electric Company produced large pictures in the same manner, but with a different source of light. They used a high-intensity source of white light and passed it through a Kerr light cell and then projected it on a screen with the lens-scanning disk. The variations of light intensity were given by the Kerr light cell, which when properly arranged controlled the amount of light passing through according to the electrical impulses impressed on it. The resulting picture was in black and white, rather than the usual pinkish picture given by the neon lamp. The use of this projection television was very strikingly demonstrated at Schenectady, when a group of 700 Rotarians was addressed by several of its members speaking in another building, their pictures being projected by television on a screen before the audience. The quality of these projected television pictures was the same as that obtained in the smaller pictures, since the number of lines which could be used was limited in the same way.

In the first successful television systems, the object to be transmitted was relatively small, such as a person's face. This limitation of size was due to the flying-spot method of scanning, where a spot of light was projected onto the object and moved over it in the proper manner by the scanning disk. Large objects at a distance or

in strong light, such as actors on a stage or outdoor scenes, could not be transmitted by this method. Improvements in the sensitivity of photo-cells have made it possible to use the direct scanning method which is fundamentally the more desirable. In this method, an image of the object, whatever it may be, was projected by a lens system, as in a camera, onto the scanning disk, which then allowed the photo-cell to receive light only from the proper point in the image. With this method, the scanning device of the transmitter was pointed at the object to be transmitted, whether it be large or small, near or far. Several successful demonstrations were made of this method.

The most recent attempts at improving television were the use of the cathode ray tube for receiving. This tube operated entirely electrically and, therefore, eliminated many of the mechanical problems of other systems. The spot on the screen was moved across the picture in the proper way by electrical means, and varied in intensity so as to give a picture. The use of the cathode ray tube opened up a new line of study for improvements.

There were several commercial television receivers on the market which could be used to receive entertainment from the sufficiently large number of television broadcasting stations. These transmitters and receivers lack the quality obtained in the Bell Laboratories demonstrations, since they use 60-line scanning with 20 pictures per second. The scanning disks of the transmitters and receivers were synchronized by using synchronous motors running from the same alternating current supply or alternating current systems which were interconnected. These television broadcasting stations were using shorter and shorter wave lengths. One main reason for this was that television stations required almost 10 times the frequency band required by the usual sound-broadcasting station. This meant that if the existing broadcasting channels were used for television, hardly over one-tenth of the existing number of stations could be used without serious interference. This difficulty due to congestion was overcome by using shorter wave lengths, but, of course, introduced new problems which were being studied.

**TEMPLE, SIR RICHARD CAENAC.** A British soldier and Orientalist, died in Territet, Switzerland, Mar. 5, 1931. He was born in Allahabad, India, Oct. 15, 1850, and was educated at Trinity Hall, Cambridge. He joined the Royal Scots Fusiliers in 1871, serving in the Afghan Campaign (1878-79) and the Burma War (1887-89). In 1890, having served as deputy-commissioner of Burma, he was assigned to special duty with the Government of India to frame the Code of Cantonment Regulations and to report on the local taxation of railways. The following year he was chosen official president of the Rangoon municipality and port-commissioner at Rangoon, and in 1894 was appointed chief commissioner of the Andaman and Nicobar Islands and superintendent of the penal settlement at Port Blair. He retired to England in 1903.

Sir Richard made many important contributions to the study of Indian anthropology, philology, and folk-lore. During 1883-87 he edited the *Panjab Notes and Queries* and from 1884 onwards, the monthly *Indian Antiquary*. He also presented the British and other museums with valuable Oriental objects. He wrote *Anda-*



*manese Language* (with E. H. Man, 1877); *Legends of the Panjab* (3 vols., 1883-90); *Government of India* (2 vols., 1911); *Anthropology as a Practical Science* (1914); *Word of Lalla the Prophetess* (1924); *Drake's World Encompassed* (1926); *Cult of the Peacock* (with R. H. W. Empson, 1928); and *The Mystery and Mental Atmosphere* (1929).

**TEMPLE UNIVERSITY.** A coeducational institution of higher learning in Philadelphia, Pa., founded in 1884. It comprises three undergraduate colleges, nine professional schools, and an extension division. The 1931 autumn enrollment was 11,900. The faculty had 728 members. The income totaled \$1,916,000. During 1931 a medical school and a student recreation centre, each costing about \$1,000,000, were added to the group of university buildings. The Oak Lane Country Day School also became a part of the institution and was to serve as a laboratory school in the development of progressive policies in education. The library contained 61,807 volumes; for it a gift of \$270,000 was received during the year. President, Charles E. Beury, LL.D.

**TENNESSEE. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 2,616,556; in 1920 it was 2,337,885. Native whites numbered 2,125,553 (1930), 1,870,515 (1920); foreign-born whites, 13,066 (1930), 15,478 (1920); Negroes, 477,646 (1930), 451,758 (1920). There were but 291 inhabitants of other races (1930), chiefly 161 Indians. The gain in population over the decade was slightly greater for the urban dwellers, the inhabitants of communities of at least 2500, than for the State as a whole; the urban group increased to 896,538 (1930), from 611,226 (1920). The rural population was 1,720,018 (1930), 1,726,659 (1920).

Of 958,209 persons reported as in gainful occupations in 1930, 376,623 were in agriculture, of whom 234,027 were farmers. In manufacturing and mechanical industries, inclusive of building, were 197,038; in trade, 110,025; in transportation, 74,207; in domestic and personal service, 99,503; in professional service, 49,453. Memphis, the most populous city, had 253,143 inhabitants (1930), 162,351 (1920); Nashville, the capital, had 153,866 (1930), 118,342 (1920); Chattanooga, 119,798 (1930), 57,895 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1931	2,872,000	71,800,000	\$27,284,000
	1930	2,788,000	39,032,000	36,300,000
Cotton	1931	1,105,000	605,000*	.....
	1930	1,225,000	977,000*	.....
Hay, tame	1931	1,256,000	1,175,000*	12,925,000
	1930	1,188,000	770,000*	15,477,000
Tobacco	1931	152,000	127,528,000*	11,478,000
	1930	157,800	126,698,000*	18,625,000
Potatoes	1931	57,000	3,021,000	2,568,000
	1930	41,000	2,419,000	3,024,000
Sweet potatoes	1931	68,000	5,440,000	2,992,000
	1930	54,000	4,536,000	4,082,000
Wheat	1931	252,000	4,410,000	2,886,000
	1930	202,000	2,222,000	2,222,000

\* Bales.    \* Tons.    \* Pounds.

**MINERAL PRODUCTION.** Coal mining was only moderately less active in 1930, the quantity mined being 5,103,000 short tons, as against 5,405,464 short tons for 1929; the coal mined in 1929 had a total value of \$9,122,000. The production of

coke, however, was heavily cut, to 125,912 short tons for 1930, from 209,166 tons for 1929; by value, to \$523,813, from \$1,086,374. The small production of native iron ore was greatly curtailed in 1930 and the production of native iron ore was greatly curtailed in 1930 and the production of pig iron, largely from native ore, fell to 42,197 long tons for 1930, from 104,895 for 1929; by value, to \$828,716 (1930), from \$1,938,238 (1929). The activity of cement mills was reduced, their shipments declining to 3,822,598 barrels for 1930, from 4,537,601 for 1929; and to the value of \$5,315,693 (1930), from \$5,576,235 (1929). The quantity of stone produced in 1929 was 2,419,070 short tons; in 1928, 2,335,530 tons. Its average price was fairly high, so that its total value was \$8,043,006 for 1929 and \$7,288,666 for 1928. Clay products attained \$3,695,837 for 1929, and for 1928, \$4,030,251. The output of phosphate rock tended to increase, attaining 633,939 long tons for 1929 and 577,095 for 1928; by value, \$3,097,104 (1929) and \$2,856,850 (1928). Lime and sand and gravel were produced in each case in excess of the value of \$1,000,000 for 1929. The total value of the State's mineral production was \$40,719,706 for 1929; for 1928, \$39,216,757.

**MANUFACTURE.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 2846 (35 per cent above their number for 1927). These establishments employed 126,921 wage earners (exceeding the number for 1927 by 10.4 per cent). Wages paid these earners totaled \$114,077,559 (an excess over 1927 of more than 12 per cent). Materials for manufacture, plus fuel and purchased electricity, cost \$387,620,698 (more by 10 per cent than these items had cost for 1927). The manufactured product had a total value of \$706,053,577 (exceeding that of 1927 by 15 per cent). Value added by manufacture was estimated at \$318,432,879. Memphis had 424 establishments, 15,590 wage earners there employed, a wage total of \$16,391,721, and a product of \$161,323,679; Nashville, 263 establishments, 14,982 wage earners, a wage total of \$15,115,872, and a product of \$108,939,314; Chattanooga, 225 establishments, 18,100 wage earners, \$17,652,443 of total wages, and a product of \$103,017,490.

**FINANCE.** State expenditures of the year ended June 30, 1930, as reported to the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$22,147,348 (of which \$5,099,277 was for local education); for interest on debt, \$4,011,019; for permanent improvements, \$36,617,714; total, \$62,806,279 (of which \$40,867,178 was for highways, \$6,356,104 being for maintenance and \$34,511,074 for construction). Revenues were \$34,222,306. Of these, property and special taxes formed 14.5 per cent; departmental earnings and remuneration to the State for officers' services, 8.4; sale of licenses, 64.3 (including gasoline sales taxes amounting to \$10,165,723). The State's funded debt, both outstanding and net, on June 30, 1930, was \$37,204,026, of which \$13,850,000 was for highways. On a property valuation of \$1,842,480,665 were levied in the year State taxes of \$3,684,961.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 3939.69. Additional line of 7.69 miles had been put in operation during the year preceding, but 29.84 miles of line had been abandoned.



**EDUCATION.** For the academic year 1929-30 the number of the inhabitants of school age was stated as 717,476. There were enrolled as pupils in the public schools 627,747. Of these, 558,056 were in common schools or elementary grades, and 69,691 were in high schools. The year's expenditures for public school education totaled \$25,572,422. Salaries of teachers, by the year, averaged \$860.

Legislation of 1931 provided for the creation of junior high schools, of which the courses might extend through divers grades from as low as the seventh through as high as the tenth, and of senior high schools of higher grades to correspond.

**LEGISLATION.** The regular biennial session of the State Legislature was prolonged to July 2, chiefly on account of the struggle over the proposed impeachment of Governor Horton. It had been alleged that he had complicity with the bankers Luke Lea and Rogers Caldwell in the irregularities that brought on the banking failures of 1930 and the loss thereby of part of the State's deposits of \$6,658,118 in the failed institutions. Soon after the convening of the legislative session an investigating committee was instituted. E. H. Crump of Memphis, a powerful political leader, took an important part in the effort to carry through the proceedings against the Governor. The investigating committee continued its inquiries for months, while the Legislature took recess to await the outcome. The committee's findings were eventually received in May and turned over to a special legislative committee charged to consider whether an impeachment should be undertaken. This committee, in its turn, reported in favor of impeachment, on May 28. The House then debated the matter for some 10 days and rejected, in detail all the eight specific counts in the draft of the articles of impeachment that had been filed with it. The chief of these charges were: Conspiracy of the Governor with Lea and Caldwell, involving the discharge of non-complying officials and the unlawful handling of State money; failure to require the lawful bond on the State's deposits; wilful violation of law in permitting deposit of bridge funds in the Bank of Tennessee, alleged to be insolvent at the time.

The laws of the session included a provision that the State pay for the rights of way of State highways and assume some \$5,000,000 of county bonds for highways taken into the State system. Butter substitutes were subjected to a tax of 10 cents a pound and license for their sale was required. A new code, the first compilation of statutes subsequent to 1858, was adopted, to go into effect in 1932. Heavy penalties were put upon drunken drivers. Armistice Day was declared a State holiday. The game and fish law was made uniform for all counties and in addition to hunters, already subject to license, fishermen were required to have licenses. Bonds to the total of \$14,000,000 were refunded. Control over highway funds and the regulation of deposits of State money was vested in the State Treasurer.

A proposal to give the Smoky Mountain Park commission the power of eminent domain failed to pass. A bill for the repeal of the State's law against the teaching of evolutionism, the so-called monkey law, was rejected in the House.

**Special Session.** A special session was held in the autumn to deal with financial and economic emergency. The State faced a running deficit of

\$10,000,000 for the year, it had soon to refund some \$14,000,000 of maturing obligations, and it could find no takers for its offered bonds when the Legislature convened on November 16. Governor Horton informed the Legislature of the situation and it was decided then to adjourn without conclusive action, with a view to reconvening later and to the preparation of plans for balancing the State budget in the meantime by cuts in expenditure and the drafting of new taxation.

A second emergency of the Legislature cut down the State expenditures by some \$3,000,000 and increased the gasoline tax to 7 cents a gallon, from 6 cents. The proceeds of this increase were to retire an issue of \$5,000,000 of bonds made chiefly for the benefit of schools. A registration tax was placed on automobiles and motor busses and trucks using the State highways were subjected to a mileage tax. The rate of the tobacco tax was increased. An income tax that might produce \$3,000,000 if held constitutional was also enacted.

**POLITICAL AND OTHER EVENTS.** As a result of his part in the affairs of the Bank of Tennessee, Rogers Caldwell, president of the investment banking house of Caldwell and Company was indicted in both Federal and State courts, with others concerned in the banking collapse of November, 1930, which had carried away some \$6,650,000 of the State's funds. Caldwell was convicted in the Davidson County criminal court on July 6 of fraudulent breach of trust in connection with a charge that worthless collateral had been put up as security required against the deposit of certain State funds in the bank. The conviction involved imprisonment for not over three years.

The State's loss of funds through banking failures coupled with the check to revenue due to adverse times, depleted its treasury, and left it at the end of August unable to pay on \$2,000,000 of warrants for educational apportionments to the public schools. The United States Supreme Court in a decision of April 13 ruled that the State's graduated tax on motor busses, varying according to the capacity of the vehicle and the length of its route, was unconstitutional.

**OFFICERS.** Governor, Henry H. Horton; Treasurer, Hill McAlister; Comptroller, Roy C. Wallace; Secretary of State, Ernest N. Haston; Auditor, P. H. Williams; Attorney-General, L. D. Smith; Commissioner of Education, P. L. Harned.

**JUDICIARY.** Supreme Court: Chief Justice, Grafton Green; Associate Justices, A. W. Chambliss, Colin P. McKinney, W. H. Swiggert, William L. Cook.

**TENNESSEE, UNIVERSITY OF.** A State institution of higher education, nonsectarian and coeducational in Knoxville, with colleges of medicine and dentistry and schools of pharmacy and nursing in Memphis, and a junior college in Martin, founded in 1794. The total enrollment was 5993 in 1931. The faculty numbered 224. The endowment funds of the university amounted to \$452,748; the income for the year 1930-31 was \$2,928,087. There were 119,231 bound volumes in the libraries. President, H. A. Morgan, LL.D.

**TENNIS.** Following the footsteps of those other California masters—Maurice McLoughlin and William Johnston—came a 20-year-old tennis player in 1931—H. Ellsworth Vines, Jr. This lanky youngster, sensational to a degree in 1930, but not unbeatable, came East at the start of

the summer season, and immediately proceeded to overcome all opposition and to win 14 major tournaments, including the national singles championship at Forest Hills. He showed a repertoire of strokes that is still being compared favorably to those of W. T. Tilden, 2nd, and Henri Cochet, and the experts said that when Cochet fell, Vines would be the man who would bring the masterful Frenchman, who had been on the top of the tennis world for the past six years, to his knees. Cochet did not meet Vines in 1931, but Vines defeated almost every other ranking player in the world. In the semi-final at Forest Hills he downed Frederick Perry, the youthful English star, and in the final defeated George M. Lott, United States player.

Before Vines came out of the West to startle the East with the brilliance of his play, the Davis Cup, emblematic of the world championship, had been retained for another year by the French. The United States sent a young and hopeful team to attempt to wrest the trophy from Paris, but was defeated in the final round by England's players—H. W. (Bunny) Austin and Frederick Perry. This defeat at the hand of England was a tremendous surprise to the American players and the public which had been led to believe that Sidney B. Wood, Jr., Frank Shields, George Lott, and John Van Ryn were invincible. In the challenge round at the Roland Garros Stade in Paris, Cochet's mastery beat back the English. The defeat of the Americans at Paris was all the more surprising following their brilliant showing on the Wimbledon court a week previous. There Wood and Shields, playing excellent tennis, had beaten Perry and Jean Borotra, respectively, to gain the finals. Shields sprained his ankle and defaulted to his countryman.

The year 1931 was also distinguished by the return to active competition of Mrs. Helen Wills Moody. The Californian, after a year's retirement, made her way through all opposition, never meeting defeat in singles play, winning back her national crown, and proving unbeatable in the Wightman Cup matches, which the United States women won from an invading band of English players, and all other tournaments that she entered.

John Van Ryn and Wilmer Allison teamed to win the national doubles title, and the national women's doubles crown went overseas when Miss Betty Nuthall and Mrs. Eileen Bennett Whittingstall of England won at Forest Hills.

W. T. Tilden, 2nd, champion of seven other years, turned professional and played Karel Kozeluh (Czechoslovakian) many matches, one was held before a tremendous crowd at Madison Square Garden, New York. Later Vincent Richards joined the troupe and the company made an extended tour of the United States and Europe.

Keith Gledhill of Stanford University won the Intercollegiate championship and Bruce Barnes and Karl Kamrath of the University of Texas paired to gain the doubles title.

Other title winners were: National clay court singles, Ellsworth Vines; National boys' singles, Frank Parker of Milwaukee; National girls' singles, Miss Ruby Bishop of Pasadena; National public parks singles, George J. Jennings, Jr., of Chicago; Wimbledon women's singles, Fraulein Cilly Aussem of Germany; national indoor singles, Jean Borotra of France, who also captured the French singles championship; Jean

Borotra and Christian Boussus, French invaders won the national indoor doubles tournament.

**TERNS.** See Zoölogy.

**TERRESTRIAL MAGNETISM.** See PHYSICS.

**TERRY, BENJAMIN STITES.** An American historian, died in Chicago, Ill., Oct. 30, 1931. He was born in St. Paul, Minn., Apr. 9, 1857, and was graduated from Colgate University in 1878 and received the Ph.D. degree from the University of Freiburg in 1892. He also studied at the Hamilton and Rochester theological seminaries, and on ordination to the Baptist ministry in 1881 held pastorates in Perry and Fairport, N. Y. In 1885 he became professor of history at Colgate University, and from 1892 to 1925 was professor of English history at the University of Chicago. He was a fellow of the Royal Historical Society and of the American Geographical Society. His writings include *A History of England from Earliest Times to Death of Victoria* (1901); *A History of England for Schools* (1903).

**TEXAS. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 5,824,715; in 1920 it was 4,663,228. The native whites numbered 4,185,095 (1930), 3,557,646 (1920); foreign-born whites, 98,396 (1930, Mexicans excluded), 360,519 (1920, Mexicans included). Mexicans numbered 683,681 in 1930. Negroes, 854,964 (1930), 741,604 (1920). Among members of other races were 1001 Indians and 703 Chinese in 1930. The urban population (dwelling in communities of 2500 or over) were 2,389,348 (1930), 1,512,689 (1920). The rural, 3,435,367 (1930), 3,150,539 (1920).

Of 2,207,118 reported in 1930 as gainful workers, 842,001 were in agriculture, 488,697 being farmers and 198,760 farm laborers for hire. In manufacturing and mechanical industries were 343,779, which included 88,856 in the building industry. In trade, 305,880; in domestic and personal service, 226,026; in transportation, 191,615; in professional service, 130,120; in mineral extraction, 52,023, which included 44,341 workers at petroleum and natural-gas wells. City populations were: Houston, 292,352 (1930), 138,276 (1920); Dallas, 260,475 (1930), 158,976 (1920); San Antonio, 231,542 (1930), 161,379 (1920); Fort Worth, 163,447 (1930), 106,482 (1920); El Paso, 102,421 (1930), 77,560 (1920); Austin the capital, 53,120 (1930), 34,876 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Cotton ....	1931	15,421,000	5,270,000*	.....
	1930	16,950,000	4,038,000*	.....
Corn .....	1931	5,236,000	94,248,000	\$30,159,000
	1930	4,684,000	74,144,000	54,125,000
Grain sorghum .	1931	3,871,000	60,000,000	17,400,000
	1930	3,593,000	35,930,000	23,354,000
Wheat ....	1931	3,635,000	57,433,000	23,548,000
	1930	3,029,000	31,804,000	22,263,000
Oats .....	1931	1,764,000	59,976,000	11,995,000
	1930	1,411,000	33,864,000	14,223,000
Hay, tame .	1931	543,000	606,000*	4,727,000
	1930	491,000	479,000*	5,988,000
Sweet potatoes .	1931	69,000	4,968,000	2,981,000
	1930	47,000	3,290,000	3,126,000
Rice .....	1931	197,000	10,441,000	6,369,000
	1930	186,000	9,709,000	7,670,000
Potatoes ...	1931	67,000	4,891,000	7,815,000
	1930	57,000	4,778,000	7,182,000
Barley ....	1931	221,000	5,194,000	1,506,000
	1930	184,000	2,760,000	1,518,000

\* Bales.   † Tons.

**MINERAL PRODUCTION.** The State's wells produced more petroleum than those of any other State of the Union in 1930 and yielded the highest total by value. Production was 289,965,000 barrels (1930) and 296,876,000 (1929); by value, \$288,100,000 (1930, estimated) and \$322,520,000 (1929). The relatively low value of about \$1 a barrel for 1930 was due to a general excess of oil and to the failure of public restriction of the petroleum industry in the face of the emergence of important new sources in the State. The production of natural gas, last reported by the Bureau of Mines for 1929, was 464,928,000 M cubic feet, as against 301,990,000 M for 1928; in value, \$67,474,000 (1929), \$51,316,000 (1928). There were obtained in 1930, from natural gas, 489,700,000 gallons of gasoline; in 1929, 419,485,000. These quantities were valued at \$23,300,000 (1930, estimated), \$26,561,000 (1929). The coal mines production fell to 836,000 short tons for 1930, from 1,100,668 for 1929 when the product was valued at \$1,600,000. Cement mills shipped 6,792,346 barrels in 1930 and 7,083,572 in 1929; by value, \$10,782,444 (1930), \$11,805,779 (1929). Sulphur, of which Texas had almost a monopoly, yielded 2,435,483 long tons, valued at \$43,811,000, in 1929. Clay products attained \$6,010,179 for 1929 and \$6,176,802 for 1928. The yield of gypsum was 520,519 short tons for 1929 and 509,472 for 1928; in value, \$3,440,287 (1929), \$3,094,145 (1928). The total value of the State's mineral production was \$495,819,500 for 1929; for 1928, \$378,616,955.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 5187 (27 per cent above the number of establishments for 1927). These employed 131,503 wage earners (exceeding those employed in 1927 by 12.6 per cent). The wages paid them totaled \$147,888,053 (more by 13.5 per cent than those paid in 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$997,932,276 (18 per cent more than these items had cost for 1927). The manufactured product attained the value of \$1,449,801,916 (20.2 per cent more than the total for 1927). Value added by manufacture was estimated at \$451,869,640. Houston had 429 establishments, employing 16,225 wage earners, paying wages of \$20,237,285, and producing \$144,752,821; Dallas, 535 establishments, 12,082 wage earners, wage payments of \$13,630,181, and product of \$142,529,820; Fort Worth, 229 establishments, 6771 wage earners, wage payments of \$8,273,495, and product of \$113,582,214.

**FINANCE.** State expenditures in the year ended Aug. 31, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$70,505,710 (of which \$29,778,460 was for local education); for interest on debt, \$213,601; for permanent improvements, \$38,057,085; total, \$103,776,396 (of which \$46,769,996 was for highways, \$12,562,865 being for maintenance and \$34,207,131 for construction). Revenues were \$111,408,561. Of these, property and special taxes furnished 26.9 per cent; departmental earnings and compensation to the State for officers' services, 3.6; sale of licenses, 542.5 (in which was included a gasoline sale tax that produced \$30,514,976). Funded debt outstanding on Aug. 31, 1930, totaled \$4,397,200. Net of sinking-fund assets, the debt was \$4,372,267. On an assessed valuation of

\$4,328,212,712 the State collected in the year ad valorem taxes of \$29,864,668.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 17,068.76. There had occurred during the year preceding the largest total addition of mileage to operation scored in that period in any State, 230.90 miles having been added. The number of miles on which operation had been given up during the year was 52.78. In 1931 were built 155.18 additional miles of first and 1.3 of second track.

**EDUCATION.** The number of State's inhabitants of school age was reckoned as 1,566,861 for the academic year 1931-32. Those enrolled as pupils in the public schools in the year 1929-30 numbered 1,308,028. Of these, 1,071,895 were in common schools or elementary grades, and 235,838 were in high schools. Salaries of teachers, by the year, averaged \$1137 for the whites, \$637 for the colored, and \$1079 for all.

A law passed to appropriate \$2,500,000 yearly from the State's general revenue for distribution among financially weak schools was contested on the ground of constitutionality and was upheld in 1931 by the State Supreme Court. The same court upheld the system rendering the expense of county supervision of schools a charge on all school districts, even those of the larger cities. The State's per capita apportionment of \$17.50 for public schools was kept up in spite of efforts to do away with it under the pressure for public economy.

**CHARITIES AND CORRECTIONS.** Full control over the State's eleemosynary institutions, under the system operating in 1931, lay in the State Board of Control, which also performed other duties, such as making up the budget for all State institutions and departments, serving as custodian of State property and functioning as a board of parole for inmates of reformatories. This board was composed of three members. Each governor might appoint one member at the outset of the Governor's second year of full term. Apart from duties as a board of control, the board maintained a division of child welfare to deal with the interests of the unprotected children of the State. The total of inmates of these institutions was 14,568.

**LEGISLATION.** The Forty-Second Legislature held three sessions. The first of these, the regular biennial session continued until May 23. It was the first session to operate under an amendment of the State constitution raising the pay of members to \$10 a day and allocating the initial 30 days to the introduction of bills, the second 30 to committee work and the final 60 to the final disposition of measures. These arrangements were reported largely to have been suspended and a severe congestion of bills at the end of the session thus to have been brought about.

An act of the session limited the amounts of warrants or similar forms of indebtedness that county commissioners or city governments might issue as lawful charges upon such subdivisions. A revision of the gasoline tax was effected, with regard to the manner of its collection; points of first distribution at refineries and wholesalers of gasoline shipped into the State were required to pay the tax, with a view to collecting on some 50,000,000 gallons estimated to have escaped the impost. Appropriation bills to a total of nearly \$53,000,000 were passed. A resolution for an amendment of the constitution to permit an issue

of \$212,000,000 of State highway bonds failed in the House. The statute allowing holders of defaulted municipal bonds to throw a city into receivership, which had been considered as threatening to Cisco, was repealed. Acts severely limiting loads of motor trucks and requiring certificates of necessity for trucks acting as common carriers were passed; they were regarded by their opponents as calculated to check the practice of hauling cotton to the seaboard points by motor truck.

**Special Session.** For the purpose of dealing with the excessive production of petroleum in the East Texas field, Governor Sterling called a special session, which convened on July 14. Soon thereafter was announced a Federal court decision, affecting petroleum proration orders of the State Railroad Commission, that State control of economic waste was against the State constitution. Accordingly the Legislature in adopting a measure for conserving petroleum and natural gas, specifically restricted conservation to the prevention of physical waste, which was defined. The powers of the commission for checking divers forms of this physical waste were detailed. They included power to sue and recover penalties of \$1000 for each day of certain violations. The measure was enacted, but without what had been deemed adequate funds to enable the Railroad Commission to proceed with its enforcement.

**Second Special Session.** Recalled into session (September 8 to October 3) the Legislature passed an act prohibiting the planting of cotton in 1932 or 1933 by any farmer upon more than 30 per cent as much land as had been cultivated to all crops in 1931. County and district attorneys were to file injunction suits in case of infraction and to seek penalties up to \$100. A bill to redistrict the State for the election of Federal Representatives failed of passage.

**POLITICAL AND OTHER EVENTS.** After the special session of the Legislature had passed a law for the conservation of petroleum, Governor Sterling by executive act, similar to that of Governor Murray of Oklahoma, proceeded to shut down the production of the East Texas field. He called out a cavalry brigade of the National Guard, sent troops into the field to serve against a constructive "insurrection," and issued on August 17 a proclamation of martial law in Rusk, Smith, Gregg, and Upshur counties, requiring the shutting down of all the 1631 petroleum wells of the East Texas field. It was reported that in the final rush of production prior to closing, petroleum sold as low as five cents a barrel. The State Railroad Commission thereafter drew up a proration order allowing each well to produce not more than 225 barrels a day in the East Texas field. On September 5 the field was allowed to resume production on this basis, which cut down to about one-third the rate of production of what had been the heaviest producer among the oil fields of the country.

Attorney-General Allred brought suit on November 12 against 15 of the chief petroleum producing and refining companies in the State, for forfeiture of their charters on the ground that in operating under a "code of ethics" approved in 1929 by the Federal Trade Commission they had bought up filling stations, thus restraining commerce and violating the State's anti-trust laws.

**Election.** In the 14th Congressional district, at a special election to fill the vacancy caused by the death of Representative H. M. Wurzbach, the

State's only Republican in the House, a Democrat, Richard M. Kleberg, was elected on November 24.

**OFFICERS.** Governor, Ross S. Sterling; Lieutenant-governor, Edgar E. Witt; Secretary of State, Jane Y. McCallum; Treasurer, Charlie Lockhart; Comptroller, George H. Sheppard; Attorney-General, James V. Allred.

**JUDICIARY.** Supreme Court: Chief Justice, C. M. Cureton; Associate Justices, T. B. Greenwood, William Pierson.

**TEXAS, UNIVERSITY OF.** A State institution of higher education in Austin, with a medical branch in Galveston and a college of mines and metallurgy in El Paso. The main university was opened in 1883. For the autumn term of 1931 the enrollment at the main university totaled 5878. In addition there were 459 enrolled in the medical branch (327 in the college of medicine and 132 in the college of nursing) and 643 in the college of mines and metallurgy. There were 453 members on the faculty.

The endowment resources of the institution amounted to \$28,000,000, and the income from legislative appropriation, fees, and income from trust and special funds was placed at \$2,941,360. The libraries contained 387,701 volumes. The women's gymnasium was completed during the year at a cost of \$401,000, the chemistry building at a cost of \$851,000, and Waggener Hall, an office and recitation building, at a cost of \$351,000. President, Harry Yandell Benedict, Ph.D., LL.D.

**TEXAS TECHNOLOGICAL COLLEGE.** A State coeducational institution in Lubbock, Texas, opened in 1925. The enrollment for the summer session of 1931 was 1556 students and for the autumn of 1931, 2319 students. The faculty numbered 135 members. The appropriations for the year 1931-32 amounted to \$462,300. There were more than 50,000 volumes and pamphlets in the library. President, Paul Whitfield Horn, M.A., LL.D.

**TEXTILE INDUSTRY.** The textile industry in the United States during 1931 suffered in the wide-spread depression and was marked by general demoralization. According to the authoritative Annual Review in *Textile World* (New York), on which the accompanying information is largely based, the activity of the various mills was 5 per cent above 1930 on the basis of fibre consumption, and in particular wool and rayon showed large gains. So far as production and demand were concerned, the prevailing depression had but slight effect, but the low prices and the meagre returns to the mill-owners, were most discouraging.

The consumption of wool (q.v.) for the entire year was estimated at 513,743,129 grease pounds as against 430,103,818 pounds in 1930, or an increase of about 20 per cent, and had it not been for dullness in the carpet industry, the increase would have been even greater, as worsted production in particular enjoyed the best demand since the postwar days. With a better demand for domestic wool, wool-dealers enjoyed a measure of prosperity during 1931 and the combs and worsted spindles operated at almost the highest rate of capacity since the postwar boom. Notwithstanding the increased demand for wool in women's wear, which developed during the year, the prices were not commensurate with the business activity, so that manufacturers failed to

reap the profits which otherwise they might have enjoyed.

Cotton consumption was greater by about 5 per cent or 23,000 bales in 1931 over 1930, but the spread between spot cotton and print cloth, approximately 18 cents at the beginning of the year, declined to 11.5 cents at the end, notwithstanding that stocks of cotton goods diminished during the year, along with an increase in unfilled orders. While there was an increase of orders in 1931 over 1930, production was less, but the yarn market at the end of the year seemed to be more favorable.

Sales and shipments of carded cotton cloths during 1931 exceeded production by respective percentages of 3.6 and 2.5, according to the Association of Cotton Textile Merchants of New York. Output for the year totaled 2,784,402,000 yards as compared with 2,819,723,000 yards in 1930. Sales and shipments equaled 2,891,299,000 and 2,858,146,000 yards respectively, as against 2,774,712,000 and 2,916,774,000 yards during 1930. See COTTON.

The deliveries of raw silk to the mills increased in 1931 over 1930 averaging over 49,500 bales per month against 48,000 in the previous year, and showing the best average on record with the exception of 1929, when the figure was 51,000 bales. There was a decline in the average operation of spindles in 1931 over 1930 but there seemed to be a maintenance of deliveries of finished goods. In the rayon (q.v.) industry, while the competition among the leading manufacturers had diminished, there were not adequate profits in the opinion of many, notwithstanding the record domestic consumption of rayon given at 154,350,000 bales. Progress was made in cutting the stocks in hosiery, while knit underwear went through the year under satisfactory conditions with a decline of stocks, primarily due to coöperation among the various manufacturers of the industry.

**THEATRE.** Although 1930 was recorded in the last YEAR BOOK as undistinguished, generally unprofitable and, in many quarters, altogether disastrous where the theatre was concerned, 1931 proved considerably worse on every count. This, obviously, was but a perfectly natural reflection of the nation-wide, or, more exactly, world-wide, depression that had spread to nearly every form of enterprise. Greatly reduced patronage, coupled with a marked over-supply of playhouses, especially in New York, the hub of the American theatre industry, was not conducive to the best efforts of the playwrights, and the frantic efforts of the producers and theatre owners to keep their houses open resulted in an extraordinary output of poor plays and an astounding number of consequent failures.

One of the chief causes of lamentation on the part of the managerial offices was the pronounced falling off of business along the once profitable "road," and for this condition the prevalent depression cannot be held wholly, or perhaps even mainly, responsible. The smaller cities and towns long ago began to realize that New York's stamp of approval on a play was by no means a guarantee of merit. The result appears in the growth of the Little Theatre movement, the notable increase in the number of local stock organizations, and the turn to talking pictures of the better class as a source of intelligent and desirable entertainment.

The year, from the New York viewpoint, got off to a poor start, its very first offering, a romantic drama entitled *Colonel Satan*, by Booth Tarkington, proving but short-lived. The chief cause of its failure was presumably the hopelessness of attempting to make a glamorous figure of its central character, Aaron Burr. But immediately thereafter the dramatic output assumed a more substantial quality, so that January actually became the outstanding month

UNITED STATES FOREIGN TRADE IN TEXTILES AND TEXTILE FIBRES  
[From *Textile World*]

	Exports		Imports	
	1930	1931	1930	1931
Cotton, unmanufactured .....	\$496,797,595	\$325,592,719	\$ 25,273,948	\$ 6,070,265
Cotton, semi-manufactures .....	15,006,726	9,818,248	3,113,629	1,787,494
Cotton, manufactures .....	73,676,976	50,256,204	43,105,595	38,864,649
Jute and manufactures .....	4,034,410	3,194,822	67,854,427	87,658,456
Flax, hemp and ramie, and manufactures .....	526,479	262,461	36,594,066	29,797,735
Other vegetable fibre and manufactures .....	4,599,364	4,323,980	29,577,078	17,161,406
Wool and mohair, unmanufactured .....	74,813	69,667	37,092,271	22,372,115
Wool, semi-manufactures .....	926,288	513,172	6,438,785	2,104,648
Wool manufactures .....	4,022,547	2,483,973	33,703,480	20,799,958
Hair and manufactures .....	1,928,988	1,251,996	3,624,113	2,783,429
Silk, unmanufactured .....			266,137,552	192,287,543
Silk manufactures .....	14,341,185	9,562,598	18,583,495	15,631,149
Rayon or other synthetic textiles .....	5,907,505	3,848,763	8,375,656	4,743,093
Miscellaneous textile products .....	18,064,678	12,447,947	20,760,223	19,297,027
Total .....	\$639,907,354	\$423,626,550	\$600,708,414	\$411,735,937

NOTE.—Included in the total imports are articles ordinarily dutiable, imported free, to the value of \$474,151 in 1930 and \$376,970 in 1931. This accounts for failure of totals, as given above, to check with addition of sub-classifications.

One of the world developments that affected German and French exports more than American manufactures was the adoption by Great Britain of an ad valorem duty of 50 per cent on all the principal types of textile manufactures. The effect of this measure could not be accurately anticipated but it was stated that a group of British mills proposed to buy up and scrap about 10,000,000 spindles and restrict production to the most efficient plants and machinery. See the articles entitled BUSINESS REVIEW; SILK; and WOOL.

of the twelve. A noteworthy feature was a new play by the capable George Kelly, *Philip Goes Forth*, pleasantly satirizing the upstart school of youthful playwrights and taking a good-natured fling at the lack of substance in the bulk of the recent drama. A young actor, Harry Ellerbe, created a favorable impression in the title rôle. The piece ran for just short of 100 performances. Surpassing this in popularity came Philip Barry's *Tomorrow and Tomorrow*, which was one of the season's most notable productions.



**"IF BOOTH HAD MISSED"**

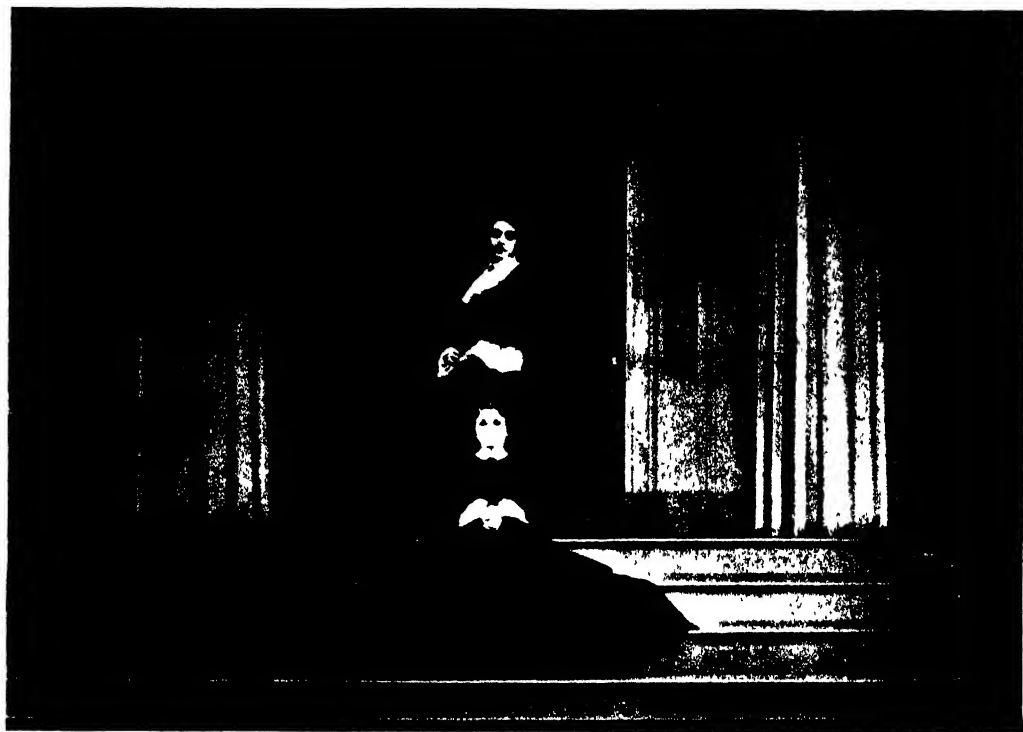
A Scene from the Original Production by the Morningside Players of Columbia University. This play won the Second Annual Long Play Tournament in the Little Theatre Contest at New York, May, 1931



**"THE CAT AND THE FIDDLE"**

A leading musical play of 1931





**"MOURNING BECOMES ELECTRA"**

Alice Brady and Alla Nazimova in a Scene from "Homecoming," one of Eugene O'Neill's Trilogy



**"THE BARRETTS OF WIMPOLE STREET"**

Katherine Cornell as Elizabeth Barrett and Brian Aherne as Robert Browning

**NOTABLE PLAYS OF 1931**

Only moderate success attended a revival of Schnitzler's *Anatol*, originally done some 18 years previously by Winthrop Ames under the full title of *The Affairs of Anatol*, with the then youthful John Barrymore as the debonair philanderer. This character was assumed in 1931 by Joseph Schildkraut, who lacked the lightness of touch essential to its most effective portrayal.

For the second time in that season the Theatre Guild resorted to melodrama when it offered *Green Grow the Lilacs*, by Lynn Riggs, a romantic folk play of the primitive life on the prairies in the Indian Territory of three decades ago, the present Oklahoma. On the same evening Eva Le Gallienne's Civic Repertory organization staged a praiseworthy and popular revival of the old favorite, *Camille*, from the French of Dumas, fils. Miss Le Gallienne herself successfully essayed the part of Marguerite Gautier. This was the final addition to the Civic Repertory bill before its voluntary suspension for a year.

The year's first direct importation, and one of its most delectable, was Noel Coward's London hit, *Private Lives*, in which was developed in characteristically scintillating and hilarious fashion the situation of a divorced couple meeting again, after five years, at a continental hotel where each has just arrived at the outset of a new honeymoon. Mr. Coward in person and the no less British Gertrude Lawrence were priceless in the two main rôles. The close of January brought also another foreign drama in an adaptation from the Italian of Pirandello's *As You Desire Me*, a notably interesting work discussing, but without reaching any definite conclusion, the question of whether an individual's identity, or ego, is determined by the body or the spirit. Judith Anderson contributed a vivid portrayal of the central figure, The Unknown One.

The high spot of February was the presentation by Katharine Cornell of Rudolf Besier's *The Barretts of Wimpole Street*, already an established success of considerable duration in London. The play depicts, of course, a climactic period in the life of that family of Barretts of which the outstanding member was the poetess, Elizabeth, and is concerned primarily with the romantic circumstances of her release from intolerable domestic conditions through her love for and marriage to Robert Browning, who figures as hero of the piece. The play aroused the serious interest of theatre-goers, and ran, with a short intermission, throughout the year. Miss Cornell herself was the Elizabeth Barrett and gave a well-conceived and appealing performance.

*Doctor X*, a mystery melodrama, endured for ten weeks. A musical concoction of the Hollywood school, *America's Sweetheart*, by the accomplished triumvirate, Field, Rodgers, and Hart, maintained its popularity for four months. A success of the previous year, *Topaze*, by Marcel Pagnol, was presented in its original French form a few times by a touring French company—an interesting if unsuccessful experiment. Another drama from the Italian, *A Woman Denied*, by Gennaro Mario Curci, ran for a month with McKay Morris impersonating an artist and Mary Nash a siren. February brought also revivals of *Death Takes a Holiday* and *Gods of the Lightning*, the latter based on the famous Sacco-Vanzetti case, which were worth reviving, and Dreiser's *An American Tragedy*, which was not.

March proved a busy if not especially distinguished month in the theatre. Its most salient

feature was a new comedy by Rachel Crothers, a clean and entertaining play entitled *As Husbands Go*, which was classed in the final reckoning as among the more notable achievements of the season of 1930-31. *Give Me Yesterday*, a "dream play" by A. A. Milne, was not generally regarded as one of Mr. Milne's most appealing works, but nevertheless ran for over two months.

For the first time since its original presentation by William Gillette in 1903 Sir James Barrie's *The Admirable Crichton* was resuscitated by that habitual delver into the past, George C. Tyler. But not even a so-called "all-star" cast, containing the names of Walter Hampden (in the title rôle), Fay Bainter, Effie Shannon, Ernest Glendinning, Estelle Winwood, and Hubert Druce (whose death occurred during the run of the revival), was able to efface the memory of the earlier production. Then came Channing Pollock's *The House Beautiful*, an earnest plea in dramatic form for simple, honest living and loving, steadfast faith and allegiance to worthy ideals. The play's run was slightly over 100 performances.

In March also the Theatre Guild tempted fate by presenting a translation of the late Hans Chlumberg's resentful *Miracle at Verdun*, a fantastic drama portraying the resurrection, after 20 years, of the men who died in the World War, and their reaction to conditions as they find them in the light of the principles for which they gave their lives.

The Theatre Guild, reviving Bernard Shaw's *Getting Married*, encountered a similar experience to that which was currently befalling *The Admirable Crichton*—its cast, though imposing, was not up to that of the first American production of the comedy in 1916, which was headed by William Faversham and Henrietta Crosman, and the theme was found to have lost most of its novelty, daring, and timeliness.

April was marked by an increasing number of quick failures and by short-lived revivals of various successes of recent years. A run of five weeks duration was the lot of a revival of *Peter Ibbetson* in the stage version of du Maurier's exquisite story made years ago by John N. Raphael with the assistance of Constance Collier. Dennis King was distinctly acceptable in the rôle of Peter.

Like a voice from the past came the announcement, and in due course the production, of a new drama by the French playwright, Henry Bernstein, who long ago gave us such theatrically effective pieces as *The Thief* and *Samson*. The new one was entitled *Melo* and presented an interesting variation of the domestic triangle theme.

Possibly because the story from which the play was taken was too familiar to permit of the essential element of suspense, a dramatization of Frances Noyes Hart's popular murder-mystery, *The Bellamy Trial*, failed utterly. And only limited success attended the production of *Brass Ankles*, a rather forbidding drama on the unpleasant topic of miscegenation by Du Bose Heyward, co-author with his wife of the well-known Negro play, *Porgy*, notwithstanding able efforts by Alice Brady, Ben Smith, and Lester Lonergan.

The national Little Theatre competition for the Belasco Cup, which had been a spring event for several seasons, was not held in 1931, but the second annual Long Play Tournament for a cup offered by the Theatre Arts Magazine and a prize of \$1000 by Samuel French, Inc., was conducted

under the auspices of the Manhattan Little Theatre Club in mid-May. There were five contestants. The winners were the Morningside Players of Columbia University, who presented a conjectural drama by Arthur Goodman entitled *If Booth Had Missed*, in which was hazarded a guess as to what might have befallen Abraham Lincoln had John Wilkes Booth been unsuccessful in his murderous assault. The piece was subsequently announced for professional production.

On May 15 death terminated the long and eventful career of David Belasco (q.v.) dean of American theatrical managers.

On the first night in June The Players Club presented as its annual classic revival Congreve's sparkling old comedy, *The Way of the World*. As usual, a cast bristling with important names was assembled, headed by those of Fay Bainter and Walter Hampden. The attraction was, of course, limited to the customary single week. The same evening brought the *Third Little Show* with Beatrice Lillie and Ernest Truax as its stars. The revue endured throughout the summer. A racy and fairly ingenious comedy of the alcoholic school by Barry Connors, entitled *Unexpected Husband*, lasted into the summer; likewise a revival, under the new appellation of *A Regular Guy*, of Patrick Kearney's erstwhile box-office failure but "succès d'estime," *A Man's Man*.

With June commenced, too, the long run of *The Band Wagon*, which outlasted the year. This was a revue, mainly by George S. Kaufman and Howard Dietz, and one of the liveliest, most variegated, and most generally entertaining on record. July brought but two new items to the menu of the theatres, the Ziegfeld *Follies*, resuming a series discontinued in 1927, and another of a more haphazard nature, organized on a coöperative basis by the columnist and dramatic critic, Heywood Brown, and called, suggestively, *Shoot the Works*.

By the end of July, when normally a new season is commencing, only 12 of New York's 50 or 60 theatres were open; and even this small number included three attractions of the vintage of 1930 whose runs had continued uninterruptedly—*The Green Pastures*, *Once in a Lifetime*, and *Grand Hotel*. But outside of the city, both in the suburbs and as far from home as the Berkshires, Newport, Cape Cod, and central Maine, more summer stock companies were starting up than ever before, many of them subscribing to a fairly systematized arrangement whereby visiting stars, especially selected for individual rôles, played those rôles in association with one company after another—a modern adaptation of a system in vogue throughout the country when the American theatre was still young.

The Pulitzer Prize for the season 1930-31 was awarded to Susan Glaspell's *Alison's House*, the play founded on the life of Emily Dickinson, the poetess, thereby quite reasonably giving rise to considerable adverse criticism of the judges.

When the fall season eventually arrived a veritable avalanche of new plays was let loose upon a public not in the best frame of mind to receive them. Nevertheless the deluge continued more or less steadily until the inevitable lull that always precedes the Christmas season. While the majority of the new offerings were of very inferior quality and deserved the swift fate that was meted out to them, more than a few merited a better reception than fell to their lot.

A melodrama entitled *Three Times the Hour*,

whose chief claim to novelty was that its three acts were supposed to be taking place simultaneously under one roof, found but scant favor. This particular form of novelty appeared to be a dangerous experiment, for when it cropped out again, a little later, in an uncommonly appealing and optimistic work by no less a personage than John Galsworthy called *The Roof*, involving six scenes of simultaneous action, the result was the same.

The Civic Light Opera Company, which had hitherto confined its activities to the highly popular Gilbert and Sullivan revivals, now turned its attention to notable works of more recent vintage by a variety of composers—*The Merry Widow* (Lehar), with Donald Brian back in his original rôle of Danilo; *The Chocolate Soldier* (Strauss); *The Geisha*, an old Daly's Theatre success of 1896, bringing back James T. Powers, of its pristine cast, at the age of 69; *The Chimes of Normandy* (Planquette); *Naughty Marietta* (Herbert); and *The Firefly* (Friml), with an occasional week of *The Mikado* interspersed.

Chester Erskin, who had acquired some fame as a stage director, ventured unsuccessfully to combine production and direction in *I Love an Actress*, adapted, also by the same hand, from the Hungarian of one Laszlo Fodor. Mr. Erskin figured again as director of the Theatre Guild's first offering of the season, a slight, airy, satirical comedy from the French of Alfred Savoir entitled *He*, which was one of the Guild's most positive fiascos.

*The Breadwinner*, a labored and repetitious effort by the often brilliant Somerset Maugham, served for little more than to introduce Marie Lohr, well-known English actress, to American audiences at the head of an imported British company that included the popular A. E. Matthews. Another newcomer from London was Charles Laughton, who arrived in tow of an uncommon type of thriller called *Payment Deferred*, a play so harrowing and exhausting to the observer that its limited career, despite excellent acting on the part of both Mr. Laughton and his wife, Elsa Lanchester, was readily understandable.

At the end of September a promising new producing organization came officially into being. The Group Theatre it called itself, and in a sense it was an offshoot of the Theatre Guild. After long and careful preparation it emerged with an interesting and truly creditable presentation of a serious and thoughtful play by Paul Green, author of one of the Pulitzer Prize dramas. The new one, *The House of Connelly*, had earlier been slated for production by the Guild itself, but was turned over to its protégée. It depicted the impending annihilation through decay of an old Southern family which was subsisting on the bare remnants of its departed fortune and prestige, a fate avoided in the end by the union of the son of the house with a girl of less blue but more red blood and initiative. Weeks later it offered a second play, entitled *1931-*, by Claire and Paul Sifton, which proved so graphic and grim a picture of unemployment that the public would not stand for it.

With October London sent over another of its outstanding successes in the dramatization of J. B. Priestley's popular novel, *The Good Companions*, a stage version made by the author himself in collaboration with Edward Knoblock. Next came the first of two new comedies by the

dependable Elmer Rice, *The Left Bank*, an interesting though dispassionate arraignment of the American expatriates who scorn their native heath from the vantage ground of Paris' Latin Quarter. Katherine Alexander, Horace Braham, Donald Macdonald, and Merle Maddern were still giving point to Mr. Rice's pertinent animadversions when the year ended. Still another new producing group, the New York Repertory Company, sponsored by Lawrence Langner, a director of the Theatre Guild, opened its first regular season with a revival of Dion Boucicault's old melodrama, *The Streets of New York*, treating the piece in the spirit of mock sincerity which habitually emphasizes the ridiculousness of the antiquated situations and effects of the old-time thrillers as contrasted with those of to-day.

*Two Seconds*, by Elliott Lester, an unusual offering in 21 scenes depicting what flashes through the memory of a condemned man in the moments just before his execution, attracted interest for a number of weeks. *The Guest Room*, by Arthur Wilmurt, provided for a similar period a medium for the eccentric comedy of Helen Lowell, assisted by Beverly Sitgreaves. Robert Loraine brought over from London his production of Strindberg's grim and forbidding drama, *The Father*, as presented there by him over 250 times in recent seasons, but, despite his own impressive playing and that of Haidee Wright and Dorothy Dix in his support, two or three weeks was the extent of New York's patronage. Then came the second play of the season from the pen of the Hungarian Laszlo Fodor, adapted this time by the Hattons, and called *A Church Mouse*, a slipant and tasteless thing made endurable—and for an incredibly long run—by the skillful and redeeming performance of Ruth Gordon. Another British importation, *Lean Harvest*, by Ronald Jeans, met with only limited favor.

The first new musical comedy of the fall, *Everybody's Welcome*, proved to be nothing out of the ordinary, and was quite overshadowed by a rival attraction, *The Cat and the Fiddle*, a romantic offering of exceptional delicacy and charm, for which Jerome Kern furnished the music and Otto Harbach the book. A French comedy by Edouard Bourdet, which achieved a notable hit on home ground as *Le Sexe Faible*, was found rather distasteful to New York when brought over, via London, as *The Sea Fable*, with a mainly English cast including Helen Haye, Mrs. Patrick Campbell, Ronald Squire, and Derek Williams, late of *Journey's End*. Maurice Browne, the British producer, felt that the fanciful play known as *The Unknown Warrior*, which had failed once in America, deserved another chance, which he proceeded to give it in the form of special matinee presentations, but with the former result.

In view of the enormous success of *Once in a Lifetime*, it was inevitable that other plays should attempt to capitalize the evidently profitable idea of holding up to ridicule the seemingly haphazard methods of the magnates of the talking-picture industry. Such a piece promptly came to light in *Wonder Boy*, by Edward Chodorov and Arthur Barton, which, though lacking the biting wit of George S. Kaufman, depicted perhaps even more hilarious doings, yet failed to come anywhere near duplicating the fortunes of its prototype. Later another work of similar order, concerned mainly with the publicity end of the game and entitled *Louder, Please!*, encountered correspondingly limited favor in spite of a spirited

performance by the capable Lee Tracy. *Sing High, Sing Low*, by Murdock Pemberton and David Boehm, lampooned the back-stage aspect of grand opera with much the same result.

Once again the expansive and jovial Nikita Balieff, aided and abetted by his faithful sponsor, Morris Gest, tempted fate in New York with his *Chauve-Souris*, but in a new guise, with a bill no longer consisting of a multitude of diversified and highly colored features but, instead, of three long items including ballet, drama, and opera bouffe derived respectively from Mozart, Pushkin, and Offenbach, among others. In the final number Balieff himself appeared for the first time as a performer. But the public did not take kindly to the new order of things.

Then came what in many, probably most, quarters was regarded as the event of the year in the theatre—the production by the Theatre Guild of Eugene O'Neill's long-heralded trilogy entitled, collectively, *Mourning Becomes Electra*; individually, *Homecoming*, *The Hunted*, and *The Haunted*. In this work O'Neill deliberately set himself the well-nigh superhuman task of transplanting the spirit, the austerity, and something of the form of Greek tragedy to a setting in puritanical New England in the period immediately following the Civil War. For his purpose he borrowed the favorite theme of Æschylus, Euripides, and Sophocles—the stark legend of Electra and her brother, Orestes, and the vengeance wrought by them on their faithless mother, Clytemnestra, for the murder of their father, Agamemnon—and fashioned his own adaptation to parallel the story rather closely, introducing for good measure, and for its sensational effect, a suggestion from another ancient Greek source, the Œdipus myth. The result is a sordid but undeniably gripping study of inherited weak and evil traits of character, complicated by a linked trail of murders and suicides, with Electra, or her modernized counterpart, emerging in the end as a solitary, majestic, and rather pathetic figure. Opinions varied, of course, as to the artistic merit of the playwright's achievement, but the consensus of judgment, even of those who had credited O'Neill with previous "masterpieces," was that it represented the climax of his accomplishment to date. But there was virtually no dispute as to the excellence and effectiveness of Philip Moeller's staging of the trilogy, and the exceptional opportunities it afforded Alice Brady, in the Electra rôle, Alla Nazimova as the mother, Earle Larimore, Lee Baker and Thomas Chalmers for flights of histrionism to which they rose with full credit.

October ended with the launching of two deserving but ill-fated ventures—*East Wind*, an ambitious operetta by Sigmund Romberg, Oscar Hammerstein, 2d, and Frank Mandel, boasting a cast of well-known musical comedy favorites, and *The Venetian*, by Clifford Bax, a costume play of the sixteenth century, constructed around the historical character of Bianca Capello, and acted by an English company. November, on the other hand, opened coincidentally with two successes—*Cynara*, a London hit by H. M. Harwood and R. F. Gore-Browne, in which was sympathetically developed a novel, sophisticated, and tragic phase of the oft-recurring triangle theme, and *The Laugh Parade*, mainly by and with Ed Wynn, a fact that speaks volumes. But Peter Arno's satirical musical concoction, *Here Goes the Bride*, which had loomed large in the public prints prior to its

production, met a speedy and decisive rebuff on the ground of its lack of humor. Norman Bel Geddes, well-known designer of scenic effects, now undertook to inject radical reforms into the traditional methods of staging Shakespeare's *Hamlet*. Innovations were so marked as greatly to distract attention from the main "thing," and, despite Raymond Massey's intelligent playing of the title rôle, Celia Johnson's uncommonly satisfying Ophelia, and the long-familiar Horatio of Leon Quartermaine, the production carried but briefly.

Then once more was a series of misadventures alternated with an equal number of substantial hits, starting with Elmer Rice's second contribution to the season, *Counsellor-at-Law*. S. N. Behrman, noted for his clever comedies and scintillating dialogue, again made good with his *Brief Moment*, an up-to-date treatment of the subject of caste.

Importance and tone were added to a still distinguished season by Ethel Barrymore's revival of Sheridan's ever-delightful comedy, *The School for Scandal*, in which she repeated her fascinating portrayal of Lady Teazle, first seen some years back in one of the earlier annual offerings of The Players, on which occasion her uncle, the late John Drew, was the Sir Peter.

For members of a calling so traditionally superstitious as that of the stage, the Actor-Managers were rash indeed to attempt a comeback on Friday, the 13th of November, in an extremely modern piece by Cutler Hatch entitled *If Love Were All*. If they profit by the experience they will be more cautious another time. But three days later the Theatre Guild scored another decided hit with Robert E. Sherwood's buoyant, racy and impudent comedy, *Reunion in Vienna*, in which Alfred Lunt and Lynn Fontanne disported themselves with captivating abandon.

Passing swiftly over such productions as the annual engagement of the Chicago Civic Shakespeare Society, headed by Fritz Leiber, which, notwithstanding the participation of some distinguished players did not succeed in duplicating its good showing of the previous year; *The Lady with a Lamp*, a London success by Reginald Berkeley, written around the personality of Florence Nightingale and engagingly played here by Edith Evans and Patricia Collinge; and several other equally decisive failures, the month's final New York hit is found to have been the Molnar play translated as *The Good Fairy*.

But in November there occurred also an event that brought much needed lustre to the year's record in the theatre—the return to the stage of Maude Adams, who, prior to her retirement in 1918, had held for more than 20 years the enviable position of America's best beloved and most popular actress. She selected the rôle of Portia in Shakespeare's *The Merchant of Venice* for her new début, and in her production of the comedy was associated with Otis Skinner, whose sterling portrayal of Shylock had long been familiar. Although the tour opened in Cleveland, Ohio, it was recognized as an occasion by the press generally, many newspapers in New York and elsewhere treating it as front-page news. Both stars were greeted with affectionate enthusiasm, and their visits to Newark and the other cities and towns along their route assumed the nature of ovations.

For the benefit of the younger school of players who had never seen it, to say nothing of those elders who remembered it fondly, the

dramatization of Louisa M. Alcott's *Little Women* was resuscitated for a series of matinees.

Virtually nothing further took place in the theatre in New York until Christmas week, between which time and the close of the year some 16 or 17 novelties and revivals were pitchforked onto the stage to collect what they could of the holiday shekels. A revival of Noel Coward's mad-cap *Hay Fever*, with Constance Collier as its outstanding feature, settled down to indications of repeating its record of several years back. The one musical offering of the dying year seemed destined to be not only remembered but still alive and active long after 1931 was all but forgotten. Its title was *Of Thee I Sing*; its authors, George S. Kaufman and Morrie Ryskind; its composers, the brothers George and Ira Gershwin. As a travesty on national government and political campaign methods, disrespectful truly but too good-natured to be scurrilous, it proved not merely mirth-provoking but positively hilarious.

The theatre in Europe was, of course, correspondingly affected by the widespread depression, but in most of the important producing centres was better prepared to withstand it by virtue of a characteristically larger interest in standard drama and greater dependence upon revivals of established successes.

In London Besier's *The Barretts of Wimpole Street*, first presented in 1930, ran throughout 1931. The most prolific dramatist of the year was John van Druten, with three new plays—*After All*, which failed in New York but was a hit at home, *London Wall*, and *There's Always Juliet*. Many of the outstanding productions, especially those of the first half of the year, have already received mention in connection with their exportation to New York, but there were numerous other British successes that did not cross the Atlantic. Among them was *The Improper Duchess*, by J. B. Fagan, a light, racy trifle lampooning certain American customs. O'Neill's *Strange Interlude* was received with but mild interest and lasted only a few weeks. *Who Goes Next?*, a war play acclaimed as comparable with *Journey's End*, and *Good Losers*, by Michael Arlen and Walter Hackett, found only moderate favor. One importation of a New York triumph, *Strictly Dishonorable*, collapsed speedily where another, *Five Star Final* or, to give it its English title, *Late Night Final*, scored heavily. By spring the London bills contained a considerable showing of favorite pieces by Shaw, Galsworthy, Milne, Ibsen, Maugham, and Shakespeare. Then along came a new playwright, C. L. Anthony (a woman's pseudonym), with a delicately pathetic romance, *Autumn Crocus*, which became one of the year's notable successes. *The Church Mouse*, adapted by Benn Levy from the same Teutonic source as the piece of similar title in New York, was produced and acted by Sir Gerald du Maurier. A musical comedy, *White Horse Inn*, likewise from the German, found high favor. *The Years Between*, a rather powerful topical drama on a purely English subject, was the work of an American, Edward Poor Montgomery. O'Neill's *The Hairy Ape* was staged in May with the Negro actor and singer, Paul Robeson, in the title rôle. The same month witnessed the successful launching of the dramatization of Priestley's *The Good Companions*, Ronald Jeans' *Lean Harvest*, *The Crime at Blossoms*, a satirical piece, and an English version of the latest Lehar operetta, *The Land of Smiles*, with Richard Tauber, "the German Caruso," sing-

ing the leading part in his own tongue. Two American entertainers, Ruth Draper and Cornelia Otis Skinner, both met with British approval, the latter with her novelty, *The Wives of Henry VIII*.

Shortly after the summer lull, Vicki Baum's *Grand Hotel* was offered in London in an adaptation by Edward Knoblock, different in some respects from the version seen in New York, and regarded as more interesting from the standpoint of its staging than for the drama itself. *Counsel's Opinion*, a light comedy by Gilbert Wakefield, was a pleasant feature of the new season, and *The Nelson Touch*, by Neil Grant, an exciting through improbable one. The presentation of an impressive work of Dr. James Bridie called *The Anatomist* was followed by Noel Coward's big hit of the year, *Cavalcade*, an elaborate spectacle, with music, portraying significant episodes of the past three decades of English history from a patriotic standpoint.

In Dublin, Sheridan's *The Critic* proved entertaining in a revised, up-to-date version, and a powerful tragic drama came to light in *Bride*, by one Ulick Burke, a pseudonym. Another gripping work was *The Rune of Healing*, a peasant play by John Guinan, while a new and promising playwright was discovered in the person of John Kirkwood (Mrs. Kirkwood Hackett, ex-actress), who aroused genuine interest with *13 Belgrave Square*, picturing a house divided against itself. Still another new dramatist appeared in the young Earl of Langford, whose successful piece, *The Melians*, drew an analogy between the history of Ireland and that of the ancient dwellers on the island of Melos.

Paris signified the opening of a new year by welcoming Jacques Copeau back to the Vieux-Colombier as a producer after an absence of almost 10 years. With him came a newly enlisted acting organization styling themselves Les Quinze. During the season they brought out a new play on the subject of Noah and the Flood, and another dealing with the Roman (and Shakespearean) legend of Luciece. The year was especially notable for the completion, or continuance, of some amazingly long runs, including those of the two plays of Marcel Pagnol—*Topaze*, which quit after three and a half years, and *Marius*, which rounded out a career of more than 800 performances, yet failed miserably in New York under the title *Marseilles*. *Le Scæz Faible*, another New York disaster, reached approximately the 500 mark. As in London, revivals were an important feature of the theatre, including an effective one of *Le Roi*, by de Caillavet and de Flers. But there were also numerous new offerings of note, among them *Terrain Vaguc*, a symbolic dream play by J. V. Pellerin; a French version of a German chronicle of the famous Dreyfus case; Alfred Savoir's *La Petite Catherine*, dealing, of course, with Catherine of Russia; a light and entertaining trifle by de Croisset, called *Pierre ou Jack*; a moderately amusing revue by Rip; Bernard Shaw's *The Apple Cart* in French; and a melodrama of the cinema entitled *The Beautiful Red Danube*. Saint-Georges de Bouheliér's historical drama of the French Revolution, *Le Sang de Danton*, was regarded as of uncommon importance.

The year in Berlin got under way with Molnar's *Die Fee*, to be done later in New York as *The Good Fairy*, followed in February by Karl Vollmoeller's *Cocktail*, a comedy fitted with a musical score by Ralph Benatzky and a plot reminiscent of Elinor Glyn's lurid romance, *Three Weeks*. A

slightly Gilbertian operetta, picturesquely titled *The Blue Shirt of Ithaca*, had a book by Karl Roessler, with lyrics set to music gleaned from various little-known works of Offenbach. *Amphytrion 38*, by the Frenchman Giraudoux, proved more literary than dramatic as a free Gallic treatment of a Greek myth, more or less in the spirit of the American John Erskine. Emmerich Kalman, composer of *Countess Maritza*, turned out a new one, *Spring on Montmartre*, well supplied with intriguing dance airs yet not up to the standard set by the earlier work. Two such unequivocal American hits as *The Royal Family* and *Strictly Dishonorable* were utter fiascos when done into German. Perhaps the most engaging novelty of the year was Carl Zuckmayer's *The Captain of Kopenick*, a comedy based on an amusing incident of fairly recent local history. *Yesterday and Today* proved a moderately stirring analytical drama of a phase of life in a girls' boarding school. Ernst Pentzoldt won favorable attention for his historical drama of the youthful Don Sebastian, *The Portuguese Battle*.

The dullness of the Summer period was dissipated in August by Max Reinhardt's characteristically lavish presentation of Offenbach's *La Belle Helene* and Millocker's *Du Barry* was put forth as another of several revivals of the operettas of an earlier day, a process similar to the one going on simultaneously in New York. Incidentally the early fall brought a number of recent American hits—*Young Love*, *Rebound*, *The Vinegar Tree*—and one American failure in the dramatization of Ernest Hemingway's story, *A Farewell to Arms*, called, in the German version, *Kat*.

Outstanding features of the mid-winter season in Vienna were four dramas dealing with historical personages—Bruckner's *Elizabeth of England*, Savoir's *Little Catherine*, *The Kingdom of God in Bohemia* by Franz Werfel, and Hans Saksman's *The House of Rothschild*, introducing not only the five famous brothers of that name but also Metternich and Franz Josef. In addition, Arthur Schnitzler contributed a new historical romance in verse, *The Path to the Pool*, strictly Viennese in its appeal. A mature work by Oscar Straus, *The Peasant General*, disclosed music of a higher and less popular grade than that of his earlier operettas, but a minimum of humor. In Budapest the hit of the year was achieved by a new playwright, Emery Halasz, with a piece called *How Long Will You Love Me?* on the familiar topic of infidelity. Meanwhile conditions in the theatre of Russia appeared more nearly normal than elsewhere on the continent, with evidences of actual prosperity in both Leningrad and Moscow. In Stockholm the majority of the dramas offered during the year were from other countries than Sweden, with a fair representation from America. In September much interest was aroused by the announcement of a forthcoming production of *The Green Pastures* in Swedish.

See ARCHITECTURE; FRENCH LITERATURE; ITALIAN LITERATURE; LITERATURE, ENGLISH AND AMERICAN; SPANISH LITERATURE.

**THEOSOPHICAL MOVEMENT, THE.** The year 1931 marked the centenary of the birth of Mme. H. P. Blavatsky, who restated, under the name of Theosophy, the ancient teachings regarding the three-fold evolution, spiritual, mental, and physical, the laws under which it proceeds, and the necessity for each man to progress by his own efforts through many lives on earth



to the perfection attained by the Buddhas and Christs of the race. Several centennial editions of importance were issued by various Theosophical bodies in different parts of the world. Among these were photographic reprints of the original edition of Madame Blavatsky's monumental first book, *Isis Unveiled* and her *Key to Theosophy* and *Theosophical Glossary*; a compilation of her most significant articles on occultism, published under the title *Raja Yoga or Occultism*; and a volume entitled *H. P. B.: In Memory of Helena Petrovna Blavatsky*, a collection of tributes to Madame Blavatsky by some of her pupils.

**THEOSOPHICAL SOCIETY, AMERICAN.** The American section of the Theosophical Society, a world-wide organization founded in 1875 by Mme. Helena P. Blavatsky and Col. Henry S. Olcott. World headquarters were later established at Adyar, India, near Madras. In 1931 branches existed in 47 nations, on six continents. The American Theosophical Society had, in 1931, 209 local lodges. The president of the society was Sidney A. Cook. Headquarters are in Wheaton, Ill.

**THERMOSTRIP.** See ELECTRICAL TRANSMISSION AND DISTRIBUTION.

**THERMOTEL.** See DYNAMO ELECTRIC MACHINERY.

**THIRD DEGREE.** See CRIME.

**THIRD INTERNATIONAL.** See COMMUNISM.

**THOMSON, tôn'sôn', CÉSAR.** A Belgian violinist, died in Lugano, Switzerland, Aug. 24, 1931. He was born in Liège, Belgium, Mar. 18, 1857, and attended the Liège Conservatory, studying under Léonard, Wieniawski, Vieuxtemps, and Massart. On graduation at the age of 16 he made successful tours through Spain and Italy and became in 1879 concert-master of the Bilse Philharmonic Orchestra in Berlin. In 1882 he was appointed professor of violin at the Liège Conservatory, holding this position until 1897 when he succeeded Ysaie (q.v.) at the Brussels Conservatory. He toured North America in 1894 and South America in 1903. During the World War he made his headquarters in Paris, and in 1924 came to the United States as a member of the faculty of the Ithaca Conservatory of Music.

**THURINGIA, thû-rin'jî-â.** See GERMANY.

**THURSBY, EMMA CECILIA.** An American coloratura soprano, died in New York City, July 4, 1931. She was born in Brooklyn, N. Y., Feb. 21, 1857, and studied in the United States. She made a successful tour of the United States and Canada in 1875. In 1878-79 she was warmly received in England, singing at the Philharmonic, with Leslie's Choir, and at the Crystal Palace, and during the next two years made an extended concert tour on the continent, singing before the Emperor of Germany and other royalty. In 1896 she established herself as a teacher in New York City. Her last concert tour was in 1903 when she visited Japan and China.

**THYRATHON.** See ELECTRICAL INDUSTRIES.

**TIBET, ti-bét' or tib'et.** A central Asian territory extending eastward from the Pamirs to the border of China; nominally under the suzerainty of China. Area, estimated at 463,200 square miles; population, approximately 2,000,000. Capital, Lhasa, with a population of 15,000 to 20,000. The temporal ruler of the country is the Dalai Lama, or Living Buddha. In June, 1931, armed forces of the Dalai Lama were reported to have invaded the newly created Chinese Province of

Sikong, formerly part of Szechuan, which borders Tibet on the east, and to have seized a large part of the Province, including the cities of Kanyu, Chamhwa, Chunhsia, and Lihwa. Consult Sir Charles Bell, "Tibet's Position in Asia Today," *Foreign Affairs*, October, 1931, See CHINA.

**TICKS.** See ENTOMOLOGY, ECONOMIC.

**TIMBER CONSERVATION BOARD.** See FORESTRY.

**TIN.** Estimates of tin production in 1931 gave a total of 148,010 long tons, as against 173,210 tons in 1930. The 1931 production was estimated for the following countries: Federated Malay States, 52,000 tons; Bolivia, 31,400 tons; Dutch East Indies, 27,800 tons; Siam, 12,700 tons; China, 7200 tons; Nigeria, 7100 tons; Burma, 1700 tons; Unfederated Malaya, 1350 tons; Australia, 1300 tons; Great Britain, 460 tons. See BOLIVIA.

**TIBOL, té-rôl'.** A former crownland of Austria-Hungary, divided between Italy and the Republic of Austria by the Treaty of St. Germain.

**TITTONI, têt-tô'né, TOMMASO.** An Italian statesman and diplomat, died Feb. 7, 1931, in Rome where he was born Dec. 16, 1855. He received his education at the universities of Rome and Oxford. In 1886 he was elected a member of the Chamber of Deputies, where he represented Civitavecchia until 1895. He was appointed prefect of Perugia in 1897 and of Naples in 1900, and in 1901 was elected to the Senate. In 1903 he was appointed Minister of Foreign Affairs in the Giolitti Cabinet and, with the exception of a short interval as Ambassador to Great Britain in 1906, held this portfolio until 1910. He then became Ambassador to France, resigning from this post on Italy's entry into the World War to become Minister of State. Premier Nitti gave him the portfolio of Foreign Minister in 1919 and that of first delegate to the Paris Peace Conference, but he was obliged to resign the same year on account of ill health. He was later appointed delegate to the Council and Assembly of the League of Nations, but his health again did not permit him to act. In 1920 he was chosen president of the Senate, holding this office under the Fascist régime until 1928. He was first president of the Italian Academy in 1928, and in 1929 was created Count of Manziani. A volume of his speeches, *Sci anni di politica estera, 1903-09, discorsi* (1912), was translated into English as *Italy's Foreign and Colonial Policy* (1914). He also wrote *Who Was Responsible for the War?* (1918); *Conflitti politici e riforme Costituzionali* (1919); *Per la guerra e per la pace* (1919); *Modern Italy* (published by the Williamstown Institute of Politics, 1922); *Discorsi e scritti* (1924); *International Economic and Political Problems of the Day and Some Aspects of Fascism* (edited by Baron di San Severino from Tittoni's writings and addresses, 1920); and *Questioni del Giorno* (1928).

**TOBACCO.** The tobacco crop of the United States in 1931 was estimated at 1,610,098,000 pounds, about 1.5 per cent less than the record crop of 1930, but 4.7 per cent more than in 1929. The acreage harvested totaled 2,019,000 acres, compared with 2,101,000 in 1930, while the 1931 average acre yield was 797 pounds, 19 more than in 1930. Material acreage reduction in flue-cured areas was nearly offset by increases in the fire-cured and air-cured sections. The estimated production by types was for flue-cured, 657,715,000 pounds; fire-cured 197,267,000; air-cured, light,

mostly Burley, 496,495,000; air-cured, dark, 71,657,000; cigar types, 185,524,000, comprising filler 91,857,000, binder 84,873,000, and wrapper 8,794,000; and miscellaneous, 1,440,000 pounds. The average farm price per pound, December 1, was 9.7 cents, compared with 12.9 in 1930; the estimated total farm value was \$156,097,000 versus \$211,102,000 in 1930 and \$286,104,000 in 1929. See *ENTOMOLOGY, ECONOMIC*.

Production of tobacco in leading producing countries of the world, as reported in December, 1931, by the International Institute of Agriculture, with available statistics, totaled 1,893,531,000 pounds as compared with 1,927,708,000 in the previous year. After the United States with its 1,610,098,000 pounds came Japan with 155,757,000; Greece, 98,767,000; Bulgaria, 54,784,000; Canada, 48,230,000 (versus 36,717,000 in 1930); Czechoslovakia, 27,778,000; and Algeria, 20,283,000. In the year 1930-31, Porto Rico produced 35,344,000 pounds; Germany, 46,408,000; and Union of South Africa, 13,700,000 pounds. The 1930 crop of the Philippine Islands was reported to be 99,207,000 pounds; of France, 47,106,000; Hungary, 70,547,000; Yugoslavia, 33,561,000; and Rumania, 53,012,000 pounds. The crop of Cuba in 1931 totaled 80,707,000 pounds (82,153,000 pounds in 1930).

Collections from Internal Revenue taxes on tobacco in the United States for the fiscal year 1931, as reported by the Commissioner of Internal Revenue amounted to \$444,276,502.62, a decrease of \$6,062,557.88, or 1.34 per cent compared with the previous year, the first decrease since 1921.

The prominent position that the cigarette has gained in the tobacco industry was shown by the Commissioner of Internal Revenue who reported that in the calendar year 1930, there were manufactured 123,802,186,217 cigarettes weighing less than 3 pounds per 1000, over 1,400,000,000 more than in 1929. A slight setback in consumption was indicated in 1931, cigarettes numbering 113,449,048,000; cigars numbering 5,318,892,000, a decrease of 571,000,000; manufactured tobacco 327,995,000 pounds, a decrease of 80,000,000 pounds; snuff 39,543,000, a reduction of 600,000 pounds. Exports of leaf tobacco declined from 579,704,000 pounds in 1930 to 524,498,000 pounds in 1931, the decrease being general in most all classes. Consult also *Tobacco Markets and Conditions Abroad* (weekly); *United States Tobacco and Its Markets* (1931),—both U. S. Department of Commerce; *Tobacco* (weekly) (New York); A. Flügel, *Tabakindustrie und Tabaksteuer* (Jena, 1931); T. J. Woolfer, *The Plight of Cigarette Tobacco* (Chapel Hill, N. C., 1931). See *WOMEN IN INDUSTRY*.

**TOBAGO.** See *TRINIDAD*.

**TOGOLAND**, or Togo, tō'gō. A former German protectorate in West Africa; divided between Great Britain and France Sept. 30, 1920, as mandated territory of the League of Nations; situated between Dahomey and the Gold Coast. Total area, 34,933 square miles; total population, about 730,000 natives and 477 Europeans.

The *Gold Coast Gazette* of Jan. 13, 1931, announced that the British and French Governments had definitely approved the boundary between the two mandated areas fixed by an Anglo-French commission, appointed in 1927.

**TOLEDO, UNIVERSITY OF THE CITY OF.** A municipal, coeducational institution of higher learning in Toledo, Ohio, founded in 1872. The enrollment for the autumn of 1931 totaled 2465, of

whom 1654 were day-session and 811 late-afternoon and evening-session students. The faculty had 70 full-time and 36 part-time members. The income for the year amounted to \$577,900. The library contained 28,000 volumes. President, Henry John Doermann, Ed.D.

**TOLL BRIDGES.** See *BRIDGES*.

**TONGA OR FRIENDLY ISLANDS.** A British protectorate consisting of three groups of islands lying east of Fiji in the Pacific. Area, about 385 square miles; population (estimated in 1929), 26,809 Tongans, 436 Europeans, 202 half-castes, and 213 other Pacific islanders. Capital, Nukualofa. Queen in 1931, Salote. High Commissioner, Sir Arthur G. M. Fletcher.

**TONGKING (TONKIN),** tōn'kên. See *FRENCH INDO-CHINA*.

**TONSILLECTOMY.** See *SURGERY, PROGRESS IN*.

**TOBNADO.** See *METEOROLOGY*.

**TORONTO, UNIVERSITY OF.** An institution of higher education in Toronto, Ont., Canada, founded in 1827 and supported by the provincial government. The 1931 autumn enrollment was 7362. The faculty numbered 849 members. The total expenditure for the year 1930-31 for salaries and maintenance was \$2,797,185. Total benefaction received during the year amounted to \$756,789. The library contained 263,056 volumes and 94,626 pamphlets. President, Sir Robert A. Falconer, K.C.M.G., D.Litt., LL.D., D.D., D.C.L.

**TORPEDO BOAT.** See *NAVAL PROGRESS*.

**TOWN PLANNING.** See *CITY AND REGIONAL PLANNING*.

**TRACK ATHLETICS.** See *ATHLETICS, TRACK AND FIELD*.

**TRADE, INTERNATIONAL.** See *FINANCIAL REVIEW*.

**TRADE FAIRS.** See *EXPOSITIONS*.

**TRADE UNIONS.** *INTERNATIONAL FEDERATION OF TRADE UNIONS.* The International Federation of Trade Unions (Amsterdam International) reported that at the end of 1928 there were slightly over 41,000,000 trade unionists in the world, of whom, at the end of 1929, 13,800,567

**MEMBERSHIP OF INTERNATIONAL FEDERATION OF TRADE UNIONS, DECEMBER, 1929**

Country	Trade union membership
Argentina .....	82,000
Austria .....	768,168
Belgium .....	528,380
Bulgaria .....	1,269
Canada .....	156,000
Czechoslovakia .....	554,074
Denmark .....	250,162
Estonia .....	5,713
France .....	640,790
Germany .....	5,420,538
Great Britain .....	3,673,144
Greece .....	39,500
Netherlands .....	255,384
Hungary .....	124,000
Italy .....	(*)
Latvia .....	23,556
Luxemburg .....	15,377
Mamel .....	1,064
Palestine .....	26,049
Poland .....	231,369
Rumania .....	41,421
South Africa .....	8,212
Southwest Africa .....	600
Spain .....	225,000
Sweden .....	508,107
Switzerland .....	186,651
Yugoslavia .....	86,044
<b>Total .....</b>	<b>13,800,567</b>

\* No data.

were affiliated with the Amsterdam International. The table on page 789 presents this membership by countries, showing that the Amsterdam International was largely a European organization and that the American Federation of Labor has continued its policy of non-affiliation. The American Federation of Labor has advanced the following two objections to affiliation: "The constitution of the International Federation of Trade Unions abrogates the principle of complete autonomy for national trade union federations, and the affiliation would place upon the A. F. of L. a heavy expense which it is not prepared to meet."

The accompanying table shows the trade affiliations of members of the Amsterdam International, based upon registrations with the international secretariats of their respective trade or industry.

MEMBERSHIP OF INTERNATIONAL TRADE SECRETARIATS, DEC. 31, 1929

<i>Trade or occupation</i>	<i>Membership</i>
Building workers .....	1,009,771
Clothing workers .....	256,839
Miners .....	1,700,000
Bookbinders .....	92,000
Typographers .....	188,487*
Diamond workers .....	23,891
Factory workers .....	595,000
Hairdressers .....	9,572*
Glass workers .....	98,676*
Woodworkers .....	1,000,000
Hotel employees .....	76,500
Hatters .....	36,500
Pottery workers .....	146,676
Land workers .....	332,340
Teachers .....	105,000
Food and drink workers .....	382,400
Lithographers .....	62,303
Painters .....	250,303
Metal workers .....	1,841,389
Public service employees .....	513,358
Postal employees .....	436,237
Commercial, clerical, and technical employees	779,729
Leather workers .....	314,152
Stone workers .....	123,774
Tobacco workers .....	130,946
Textile workers .....	913,379
Transport workers .....	2,250,000
Total .....	13,669,222

\* End of 1928.

The fifth Congress of the International Federation of Trade Unions took place in Stockholm during July, 1930, and was attended by 129 representatives and fraternal delegates. Among the fraternal delegates were representatives from Japan, Australia, New Zealand, India, and Egypt. The economic programme which the Congress adopted concerned itself with both international and national matters. In the first, resolutions called for the creation of an international economic board, the control of trusts and syndicates, the abolition of tariff restrictions, the establishment of economic courts to settle economic conflicts between countries, and the equalization of wages by fixing international minimum standards of working conditions. In the second, there were resolutions calling for the creation of safeguards for the workers against rationalization, the transference to other activities of employees separated from their jobs, the participation of the trade unions in processes of rationalization, and the payment of unemployment benefits without limits as to time.

The Congress indorsed the cooperative movement and also called for the formation of na-

tional economic councils with trade union representation. The social political programme adopted by the Congress called for the insurance of all workers against illness, invalidity, old age, death, unemployment, maternity, accident, and occupational diseases; vacations; protective measures for women and children; the technical and professional education of apprentices; freedom of meetings and unions; liberty to strike; arbitration courts; special courts for the settlement of other disputes between employers and workers; and the right of the workers to a voice in the conduct of the factories. The Congress finally decided on the removal of its headquarters from Amsterdam to Berlin. See SOCIALISM.

**BRITISH TRADES UNION CONGRESS.** The sixty-third annual meeting of the British Trades Union Congress was held at Bristol Dec. 7-11, 1931, with 589 delegates representing a trade union membership of 3,719,401 in attendance. In 1930 the trade union membership affiliated was 3,744,320. The Congress went on record as approving the tendency manifesting itself in the country toward a planned and regulated national economy. Other resolutions called for the organization of the iron and steel industry and the transport industry under a national authority and for the introduction of nationalization of mines and minerals. Other measures carried at this session demanded a working week of 40 hours without any reduction in weekly wage; payment of wages for statutory holidays and for a two weeks' annual vacation; for improvement in the workmen's compensation law; for the reestablishment of the national agricultural wages board; for the creation of a national rural housing board; and for the ratification of the international labor office convention regulating hours of work in commerce and in offices. See GREAT BRITAIN under *History*.

**CANADIAN TRADES AND LABOR CONGRESS.** The forty-seventh Trades and Labor Congress of Canada was held at Vancouver Sept. 20-25, 1931, with 250 delegates representing a membership of 191,137 in attendance. Among the resolutions carried by the convention were the following: A 5-day week and a 6-hour day as a partial solution of the economic depression; amendments to the Quebec minimum wage act in order to insure adequate production for all industrial and commercial female workers; the adoption of national health insurance and the adoption of old age pensions as a Federal measure; lowering of the age at which persons become eligible for old age pensions to 65 years; the regulation of motor transportation; complete abolition of private fee-charging employment agencies. Tom Moore was reelected president of the Congress and P. M. Draper was continued as secretary-treasury.

In Canada in 1930 there were 322,449 members of trade union organizations of whom 203,478 belonged to international craft unions, 23,724 belonged to the one big union, 3741 belonged to the Industrial Workers of the World, 57,168 belonged to Canadian central labor organizations, 9338 belonged to independent units, 25,000 belonged to national Catholic unions. There were 84 (American) international craft organizations with branches or members in the Dominion, 13 having 5000 or more members in Canada.

**FRENCH GENERAL CONFEDERATION OF LABOR.** The twenty-first National Congress of the French Confédération Générale du Travail was held in

Paris, Sept. 15-19, 1931, with 1341 delegates representing 2359 trade unions in attendance. Chief among the questions before the Congress was that of trade union unity arising from the secession by the left wing of the Confédération in 1921 and its independent formation under the name of Confédération Générale du Travail Unitaire. A resolution calling for union between the C. G. T. and the C. G. T. U. was defeated by a large majority. However, another resolution favoring unity of action of all trade unions under the aegis of the C. G. T. U. was adopted. Another resolution indorsed the country's social insurance system. However, certain reforms were called for, including provisions for home workers; medical and pharmaceutical benefits to persons whose sickness lasted more than 6 months; continuing unemployment-guaranty provisions after Jan. 1, 1932; and increasing the wage limit for compulsory and voluntary insurance to 2500 francs. To relieve the unemployment situation the Congress went on record as favoring the following measures: The establishment of a 40-hour, 5-day working week; paid vacations; extension of the school period; and the lowering of the age limit for pensions. The Congress also demanded improvements in the laws relating to the payment of a dismissal wage, a weekly rest period, and safety and sanitation of working places.

**JAPAN.** At the close of June, 1930, there were 4,774,047 workers employed in Japanese factories, mines, the transportation and communication industries, and in casual and other employments. Of this number, 342,379 were affiliated with 650 trade unions.

**TRANSCAUCASIAN SOCIALIST FEDERATED SOVIET REPUBLIC.** One of the seven constituent republics of the Soviet Union, occupying the region between the Caspian and Black seas south of the Caucasian Mountains and north of Persia and Turkey. It is divided into the three republics of Armenia, Azerbaijan (Azerbaidzhan), and Georgia (q.v.). Azerbaijan includes the autonomous area of Nagorny Karabakh; Armenia, the autonomous republic of Nakhichevan; and Georgia, the Abkhaz and Adjar autonomous republics, and the autonomous area of Yugo-Osetia. See ARMENIA, AZERBAIJAN, GEORGIA, and UNION OF SOVIET SOCIALIST REPUBLICS.

**TRANSFORMERS.** See DYNAMO ELECTRIC MACHINERY.

**TRANS-JORDAN.** An Arab territory in Asia Minor; under British protection as a part of the Palestine Mandate, although governed by a local Arab administration under Amir Abdullah Ibn Hussein, elder brother of King Feisal of Iraq. It is bounded on the north by Syria, on the west by Palestine, on the south by the Gulf of Akaba and the Hejaz, and on the southeast and east by Iraq. The area is uncertain; the partly nomadic population is estimated at 260,000, of whom 220,000 are Arab Moslems, 30,000 Arab Christians, and 10,000 Caucasian elements. Arabic is the official language. Capital, Amman, with 12,000 inhabitants. Agriculture and stock raising are the chief occupations.

The estimated Government revenue in 1929-30 was £359,345, including a grant-in-aid from the British Government of about £74,000. The High Commissioner for Palestine and Trans-Jordan, whose headquarters are in Jerusalem, is represented at Amman by a British Resident. Resident in 1931, Lt.-Col. C. H. F. Cox.

**TRANSMISSION LINES.** See ELECTRIC TRANSMISSION AND DISTRIBUTION.

**TRANSVAAL.** See SOUTH AFRICA, UNION OF.

**TRAPSHOOTING.** See SHOOTING.

**TRAVEL BOOKS.** See LITERATURE, ENGLISH AND AMERICAN.

**TREASURY FINANCE.** See PUBLIC FINANCE.

**TREATIES.** See UNION OF SOVIET SOCIALIST REPUBLICS, URUGUAY, NORWAY, AUSTRALIA, CANADA, AUSTRIA, FRANCE, and BELGIUM under *History*; ARBITRATION, INTERNATIONAL; and LEAGUE OF NATIONS.

**TREES.** See FORESTRY.

**TRENGGANU,** trẽn-gá'nôo. See NON-FEDERATED MALAY STATES.

**TRIBAL STUDIES.** See ANTHROPOLOGY.

**TRINIDAD.** A West Indian island north of the mouth of the Orinoco River, constituting, with Tobago, a British colony. Area of Trinidad, 1862 square miles; of Tobago, 114; total population, according to the census of 1921, 365,913; estimated at end of 1929, 403,275, largely natives of African descent or East Indians. Capital, Port of Spain, with 67,877 inhabitants.

Cacao, sugar, coffee, coconuts, bitters, and copra are the chief export crops. The 114-acre pitch lake produced 219,003 tons of asphalt in 1929. Trinidad in 1929 was ranked second in oil production within the British Empire, the output being 305,047,821 imperial gallons. Imports during the year 1929 were valued at £5,954,000 and exports (excluding reexports) at £7,122,000. Petroleum, cacao, sugar, and asphalt were the leading exports. Revenue in the same year amounted to £1,870,553; expenditure, £1,613,810; public debt, £3,153,221. Governor in 1931, Sir Alfred Claud Hollis. See BRITISH WEST INDIES.

Despite vigorous opposition by the Roman Catholic clergy, a divorce measure was passed by the Legislative Council Dec. 15, 1931, by a majority of 11 votes after five years of controversy.

**TRINITY COLLEGE.** An institution for the higher education of men in Hartford, Conn., founded by members of the Protestant Episcopal Church in 1823 as Washington College and changed to Trinity College in 1845. For the autumn term of 1931 the enrollment was 426. There were 44 members on the faculty. The endowment fund of the college was \$3,328,256, and the income totaled \$232,210. There were approximately 150,000 volumes and 40,000 pamphlets in the library. During 1931 a new chapel, dormitory, and dining hall were under construction. President, Remsen B. Ogilby, Litt.D., LL.D.

**TRINITY COLLEGE,** DURHAM, N. C. See DUKE UNIVERSITY.

**TRIPOLITANIA,** trêp'ô-lê-tâ'nyâ. The western district of the Italian colony of Libia on the north African coast. Area, estimated at about 342,000 square miles; population at the 1921 census, 550,000 natives and 20,716 Europeans (including 18,093 Italians). Capital, Tripoli, with about 70,000 inhabitants. Agriculture along the coastal zone, sponge and tunny fisheries, and the manufacture of tobacco products and articles for domestic consumption are the leading occupations. Imports in 1930 totaled 215,266,000 lire; exports, 36,136,000 lire (1 lira equals \$0.0526 at par). Local revenue for 1930-31 was estimated at 86,000,000 lire; the Italian state contribution, 205,900,000 lire; civil expenditure, 112,621,000 lire; military expenditure, 178,667,000 lire. Governor of Italian Libia in 1931, Marshal Pietro

Badoglio, whose headquarters were in Tripoli. See CYRENAICA.

**TROLLEYBUS.** See ELECTRIC RAILWAYS.

**TROTING.** See RACING.

**TRUCK CROPS.** See HORTICULTURE.

**TRUCKS, MOTOR.** See AUTOMOBILES.

**TRUST COMPANIES.** See BANKS AND BANKING.

**TUAMOTU ISLANDS.** See OCEANIA, FRENCH ESTABLISHMENTS IN.

**TUBERCULOSIS IN CATTLE.** See VETERINARY MEDICINE.

**TUFTS COLLEGE.** A nonsectarian institution for the higher education of men and women in Medford, Mass., founded in 1852. The registration for the autumn term of 1931 was 1967. There were 473 faculty members. The productive funds of the college amounted to \$8,503,896, and the income for the year was \$885,731. The library contained 100,647 volumes. President, John Albert Cousens, LL.D.

**TULANE UNIVERSITY OF LOUISIANA, THE.** An institution of higher education in New Orleans, founded in 1834. Although the professional schools are coeducational, there is a separate undergraduate department for women. The total enrollment for the autumn of 1931 was 3181. The productive funds for the fiscal year ending Aug. 31, 1931, amounted to \$10,097,575; the income for the year to \$1,298,391; and gifts and bequests to \$424,090. The library contained 150,698 volumes. President, Albert Bledsoe Dinwiddie, Ph.D., LL.D.

**TUNIS (TUNISIA).** A French protectorate in North Africa, situated on the Mediterranean coast east of Algeria, west of Tripolitania, and north of the Sahara and Libian deserts. With an area of about 48,300 square miles, Tunis at the census of 1926 had a population of 173,281 Europeans (89,216 Italians, 71,020 French, and 8396 Maltese) and 1,986,427 natives (1,932,184 Arabs and Bedouins, 54,243 Jews). The capital city, Tunis, had 185,996 inhabitants in 1926.

**PRODUCTION.** Agriculture is the principal industry, there being 7,325,000 acres of tillage land as well as 2,550,000 acres of cork and pine forest, 11,720,000 acres of pasture, and 88,707 acres of vineyards. Wheat, barley, oats, olive oil, dates, almonds, oranges, lemons, pistachios,alfa grass, cork, and henna are other products. Livestock (1929) included 2,460,714 sheep, 498,144 cattle, 88,632 horses, 155,842 camels, and 1,664,926 goats. Phosphate, lead, zinc, and iron were taken from 55 mines in 1930 in the following quantities: Phosphate rock, 2,511,000 tons; iron ore, 828,000 tons; lead ore, 27,180 tons.

**COMMERCE.** Imports in 1929 were valued at 2,026,247,000 francs and exports at 1,641,274,000 francs (1 franc equals \$0.0392 at par). Exports, in order of value, were cereals, minerals and building stone, crude metals, beverages and wines, hides, fruits and seeds, live animals. France furnished 1,293,000,000 francs of the total imports and took 669,705,000 francs worth of exports.

**FINANCE.** The budget for 1930 estimated total receipts and expenditures at 518,690,900 francs and 518,024,905 francs, respectively. The public debt in 1928 stood at 542,051,000 francs.

**GOVERNMENT.** The Government is under the direct supervision of a French Minister Resident-General, acting on behalf of the French Foreign Office. He is assisted by a ministry of 11 department heads, 8 of whom are French and 3 Tunisians. There is an army of occupation of

25,000 men, supported by native regiments and the Foreign Legion. French Resident-General, Minister of Foreign Affairs, and President of the Council of Ministers in 1931, M. Manceron.

**TUNNELS.** In previous years the most important and most interesting tunneling operations have been in the highway and railroad fields. The recent remarkable growth of great water supply and power constructions, however, involved many tunneling operations not only of special technical interest but in many cases of the first magnitude.

At the Hoover Dam, on the Colorado, four great by-pass tunnels were being driven, each 50 ft. in diameter. The Owyhee project of the Reclamation Bureau involved two tunnels, one 3.56 and another 4.21 miles long. See DAMS.

In the East, the deep distribution tunnel No. 2 under New York City is a major tunneling operation, while the joining of the Swift and Ware Rivers in the new Boston water supply also involves the Coldbrook-Swift aqueduct tunnel, 10.4 miles long. Even in Greece a new supply was to be brought to Athens through an aqueduct which requires the construction of a difficult  $8\frac{1}{2}$ -mile tunnel—the longest of its kind in Europe.

These works are, of course, all land tunnels but in them two distinct types of work are to be noted. The majority pass through reasonably solid, compact rock and in such cases interest centres largely in the speed of the operation. The pilot heading method, so successfully developed in the great Canadian Rogers Pass tunnel and the more recent Moffat bore, contributed greatly to the establishment of new records. Modern organization of the tunnel forces with full attention to the health of the workers also aided in these remarkable works. The mechanization of tunneling operations in particular has been a big element in establishing new and improved standards. (See series of articles in *Engineering News-Record*, 1931, on "Equipment's Place in Tunneling Operations.")

On the other hand, recent land tunnel operations, particularly in areas of comparatively recent volcanic origin and where such disturbances are still more or less active, have brought to the fore the problems of tunneling in squeezing ground or soft rock and frequently with huge quantities of water to be handled. In these cases the fact that construction has been possible at all is the point of controlling interest. No standardized process can be used. Each operation involves many trials of various methods, or frequently the use of several methods. Japanese engineers were still contending with similar troubles in the Tanna railroad tunnel which was begun in 1918.

The conditions encountered at the north end of the Boyati tunnel for the water supply of Athens were such that a change of alignment was undertaken with the hope of avoiding an area of what was said to be the heaviest ground ever encountered in Near Eastern tunneling. In operations in America similar conditions were common. The Owyhee Project tunnels are in part in swelling ground requiring prompt and very heavy timbering. The Hetch Hetchy operations include extensive sections of heavy ground which have demanded heavy timbering and timber replacement.

**SCHLDT TUNNEL.** Bids were opened in the fall of 1930 for the construction of a vehicular

tunnel under the Scheldt at Antwerp. American engineers participated in preparing plans and planning construction methods and American practices were to be followed. The tunnel will have a maximum depth below low water of 90 ft. and will be 5800 ft. long between land portals with an under-river length of 1300 ft. A single tube with a 22-ft. roadway is to accommodate traffic in both directions. The approaches will be in sand but the bulk of the river portion will be in clay. A ventilating system similar to that of the Holland Tunnel at New York was planned.

**QUEBEC.** The Canadian Pacific R. R. was driving a tunnel under the historic highland of Quebec to reach the new steamship terminal at Wolfe's Cove. The work, 5288 ft. long, was holed through in March, 1931.

**BOSTON.** The city transit department opened bids in February for a tunnel between Boston proper and East Boston, part of which will be under Boston Harbor. This latter portion, 4800 ft. long, will be driven by the shield method. The tunnel will be of notable size, 31 ft. in diameter, and was expected to be completed in two years. See **RAPID TRANSIT**; **AQUEDUCTS**.

**TURBINES.** See **STEAM TURBINES**.

**TURBINES, WATER.** See **WATER POWER**.

**TURBO-ELECTRIC GENERATORS.** See **DYNAMO ELECTRIC MACHINERY**.

**TURCOMAN REPUBLIC.** See **SOVIET CENTRAL ASIA**.

**TURKESTAN.** See **SOVIET CENTRAL ASIA**.

**TURKEY.** A republic occupying a large part of Asia Minor and contiguous territory in the Balkan peninsula. The republic comprises also Imbros, Tenedos, and the Rabbit Islands in the *Ægean* Sea. Capital, Ankara.

**AREA AND POPULATION.** With a land area of 294,416 square miles, including 285,162 square miles in Asia and 9254 square miles in Europe, Turkey at the census of October, 1927, supported a population of 13,648,270. The estimated population Dec. 31, 1928, was 13,850,000 (12,800,000 in Asia and 1,050,000 in Europe). The population of the principal cities, with suburbs, in 1927 was: Istanbul (Constantinople), 690,857; Izmir (Smyrna), 153,924; Ankara, 74,553; Adana, 72,577; Bursa (Brusa), 61,690; Konya (Konia), 47,495. The population is mainly Turkish, with several millions Kurds in the eastern Provinces, Lazs, and Jews.

**EDUCATION.** According to Turkish statistics, the percentage of illiteracy decreased from 85 per cent in 1928 to 42 per cent in 1930. Elementary education is nominally compulsory for children between the ages of 7 and 16. In 1928-29 there were 6836 primary schools, with 333,027 male and 151,721 female pupils; 155 secondary and professional schools, with 23,213 male and 8371 female pupils; 52 special schools, with 6821 pupils (4219 males); 20 institutions of higher education, with 4349 students (3604 males); and 195 foreign and private schools, with 16,516 male and 15,665 female pupils. The University of Istanbul was transferred to Ankara in 1929. The use of the Latin in place of the Arabic alphabet became general throughout Turkey in 1930.

**PRODUCTION.** Turkey is primarily an agricultural country, with 67.7 per cent of the population engaged directly in farming at the 1927 census. Primitive methods of agriculture are gradually yielding to modern ways. The cultivated area is about 10,000,000 acres, of which nearly 90 per cent is devoted to cereals. The de-

cline in agricultural prices in 1930 and 1931 placed a severe strain upon the economic and financial structure of the country. The estimated production of the chief crops in 1930, with figures for 1929 in parentheses, was: Tobacco, 92,593,000 pounds (74,306,000); opium, 7000 cases: 165 pounds each (2700); cotton, 135,000 bales (180,000); olive oil, 13,141,000 pounds (3,679,000); figs and raisins (Izmir district only), 25,000 metric tons (39,000) and 35,000 metric tons (51,000), respectively. Silk production, which totaled 145 metric tons in 1929, was from 10 to 15 per cent larger in 1930. Exports of valonea, comprising nearly the entire crop, totaled 32,434 metric tons in 1930 (36,891). Mohair production in 1930 was estimated at 4480 metric tons (3150 in 1929); wool, 9,920,000 pounds (5,000,000). Fruits, skins, and hides, furs, licorice root, gums, linseed, and sesame are other products. Production of the principal minerals in 1930 in metric tons, was: Coal, 1,139,652; lignite, 5891; chrome, 28,325; argentiferous lead, 15,508.

**COMMERCE.** Exports in 1930 exceeded imports for the first time in 25 years, the export surplus totaling £T4,093,304, as compared with an import surplus of £T101,082,308 in 1929. The change in the balance of trade was due to a 42.5 per cent decrease in the value of imports in 1930, while imports declined by only 2.4 per cent. The value of imports was £T147,440,843 (\$69,702,000) in 1930, £T256,296,379 (123,279,000) in 1929 and £T223,531,775 (\$113,666,000) in 1928. Exports were valued at £T151,528,333 (\$71,638,000) in 1930, £T155,214,071 (\$74,658,000) in 1929, and £T173,537,489 (\$88,244,000) in 1928. In the accompanying figures, the Turkish pound was converted at the average exchange rates of \$0.47 for 1930, \$0.481 for 1929, and \$0.5085 for 1928. Preliminary 1931 figures showed imports of £T126,800,000 and exports of £T127,275,000. Imports from the United States were £T4,117,600 and exports to the United States £T12,678,300.

**FINANCE.** As approved by the Grand National Assembly July 19, 1931, the budget for the fiscal year ending May 31, 1932, showed a reduction of 16.2 per cent in revenues and expenditures, in contrast to progressive increases in previous budgets. Revenues were estimated at £T186,705,600 (\$87,751,630 converted at \$0.47) and expenditures at £T186,682,005 (\$87,693,540), as compared with estimated receipts of £T222,732,000 (\$104,684,040) and expenditures of £T222,646,523 (\$104,643,865) in 1930-31.

Turkey's share of the Ottoman debt amounted to about £T87,316,000 in 1930, not including accumulated interest of about £T21,000,000. An additional loan of \$10,000,000, bearing 6½ per cent interest, was obtained in 1930 in exchange for a 25-year match and automatic-lighter monopoly. In 1930, Turkey reduced payments on the Ottoman debt to one-third of the amounts due, because of the critical economic situation.

**COMMUNICATIONS.** Railway lines in operation at the end of 1930 totaled 3402 miles, of which 1962 miles were under state and 1440 miles under private operation. New lines placed in operation during 1930 totaled 119 miles. In the first four months of 1931, 208 miles of additional line were opened to traffic and 315 miles were under construction. A total of 8798 sea-going vessels of 18,095,327 net tons passed in transit through Istanbul in 1930, compared with 7021 vessels of 13,254,689 tons in 1929. The first unit of an automatic telephone system in Istanbul was opened



in November, 1931, by a subsidiary of the International Telephone and Telegraph Corporation.

**GOVERNMENT.** Under the Constitution as revised April 20, 1924, "the Grand National Assembly exercises the executive power through the President of the Republic elected by itself and through the council of Ministers chosen by him." The Assembly, elected for four years by the indirect suffrage of all citizens over 21, has power to dismiss the Government at any time. The National Assembly elected September, 1927, consisted of 315 deputies. Ghazi Mustapha Kemal Pasha, first President of the Turkish Republic, was reelected May 4, 1931, for his third consecutive term, which expires in 1935. The Ministry appointed by him was headed by Ismet Pasha. Two new Ministries, of Agriculture and of Customs and Monopolies, were established by act of the Grand National Assembly of Dec. 29, 1931.

**INTERNAL DEVELOPMENTS.** Events in Turkey during 1931 were featured by the election in April of a new Grand National Assembly, the reelection of Mustapha Kemal Pasha for the third time as President of the Republic, continuation of the process of westernization, and the intensification of the economic and financial crisis. Trials by court-martial of more than 100 persons arrested in connection with the Menemen revolt of December, 1930 (see 1930 YEAR BOOK), commenced at Menemen Jan. 15, 1931. Twenty-eight of the defendants were hanged on February 3 and 50 others were sentenced to imprisonment. Martial law was continued in the region for another month and there were a number of additional arrests at widely scattered points.

Meanwhile President Mustapha Kemal had returned from an extensive tour of the country somewhat disturbed by the numerous complaints he had received. In March he ordered the dissolution of the National Assembly and the holding of new elections within six weeks. In preparation for the election, the voting age for males was raised from 18 to 21 years and the election machinery was reorganized. The President renewed his effort of the previous year to create a parliamentary opposition. Instead of nominating all the candidates for the Assembly from members of the People's party, as formerly, he left 30 of the 317 seats vacant and urged that they be filled by loyal republicans not members of the party. In the elections held April 24, 20 independents and all the People's party candidates were elected. The independents joined with the majority in unanimously reelecting Mustapha Kemal Pasha as President for a third term on May 4. On the same day Premier Ismet Pasha went through the formality of resigning, but was immediately reinstated with a reconstructed Cabinet.

In his address to the Grand National Assembly on May 10, the President stressed the need of a revision of the taxation system, greater economy, and protection of agriculture. His economy plea was reflected in the budget for 1931-32 (see above under *Finance*), which showed a substantial reduction. Extensive reductions in the number of Government employees were made on June 1. The legislative session was notable chiefly for the severe censure of the Government's economic and other policies by Sirri Bey, one of the 20 independent deputies. Subsequently three newspapers in Istanbul undertook a bitter campaign against the Government without provoking Kemal Pasha's wrath. The National Assembly, however, previous to adjourning, passed a restrictive press

law (July 25), which authorized the Government to suspend any newspaper guilty of obstructing its policies. The publication of Communist propaganda was also prohibited.

The Government's nationalistic programme was reflected in a new law providing that all Turkish children in foreign schools must be taught history, geography, and civics in the Turkish language by Turkish instructors. The law seriously affected some 250 foreign schools, most of them maintained by French Roman Catholic priests and nuns. Negotiations with the Ottoman Debt Council continued during the year without agreement, and in September the Minister of Finance notified the Council that Turkey would continue to pay one-third of the annuities called for in the 1928 agreement pending a new settlement.

Unrest continued among the Kurds of eastern Turkey, who had staged a formidable revolt in 1930. Mount Ararat and the surrounding territory on May 1 was made a military area in which no civilians were permitted. In September, the Turkish Government commenced the removal of some 2000 Kurds from the disaffected region to the vicinity of Rodosto in Thrace.

The naval building programme inaugurated in 1929, much to the alarm of Greece, resulted in substantial additions to the Turkish navy in 1931. French engineers completed the refitting of the former German battle cruiser *Goeben*, giving the Turks a 22,500-ton ship with a 5350-mile cruising radius. In addition, four torpedo boats, two submarines, and three gunboats were completed in Italian shipyards. See *NAVAL PROGRESS*.

**FOREIGN RELATIONS.** So firm was the entente established between Turkey and Greece by the treaty of friendship and conciliation signed in October, 1930, that the appearance of the new Turkish naval forces aroused little comment in Balkan diplomatic circles. At the end of September, Premier Ismet Pasha and Foreign Minister Tewfik Rushdi Bey paid a formal visit to Athens to return the visit made to Ankara in October, 1930, by Premier Venizelos and Foreign Minister Michalakopoulos.

Early in the year, Turkey concluded a naval accord with the Soviet Union, in which both countries pledged themselves not to build additions to their Black Sea fleets without giving six months' notice. Before its adjournment in July, the Grand National Assembly ratified a commercial treaty with the U.S.S.R.; the Soviet Government under the treaty contracted to purchase Turkish goods to the value of \$7,500,000 annually, or about double the former Turkish exports to the U.S.S.R. Soviet commercial representatives were to be stationed at Ankara, Istanbul, and other leading cities and were to enjoy diplomatic immunity. King Feisal of Iraq was the guest of President Kemal Pasha at Ankara July 6 to 9 while en route to western Europe. The two rulers were reported to have discussed the political and economic issues affecting their two countries, particularly the exploitation of the Mosul oil fields, friction along the Turko-Iraqi border, and commercial interchange. The régime established by King Zog in Albania in 1928 was finally recognized by Turkey (Oct. 26, 1931) and it was announced that a Minister would be sent to Tirana.

Strong evidence that Turkey was turning to the United States for financial and technical aid in the modernization and reconstruction of the country was seen in the visit of an official mission headed by former Finance Minister Saracoglu

Sükrü Bey to America in October and November.

**THE BALKAN CONFERENCE.** Turkey was host to the second Balkan Conference, held in Istanbul October 20 to 26, with over 150 delegates in attendance from Albania, Bulgaria, Greece, Yugoslavia, Rumania, and Turkey. For the final plenary session, the delegates journeyed to Ankara, where they were addressed by Mustapha Kemal Pasha. The definite accomplishments of the Conference were the establishment of an Inter-Balkan Chamber of Commerce, with headquarters at Istanbul, and an Inter-Balkan Tobacco Bureau at Salonika. The delegates discussed proposals for a central bank, a common Balkan currency, the facilitation of transportation, a Balkan customs union, and the removal of legal impediments to the practice of professions by citizens of one Balkan state in another state.

Interest centred chiefly in a proposed inter-Balkan pact of arbitration and non-aggression. The minorities question obtruded during this discussion and when recriminations between Albanians and Yugoslavs reached a danger point, the arbitration pact proposal was shelved for the time being by being referred to a special committee. The committee was instructed to work out an arbitration and non-aggression compact with special reference to the rights of minorities, and to submit it to the respective Governments three months before the opening of the third conference. The Turkish Foreign Minister was requested to invite the foreign ministers of the other Balkan states to exchange views regarding the proposed pact. See **PEACE**.

**BIBLIOGRAPHY.** Consult Harry N. Howard, *The Partition of Turkey, 1913-23* (University of Oklahoma Press, 1931); Sir Telford Waugh, *Turkey: Yesterday, Today, and Tomorrow* (London, 1930).

**TURKMENISTAN.** See **SOVIET CENTRAL ASIA**; **UNION OF SOVIET SOCIALIST REPUBLICS**.

**TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE.** A nonsectarian normal and industrial school for the higher education of Negro men and women in Tuskegee, Ala., founded in 1881 by Booker T. Washington. The institute gave regular and systematic instruction during the year to a total of 2701 persons. There were 271 members on the faculty. The endowment amounted to \$7,803,550, and the income for the year to \$523,259. There were 20,000 volumes in the library. President, Robert Russa Moton, LL.D.

**TUTUILA.** See **SAMOA**.

**TWINS.** See **ZOOLOGY**.

**TYNAN, KATHARINE.** An Irish poet and novelist, died in London, Apr. 2, 1931. She was born in Clondalkin, County Dublin, in 1861, and attended the Dominican convent of St. Catharine of Siena at Drogheda. In 1893, having been married to H. A. Hinkson, she took up her residence in London. She was a conspicuous figure in the so-called Irish Literary Revival of the '90s, and in her poetry captured the mystical quality that has distinguished so much of Irish verse. She wrote *Louise de la Vallière and Other Poems* (1885); *Shamrooks* (1887); *Ballads and Lyrics* (1890); *Cuckoo Songs* (1894); *The Wind in the Trees* (1898); *Collected Poems* (1901); *New Poems* (1911); and *Even-song* (1928). She also portrayed phases of Irish character in a series of pleasant novels.

**TYPHOONS AND HURRICANES.** See **JAPAN**, **DOMINICAN REPUBLIC**, **METEOROLOGY**.

**TYROL.** See **TIBOL**.

**UBANGI-SHARI.** See **FRENCH EQUATORIAL AFRICA**.

**UGANDA, ō-gān'da, PROTECTORATE.** A protectorate of Great Britain in East Africa; lying north of Tanganyika and Lake Victoria and south of the Anglo-Egyptian Sudan. Area, 94,204 square miles (13,616 square miles of water); population, estimated December, 1929, at 3,410,857, including 3,390,323 natives, 12,537 Asiatics, and 1995 Europeans. Capital, Entebbe; commercial centre, Kampala.

Agriculture is the principal occupation and cotton the chief crop. Others are coffee, oil seeds, chillies, sugar, and tobacco. Tin ore, Para rubber, hides and skins, and timber are also produced. Exports in 1929 were valued at £4,274,758, of which cotton accounted for £3,312,068, and imports for consumption were £2,318,177. In the preceding year, exports totaled £3,395,270 and imports £1,988,104. Revenue (1929) amounted to £1,082,918 and expenditure to £1,315,997. The public debt stood at £1,088,498. The shilling is the unit of currency. On Jan. 14, 1931, a new railway and highway bridge across the Nile at Jinja was opened, together with an extension of the railway from Jinja to Kampala. This gave the Western Province of Uganda direct railway communication with Mombasa and the sea coast. Governor and Commander-in-Chief in 1931, Sir W. F. Gowers. For the hearings during 1931 on the proposed administrative union of Uganda, Tanganyika, and Kenya, see **KENYA**.

**U'KRAINE.** A region in southwestern Russia forming (since July 6, 1923) a constituent part of the Union of Soviet Socialist Republics; including the autonomous Moldavian Socialist Soviet Republic formed Oct. 12, 1924 (area, 3176 square miles; population, 572,000). Capital, Kharhov (population 417,186). See **UNION OF SOVIET SOCIALIST REPUBLICS**; **POLAND under History**.

**UNDERWRITING.** See **INSURANCE**.

**UNEMPLOYMENT.** ESTIMATED UNEMPLOYMENT IN THE UNITED STATES. On the basis of a special unemployment census made during January, 1931, by a process of sampling, the U. S. Department of Commerce estimated that the total unemployed persons in the United States were 6,050,000. The executive council of the American Federation of Labor estimated the average minimum unemployment during the first eight months of 1931 at 5,415,000 and reported to the annual A. F. of L. convention (October 5) that "if as large a proportion of wage earners are laid off from industrial plants as in normal years, we shall have 7,000,000 unemployed by January (1932)." Other estimates were higher. The Department of Commerce's estimate grew out of a special count taken in the following cities: Birmingham, Boston, Buffalo, Chicago, Cleveland, Dayton, Denver, Detroit, Duluth, Houston, Los Angeles, Minneapolis, New Orleans, New York City, Philadelphia, Pittsburgh, St. Louis, San Francisco, Seattle. It was significant to note that between April, 1930, when a census of employment had collected data for these same cities, and January, 1931, there was an increase of 149 per cent. Returning to the sampling estimate of January, 1931, it was stated that the total population of the areas examined was 20,638,981. The total number of persons in these areas reported as unemployed was 1,930,606, or 9.4 per cent of the total. In Chicago, the proportion of persons unemployed out of the total population was 11

per cent; in Detroit, it was 11.1 per cent; in Los Angeles, 7.9 per cent; in Manhattan borough (New York City), 9 per cent; in Bronx borough (New York City), 7.7 per cent; in Philadelphia, 10.9 per cent; in Pittsburgh, 9 per cent; in San Francisco, 6.5 per cent.

**UNEMPLOYMENT BENEFIT PLANS IN THE UNITED STATES AND IN EUROPE.** The U. S. Bureau of Labor Statistics stated that in the United States in 1931 there existed some 79 unemployment-benefit or unemployment-guaranty plans, affecting altogether but 226,000 workers. Of the 79 plans, 15 were company plans established by employers either individually or in groups, 16 were joint plans established between trade unions and employers, and 48 were trade union plans maintained entirely by labor organizations and covering only their own members in good standing.

By way of contrast this report pointed out that public unemployment insurance systems existed in 18 countries as of May, 1931. In all but two (Luxemburg and Spain) these schemes were in operation at the time of the survey. In nine countries the legislation was of a compulsory nature, and in eight it was voluntary, while in Switzerland, the cantonal legislation was in some cases compulsory and in others voluntary.

From another source, it was possible to obtain descriptions of the nature of unemployment relief being conducted under the aegis of governmental authority in the European countries. This was based on a series of studies made by the foreign correspondents of the *New York Times*, the summary statement being printed in the issue of Nov. 1, 1931. Harold Callender, in commenting on the nature of the information gathered by his fellow correspondents, pointed out that Europe had been concerning itself with the protection of the unemployed worker, on a grand scale, since 1919. There existed in the European countries three types of financial systems: (1) Those under which the workers, the employers, and the state all contributed to an insurance fund (as in Great Britain, the Irish Free State, Austria, Switzerland, Poland, Luxemburg, and Bulgaria); (2) those in which the workers and their employers alone contributed to a fund (as in Germany and Italy); and (3) those in which funds were maintained by trade unions and other organizations of workers but which received a fixed appropriation from the state (as in Holland, Belgium, France, Denmark, Czechoslovakia, Norway, and Finland).

In 1931, in Europe alone, 35,000,000 workers were under the protection of compulsory insurance schemes and almost 3,000,000 were under the protection of voluntary insurance schemes. The most important of these systems were those of Germany and Great Britain, in the first country 16,530,000 workers being affected, and in the second 12,400,000 workers. In Germany there were separate schemes for relieving unemployment distress. One was insurance; the other was a system of public relief financed by the Reich and the communes. Both were administered by the same machinery (the employment exchanges). The insurance system was supporting about 1,900,000 unemployed persons out of a total of 16,530,000 workers affected. In the past four years this fund was assisted by appropriations and loans from the Reich. The rest of the unemployed were being taken care of by the so called "dole," financed entirely from public grants. **INSURANCE** and "dole" were two separate systems.

In Great Britain, the situation was to an extent similar in view of the fact that there existed here a system of compulsory insurance. However, in view of the threatened breakdown of this scheme, based originally on compulsory contributions, the government found it necessary to bolster up the fund by grants from the public treasury, with the result that the two methods were so badly intertwined that it was difficult to separate one from the other.

It is important to appreciate that, despite the fact that the state, in Germany and Great Britain, was compelled to come to the relief of the funds, the nature of the contributions made by the insurance schemes themselves was significant. In Germany, the contributions of 16,000,000 workers supported about 1,900,000 unemployed; and in Great Britain, the insurance fund, from its own resources, could support 900,000 workers. In Germany, from the inception of the insurance scheme in 1927 to March, 1931, \$1,400,000,000 was paid out to the unemployed through the employment exchanges, \$881,000,000 coming from the normal resources of the fund itself and \$539,000,000 representing state appropriations for relief and loans to the fund. In Great Britain, in the ten fiscal years ending March, 1931, the insurance fund paid to the unemployed \$2,888,700,000, of which \$2,381,888,000 came from the fund itself and \$506,875,000 came from the state in the form of relief and loans. As Mr. Callender said: "So whether one counts the loans as 'dole' or not, it is clear that Britain's insurance system has been far more insurance than 'dole.' Indeed, the only expenditures that can be classified indisputably as 'dole' are the \$129,925,000 paid out as direct relief, and this sum forms slightly less than 4.5 per cent of the total outlay in the ten years ended last March."

The *Times* correspondents were convinced that unemployment insurance had demonstrated its value and that few Europeans would abolish the system.

**WORKERS INSURED AGAINST UNEMPLOYMENT.** According to the International Labor Office in

**NUMBER OF PERSONS INSURED UNDER COMPULSORY OR VOLUNTARY INSURANCE SYSTEMS OF SPECIFIED COUNTRIES**

<i>Country</i>	<i>Insured persons</i>
<i>Compulsory insurance</i>	
Australia: Queensland . . . . .	137,000*
Austria . . . . .	1,800,000*
Bulgaria . . . . .	287,000
Germany . . . . .	16,738,000
Great Britain and Northern Ireland . . . . .	12,100,000
Irish Free State . . . . .	284,000
Italy . . . . .	2,600,000*
Poland . . . . .	1,033,000
Switzerland (9 Cantons) . . . . .	150,000*
Union of Soviet Socialist Republics (Russia) . . . . .	10,000,000 <sup>b</sup>
<b>Total . . . . .</b>	<b>44,629,000</b>
<i>Voluntary insurance</i>	
Belgium . . . . .	628,000
Czechoslovakia . . . . .	1,129,000
Denmark . . . . .	288,000
Finland . . . . .	( <sup>c</sup> )
France . . . . .	200,000
Netherlands . . . . .	888,000
Norway . . . . .	43,000
Switzerland (14 Cantons) . . . . .	165,000*
<b>Total . . . . .</b>	<b>2,841,000</b>

\* Estimate.

<sup>b</sup> Estimate. Since Oct. 9, 1930, the authorities have suspended all insurance benefits until further notice, owing to the situation of the labor market.

<sup>c</sup> No estimate available.

1931, a total of 47,500,000 workers were insured against unemployment in 17 countries. Of this number, 44,629,000 were under the protection of compulsory insurance systems; and 2,841,000 received the protection of voluntary insurance schemes. It is significant to note that in 1919 the number of workers similarly insured was from only 4,500,000 to 5,000,000, of whom 3,700,000 lived in Great Britain. The table on page 796 presents this interesting information for the 17 countries in question.

**PRESIDENTIAL PROGRAMME.** On Aug. 19, 1931, to coördinate all those private charitable relief programmes, in the success of which President Hoover was preparing to place all his confidence that the problem of unemployment could be met without the need of public assistance, the President announced the creation of an unofficial relief administration. Walter S. Gifford was named to direct the unemployment activities throughout the United States during the following winter and to coördinate the nation-wide effort for private relief. Five sub-committees were designated by Mr. Gifford to deal with the various aspects of the unemployment problem, as follows: (1) Committee on mobilization of relief resources, to concern itself with the raising of funds; (2) Committee on employment plans and suggestions, to concern itself with securing the maximum employment; (3) Committee on administration of relief, to concern itself with the problem of spending relief funds; (4) Committee on coöperation with national groups and associations, to concern itself with enlisting support for the entire unemployment relief plan; (5) Committee on programme of Federal public works, to concern itself with the general programme of public works.

It was made plain by this organization that no effort would be made to set up a private relief fund on a nation-wide basis, but that relief was to be considered as essentially the responsibility of the States and the local communities.

In the month of March, following the end of the Congressional session, President Hoover vetoed the Wagner bill whose purpose was to set up a nation-wide, coördinated employment service based upon Federal support of existing State agencies. This vetoed Wagner bill was one of three originally proposed by Senator Wagner. See UNITED STATES under *Congress*.

In July, 1931, a petition was drawn up by some 1200 economists, social workers, educators, labor leaders, and public officials, urging on President Hoover to call a special session of Congress to deal with the unemployment situation. The petition declared that there were in the country fully 6,000,000 persons unemployed and perhaps as many more working on such short time that their income and purchasing power had been severely reduced. Private charitable funds were inadequate to cope with the situation; many of these were on the verge of depletion; further contributions seemed hopeless to attain. Many local and State governments which had been supplementing the private charitable funds were reaching the limit of their legal capacity to borrow. This group, therefore, suggested Federal appropriations of \$3,000,000,000 for public works; \$250,000,000 to match amounts spent by States and communities on unemployment relief; and \$250,000,000 as grants in aid to State unemployment insurance systems, to be set up.

In a number of addresses and statements during the year, President Hoover showed that he

had steadfastly turned his face against public relief conducted by the Federal Government. In one of these pronouncements he declared: "With the organized coöperation of local and State and Federal authorities, and the large number of relief and charitable organizations, the problem was successfully handled last winter. We shall adapt organization methods in such manner as may be necessary for the coming winter." Against this position, increasingly, many public men as well as social workers and publicists raised their voices in dissent, insisting that charity was inadequate and that only a large scale Federal programme of relief through public works could start once again the wheels of industry going to increase income and release purchasing power.

**THE SWOPE PLAN.** One of the most widely discussed proposals for unemployment prevention and relief was that presented by Gerard Swope, President of the General Electric Co., on Sept. 16, 1931. He proposed Federal legislation requiring commercial and industrial concerns with 50 or more employees to form trade associations, whose aim would be the adjustment of production in each industry to consumption. The trade associations would each have a general administrative board of nine members, of which three would be elected by the association, three by the employees, and three appointed by a Federal supervisory body representing the public. Each company would be required to submit uniform quarterly and annual financial statements to the Federal supervisory body.

Mr. Swope's proposals for the protection of employees were similar to those placed in effect by the General Electric Company in 1929. They included group life and disability insurance, a pension system, and unemployment insurance for employees receiving \$5000 a year or less. After five years' service, employees would be required to put 1 per cent of their earnings into the pension fund and a similar amount into the unemployment insurance fund, besides contributing equally with the employers toward the cost of life and disability insurance.

**PROGRAMME OF THE A. F. of L.** The executive council of the American Federation of Labor, in its annual report submitted to the order's convention, outlined the following programme for the stabilization of business and to cope with the present depression: (1) The calling of a national conference of employers and labor on the spreading out of jobs; (2) immediate inauguration of the 5-day week and the shorter day; (3) establishment of a national economic council; (4) maintenance of wage structure and wage standards; (5) guaranty to the employed that they will keep their jobs; (6) prohibition of child labor; (7) a long range scientific plan to stabilize industry. See LABOR, AMERICAN FEDERATION OF.

**PROGRAMME OF THE U. S. CHAMBER OF COMMERCE.** In October, there appeared the report of a committee of the U. S. Chamber of Commerce on the industrial depression, with recommendations for meeting prevailing bad conditions. The following were the major suggestions of this report from the nation's most important employers' organization: (1) Limited amendment of the anti-trust laws; (2) establishment of privately sustained systems of unemployment benefits, based upon definite reserves; (3) the setting up of a national economic council; (4) local as opposed to national effort to find jobs for the em-

ployed; (5) a curb by commodity and security exchanges on manipulative speculation; (6) international disarmament; (7) the planning and execution of public works.

**NEW YORK STATE UNEMPLOYMENT RELIEF ACT.** On Sept. 23, 1931, Governor Roosevelt signed an act providing for unemployment relief by the establishment of a State fund of \$20,000,000. The purpose of this act, as stated in the preamble, was: "To relieve the people of the State from the hardships and suffering caused by unemployment, creating and organizing for such purposes a temporary emergency relief administration, prescribing its powers and duties and making an appropriation for its work." The relief fund was to be raised by a 50 per cent increase in the State income tax. This temporary state agency was to function only during the emergency period, which we defined as existing between Nov. 1, 1931, and June 1, 1932. Two forms of relief were provided for: (1) Work relief, to consist of wages paid by a municipal corporation to persons for the performance of services connected with work undertaken by such corporation, independent of work under a contract or for which an annual appropriation had been made. (2) Home relief, which was defined as meaning shelter, fuel, food, clothing, light, and so forth, by a municipal corporation to unemployed persons and their dependents in their own homes. In order to facilitate the administration of the act, each city of the State was to be considered a separate public welfare district.

**CONFERENCE ON PERMANENT PREVENTIVES OF UNEMPLOYMENT.** The Conference on Permanent Preventives of Unemployment, held under the joint auspices of the Social Action Department of the National Catholic Welfare Conference, the Social Justice Commission of the Central Conference of American Rabbis, and the Social Service Commission of the Federal Council of the Churches of Christ in America, was held in Washington on Jan. 26-27, 1931.

Not a few of the speakers pointed to the growing menace of technological unemployment in the country which, by decreasing the number of available jobs, threatened purchasing power by its inevitable diminution of the national income going to labor. Thus, John P. Frey, of the American Federation of Labor, quoting from the census of manufactures, showed that in 1927 wages in all manufacturing industries, exclusive of salaries, amounted to \$10,849,000,000, and in 1929, \$11,422,000,000, an increase of \$572,829,000. On the other hand, in 1927 the value of manufactured goods was \$62,718,000,000, and in 1929, it was \$69,418,000,000. In short, while the purchasing power of the wage earners had increased \$600,000,000, the value of manufactured products had increased ten times as much.

**UNEMPLOYMENT IN FOREIGN COUNTRIES.** The *Monthly Labor Review*, printed the following summary of the unemployment situation in foreign countries at the end of the months indicated: *Australia* (December, 1931), 118,732 trade unionists unemployed, representing 28 per cent of all the trade unionists in the country. *Austria* (December, 1931), 329,595 unemployed persons in receipt of benefits under compulsory insurance system. *Belgium* (December, 1931), 128,000 wholly unemployed persons or 17 per cent of the total receiving benefits from unemployment insurance societies; 134,799 persons or 19.2 per cent partially unemployed and receiving benefits

(in November). *Canada* (June, 1931), 32,682 trade unionists unemployed representing 16.3 per cent of the total (21.1 per cent for December, 1931). *Czechoslovakia* (December, 1931), 480,775 unemployed persons on the live register; 105,846 unemployed persons in receipt of benefits from the trade union insurance funds (in November), representing 8.3 per cent of the total. *Free City of Danzig* (December, 1931), 32,956 unemployed persons registered. *Denmark* (December, 1931), 91,216 unemployed trade unionists receiving benefits from unemployment funds, representing 30.4 per cent of the total. *Estonia* (November, 1931), 7554 unemployed persons remained on the live register. *Finland* (November, 1931), 18,095 unemployed persons registered. *France* (December, 1931), 147,009 persons in receipt of unemployment benefits. *Germany* (December, 1931), 5,668,187 unemployed persons registered; 42.2 per cent of all trade unionists wholly unemployed; 22.3 per cent of all trade unionists partially unemployed; 3,147,867 persons in receipt of unemployment benefits. *Great Britain and Northern Ireland* (December, 1931), 2,202,700 persons wholly unemployed and receiving benefits under compulsory insurance scheme, representing 17.7 per cent of total; 408,117 temporary stoppages, representing 3.2 per cent of total; 2,569,949 persons registered with employment exchanges (Great Britain only). *Hungary* (December, 1931), 31,906 members of the Social Democratic trade unions unemployed. *Irish Free State* (December, 1931), 30,865 unemployed persons in receipt of compulsory insurance benefits. *Italy* (December, 1931), 982,321 wholly unemployed persons registered; 32,949 partially unemployed persons registered. *Latvia* (December, 1931), 21,682 unemployed persons remaining on the live register. *Netherlands* (December, 1931), 157,933 unemployed persons in receipt of benefits from unemployment insurance societies, representing 29.7 per cent of total. *New Zealand* (December, 1931), 47,096 unemployed unionists. *Norway* (November, 1931), 10,577 unemployed members of 10 trade unions, representing 22.8 per cent of total; 34,789 unemployed persons remaining on the live register. *Poland* (December, 1931), 289,100 unemployed persons registered with employment offices. *Rumania* (December, 1931), 49,393 unemployed persons remaining on the live register. *Saar Territory* (November, 1931), 28,659 unemployed persons registered. *Sweden* (December, 1931), 110,149 unemployed trade unionists, representing 27.2 per cent of total. *Switzerland* (December, 1931), 41,011 wholly unemployed persons in receipt of unemployment benefits, representing 10.1 per cent of total; 51,900 partially unemployed persons in receipt of unemployment benefits; representing 14.4 per cent of total (November, 1931). *Yugoslavia* (November, 1931), 10,349 unemployed persons registered.

**GREAT BRITAIN.** Marked changes in the British unemployment system were introduced by legislation passed by Parliament in August and September, 1931. The so-called "anomalies" act of August was designed to eliminate anomalies from the system, while under the national economy act, which received the royal assent September 30, benefits were reduced, contributions increased, and a distinction established between normal and transitional benefits. The latter changes, which became effective October 5, were based on the assumption that for the year 1932-33 there would be an average of 3,000,000 persons unemployed



on the live register. The rates of weekly benefits were reduced by 10 per cent, the more important changes being as follows: Man, from 17s. 0d. to 15s. 3d. (\$3.71); woman, from 15s. 0d. to 13s. 6d. (\$3.28); adult dependent, from 9s. 0d. to 8s. 0d. (\$1.95); child dependent, to remain at 2s. (48.7 cents); young man, from 14s. 0d. to 12s. 6d. (\$3.04); young woman, from 12s. 0d. to 10s. 9d. (\$2.62). Employers, employed workers and the government were to contribute equally on behalf of each employed worker, but the rate of weekly contribution from each was increased in the following amounts: Men, 10d. (20.3 cents); women and young men, 9d. (18.3 cents); young women, 8d. (16.2 cents); boys, 5d. (10.1 cents); girls, 4½d. (9.1 cents). The amended scheme also proposed to have a sharp cleavage between the insurance benefits and the transitional benefits (the so called "dole"). The former was to be limited to 26 weeks in one year after which the applicant would have to qualify by a period of contribution before he could again draw insurance benefits. If he was unable to secure employment and make these contributions he was to apply for the transitional benefits; in other words, he was to be transferred from the insurance class to the relief class. Persons requesting such transference were to be required to submit to an examination as to their needs at the unemployment exchange. There was to be no borrowing on behalf of the insurance fund beyond the existing statutory limit. Whatever amount that was needed to balance the accounts of the unemployment fund was to be furnished in the form of grants from the current revenue and the estimated amount of this grant for the period 1932-33 was £22,200,000.

**SPAIN.** A decree of the Spanish government, issued Sept. 30, 1931, provided for the enforcement, beginning Jan. 1, 1932, of the unemployment insurance law of May 25, 1931. The decree established a National Fund for Involuntary Unemployment (*Caja Nacional Contra el Paro Forzoso*), the funds to be secured through State appropriations, gifts, contributions from assisted insurance associations, and the income from funds or property under the management of the National Fund. All workers between the ages of 16 and 65 whose annual earnings did not exceed 6000 pesetas (about \$1158) were eligible for unemployment benefits, provided they had been registered in one of the recognized associations for six months preceding the beginning of unemployment.

See **BUSINESS REVIEW; FOOD AND NUTRITION; LABOR LEGISLATION; LABOR LEGISLATION, AMERICAN ASSOCIATION FOR; SOCIAL PROGRESS; WELFARE WORK; AGRICULTURE, U. S. DEPARTMENT OF; PEACE;** and articles on **CANADA under Business Conditions, SPAIN under History, etc.**

**UNION COLLEGE.** A nonsectarian college for men in Schenectady, N. Y., founded in 1765. The 1931 enrollment of regular students totaled 842. In addition there were 20 graduate students. The faculty numbered 85. The amount of endowment and income for the year was more than \$3,000,000. During the year athletics were put on an academic basis, with three professors and one instructor in the department. The library contained 75,000 volumes. President, Frank Parker Day, LL.D.

**UNION OF SOUTH AFRICA.** See **SOUTH AFRICA, UNION OF.**

**UNION OF SOVIET SOCIALIST REPUBLICS (U.S.S.R.).** A republic comprising the greater part of the former Russian Empire. Capital, Moscow.

**AREA AND POPULATION.** According to the Soviet Union Information Bureau, which supplied much of the material used in this article, the area of the Union of Soviet Socialist Republics is 8,199,258 square miles. The population as of July 1, 1931, was estimated by the Central Statistical Board at 162,700,000. The population, according to the census of 1926-27 was 147,013,600, including 71,024,300 males and 75,989,300 females. In 1914 the population of the same territory was 138,200,000.

The Union of Soviet Socialist Republics in 1931 was composed of seven constituent republics, which in turn included 15 autonomous republics and 18 autonomous areas. The Russian Socialist Federated Soviet Republic contained 94 per cent of the area and 76 per cent of the population of the entire Soviet Union. The estimated area and population of the seven constituent republics on July 1, 1931, is shown in the accompanying table from the *Economic Review of the Soviet Union*.

AREA AND POPULATION OF THE SOVIET UNION, BY CONSTITUENT REPUBLICS, 1931

Republic	Area *	Population (thous.)	Cities	Rural Soviets
R.S.F.S.R. ....	19,662.9	112,181.0	515	50,139
White Russia ....	126.8	5,275.0	29	1,418
Ukraine ....	425.0	31,625.6	80	11,040
Uzbekistan ....	176.1	4,746.2	18	1,698
Transcaucasia ....	185.5	6,495.9	49	2,534
Turkmenistan ....	491.2	1,149.1	7	457
Tadzhikistan ....	141.6	1,186.5	5	376
	21,236.1	162,686.3	703	67,662

\* Thousands of square kilometers (1 square kilometer = 0.386 square mile).

Population of the principal cities at the census of 1926: Moscow, 2,124,500; Leningrad, 1,614,008; Kiev, 513,789; Baku, 452,808; Odessa, 420,888; Kharkov, 417,342; Rostov-on-Don, 308,284; Tashkent, 323,613; and Tiflis, 292,973. Moscow's population in 1931 was estimated at 2,800,000.

**EDUCATION.** Public education in the Soviet Union is a charge against each of the seven constituent republics and against the localities concerned. For 1931 budgetary outlays planned for education amounted to \$1,854,000,000. For previous fiscal year actual expenditures were \$1,100,000,000. The number of pupils in elementary and secondary schools (at end of each school year) are shown in the accompanying table.

ELEMENTARY AND SECONDARY SCHOOL ATTENDANCE

	Elementary schools	Secondary schools
1914 .....	7,236,000	563,500
1929 .....	10,452,200	1,444,900
1930 .....	11,775,500	1,599,200
1931 .....	17,342,300	1,980,200

Students in higher educational, trade and vocational institutions (in thousands, at end of each education year) are enumerated in the table on page 800.

In 1929-30 it was announced that 62.6 per cent of the population 10 years of age and over was literate. For 1913 the figure was 33 per cent.

**PRODUCTION, ETC.** Land and natural resources are held in trust by the government for the general population, and may not be acquired by pri-



# EDUCATIONAL, TRADE, AND VOCATIONAL SCHOOL ATTENDANCE

[000 omitted]

Type of institution	1914	1929	1930	1931
Higher education .....	109.9	218.2	291.4	358.2
Secondary technical schools .....	316.3	578.7	609.8	
Industrial and agricultural schools .....	266.9	184.7	378.9	444.4
Factory training schools .....	163.3	568.9	1,197.8	
Workers' faculties .....	68.2	247.5	331.7	

vate title. Every citizen is entitled to secure land for cultivation, the form of tenure being that of perpetual leasehold. Natural resources are exploited by State trusts, by mixed companies, under concession, in which the State has a participating interest; or by private companies.

The adoption by the Soviet Congress in May, 1929, of an ambitious five-year plan for economic development was considered the most important constructive step since the revolution. (For summary of the plan, see 1929 YEAR BOOK).

In view of the progress made in 1928-29, the "control figures" for 1929-30 were revised upward on the basis of completing the Five-Year Plan in four years. In the original plan the increase of the industrial output for 1929-30 was set at 21.5 per cent. It was revised to 31.5 per cent. The actual result, 24.6 per cent, while comfortably above the original plan, was well below the ambitious new goal. As a result of the first two years under the Five-Year Plan the industrial output was increased about 56 per cent. The original schedule called for an increase of 47.5 per cent. The output for 1930 was double that of 1913. The production of large-scale industry in the calendar year 1931 was valued at 27,100,000,000 rubles (\$14,000,000,000), or 21.7 per cent more than in 1930 (1 ruble = \$0.5146 in the U.S.S.R.).

Beginning Jan. 1, 1931, the fiscal year was changed to coincide with the calendar year (instead of ending September, 30), so the intervening period Oct. 1 to Dec. 31, 1930, was made a "special quarter." During this quarter the increase in industrial output was 20 per cent as compared with the same period of 1929.

The original Five-Year Plan called for an increase of 22.1 per cent in the output of industry during the fiscal year 1930-31. The "control figures" for 1931 stepped up the tempo considerably, fixing the goal for 1931 at 46 per cent above the output for 1930. In some of the heavy industries the poor transport facilities were responsible for a disappointing showing. In iron and steel production the output for the year was below the same period of 1930 owing to slow delivery of ore and fuel at the mills, and the coal output for the period showed little advance over 1930 owing to congestion at the mines.

However, the 1931 output of large-scale industry was 38 per cent above the figure set for the third year of the Five-Year Plan. Percentage increases in the value of output over 1930 were reported as follows: Heavy industry, 28.7; lumber industry, 12.6; light industry, 13; food, 26.4. Industry as a whole fell below the "control figure" for 1931. The net income of all branches of national economy was estimated at 37,800,000,000 rubles (\$19,500,000,000), in 1926-27 prices, or 25,500,000,000 rubles in pre-war prices. According to estimates of Soviet economists, the Soviet Union, which in 1928 ranked fifth in volume of industrial production, by August, 1931, ranked second to the United States, having outstripped

Germany, Great Britain, and France in output.

During 1931 Soviet industries began the production of 76 different types of machinery never produced in Russia before, for the most part agricultural machinery. Output of tractors for the 12 months was over 40,200, compared with 13,400 for the entire year 1930. During 1931, more than 225 new industrial enterprises started operations, among them the Kharkov tractor plant, with an eventual capacity of 50,000 to 60,000 tractors annually, and the reconstructed Am plant in Moscow, scheduled to turn out 10,000 motor trucks in 1932. Other giant plants approaching completion or in partial operation towards the end of the year were the Nizhni-Novgorod automobile plant, with an eventual capacity of 94,000 motor trucks and 50,000 passenger cars annually; the tractor plant at Cheliabinsk, with an eventual capacity of 40,000 caterpillar-type tractors annually, and the combine plant at Saratov. The first blast furnaces were in operation both at the Magnitogorsk steel plant, in the southern Urals, with an eventual capacity of 2,600,000 metric tons of pig iron annually, and the Kuznetsk steel plant in Siberia, with an eventual capacity of 1,100,000 tons.

The "socialized sector" in agriculture doubled in size in 1931. By autumn 60 per cent of all peasant farms were organized in collectives, as compared with 30 per cent the previous year.

Preliminary estimates fixed the total sown area for 1931 at 137,000,000 hectares, of which the grain area was approximately 110,000,000 hectares. The respective figures for 1930 were 127,700,000 hectares and 102,614,000 hectares. State grain collections up to the end of 1931 were reported to be 89.6 per cent of the total scheduled in the Five-Year Plan, although 3.1 per cent more than the 1930 total. From these figures, it was estimated that the total grain collections to Dec. 31, 1931, were about 22,370,000 metric tons, compared with 21,700,000 tons in 1930.

The grain crop of 1930 was 87,300,000 metric tons, as compared with 76,200,000 metric tons the previous year and the pre-war average of 75,000,000 to 80,000,000 metric tons. Grain exports, which were negligible in 1928 and 1929, were resumed in the summer of 1930. For the fiscal year 1929-30 they were 2,215,437 metric tons. The pre-war average was about 11,000,000 metric tons. Up to June 30, 1931, exports of wheat from the 1930 crop amounted to nearly 3,500,000 metric tons (120,000,000 bushels). See AGRICULTURE under *World Agriculture*.

The sum of \$3,847,000,000 was allotted for capital investment for industry and electrification in 1931, as compared with \$2,300,000,000 expended in 1929-30.

Production of coal by the United Coal Industry in 1931 was 56,000,000 metric tons, as compared with 40,570,000 metric tons in 1928-29; 28,356,000 tons in 1913. The U.S.S.R. ranked second among oil-producing countries, with a production of 22,334,000 metric tons during 1931, as compared with 7,200,000 during 1925 and 9,215,911 in 1913. Statistics of iron and steel production are as follows:

## IRON AND STEEL PRODUCTION [Thousands of metric tons]

	1931 *	1929-30	1928-29	1913
Pig Iron .....	4,900	4,982	4,018	4,208
Steel .....	5,800	5,552	4,723	4,247
Rolled Iron .....	4,000	4,440	4,018	8,509

\* Preliminary.





On Aug. 1, 1931, it was announced that the seven-hour day, which was being introduced gradually, applied to 70 per cent of the workers. Workers employed in industry in the Soviet Union (except small-scale plants with less than 30 operatives, or less than 15 operatives plus power) increased from 2,690,000 in 1928 to 2,921,000 in 1929 and 3,642,000 in 1930. Unemployment, which reached a peak of 1,741,000 in April, 1929, was rapidly dissipated as the construction projects under the Five-Year Plan took shape. By the fall of 1930 the Soviet authorities reported an increasing labor shortage, especially in the more skilled occupations. During 1931 it was necessary to engage several thousand skilled workers from foreign countries. Some 6500 were from the United States. Late in 1930 the government withdrew the benefits of unemployment relief from persons who habitually refused work.

COMMERCE. The foreign trade turnover for recent years is shown in the accompanying table.

#### SOVIET FOREIGN TRADE, 1925-30 \*

	Exports	Imports	Total
1924-25 . .	\$296,125,000	\$370,800,000	\$666,925,000
1925-26 . .	348,447,000	389,546,000	737,993,000
1926-27 . .	396,807,500	386,989,000	783,796,500
1927-28 . .	398,504,000	486,523,000	885,027,000
1928-29 . .	458,350,000	431,055,000	889,405,000
1929-30 . .	516,117,550	550,351,660	1,066,469,210
1930 <sup>b</sup> . . . .	533,700,000	545,300,000	1,079,000,000

\* The fiscal year, covering the period from November 1 to September 30, was changed on Jan. 1, 1931, to coincide with the calendar year.

<sup>b</sup> The 1930 figures (calendar year) are from the U. S. Department of Commerce.

The principal Soviet exports in 1929-30 were oil products \$80,000,000, grain \$59,000,000, lumber and plywood \$51,000,000, furs \$42,000,000. The principal imports were machinery and equipment \$215,000,000, cotton \$33,000,000, and iron and steel \$31,000,000. Soviet trade with the six principal countries is shown in the accompanying table.

#### SOVIET FOREIGN TRADE, BY COUNTRIES

[In thousands of rubles; ruble = \$0.5146]

	1928-29		1929-30	
	Exports	Imports	Exports	Imports
Germany . . . .	208,537	188,465	214,254	234,389
Great Britain . .	192,503	44,338	238,158	78,925
United States . .	38,469	152,925	44,579	280,360
Persia . . . . .	74,061	63,766	61,189	47,855
Latvia . . . . .	69,995	15,312	70,083	14,907
France . . . . .	43,139	30,425	44,716	32,255

Figures of the United States Department of Commerce on Soviet-American trade for the years 1925 through 1931 are given herewith.

#### SOVIET-AMERICAN TRADE, 1925-31

	American exports to U. S. S. R.	American imports from U. S. S. R.	Total
1925 . . . . .	\$ 68,900,000 <sup>a</sup>	\$13,200,000	\$ 82,100,000
1926 . . . . .	48,900,000	14,100,000	64,000,000
1927 . . . . .	64,900,000	12,800,000	77,700,000
1928 . . . . .	74,100,000	14,000,000	88,100,000
1929 . . . . .	84,700,000	22,500,000	107,200,000
1930 . . . . .	114,356,000	23,839,000	138,195,000
1931 <sup>b</sup> . . . . .	108,668,800	15,206,390	116,875,190

<sup>a</sup> Including flour valued at \$20,000,000 purchased because of the poor harvest of 1924.

<sup>b</sup> Preliminary.

FINANCE. The budget for 1932 envisaged revenues of 27,500,000,000 rubles and expenditures of

27,000,000,000 rubles. Since 1923-24 each budget has produced a surplus of revenues over expenditures. Revenues in classified form in budgets of the past three years in thousands of rubles (one ruble equals \$0.5146 at par of exchange) are shown in the accompanying table.

#### SOVIET REVENUE BUDGETS

	1927-28	1928-29	1929-30
Taxes and excises . . .	3,255,663	3,995,395	5,951,000
State properties and establishments . . . .	717,870	808,940	1,882,000
Transport and communications . . . . .	2,101,574	2,277,346	3,363,000
State loans and other	875,806	955,208	1,331,000
Total . . . . .	6,950,913	8,036,889	12,527,000

Preliminary returns on 1931 budget operations, published by the Soviet Commissar for Finance Dec. 25, 1931, showed revenues and expenditures balancing at 20,450,000,000 rubles (about \$10,530,000,000), compared with estimated revenues of 21,770,000,000 rubles. Revenues included 2,954,200,000 in state loans. Of the total expenditures in 1931, 15,300 million rubles, or 75 per cent, went toward financing the national economy; 1200 millions, or over 6 per cent, for social and cultural work; and 1100 millions, or 6 per cent, for defense. The total internal state debt increased from 1,422,100,000 rubles on Oct. 1, 1928, to 3,432,200,000 rubles on Oct. 1, 1930.

Currency circulation Nov. 29, 1931, was 5200 million rubles, as compared with 4302 million rubles Jan. 1, 1931, and 2773 million rubles Jan. 1, 1930. During the year ending Sept. 30, 1931, the gold fund in the State Bank increased 39 per cent. Savings deposits Feb. 1, 1931, were 790,400,000 rubles, as compared with 597,600,000 rubles Feb. 1, 1930.

TRANSPORT. In 1930 the railway system of the Soviet Union comprised 79,934 kilometers (49,174 miles) of line as compared with 77,127 kilometers the previous year (1 kilometer equals 0.621 miles). Railway operations in 1929-30 aggregated 138.0 billion ton-kilometers of freight, as compared with 106.7 billion ton-kilometers in 1928-29. A total of 234,900,000 metric tons of freight and 510,200,000 passengers were carried in 1929-30, or increases of 34 and 50 per cent respectively, over the figures for 1928-29. Despite the great increase in operations, the railways failed to cope adequately with the tremendous demands placed on them by the expansion of industry and agriculture. In the fall of 1931 A. A. Andreyev, one of the most conspicuous of the younger Soviet executives, was made Commissar for Transportation.

SHIPPING. The Soviet mercantile marine in 1930 consisted of 317 vessels of 600,000 tons capacity, as compared with 284 vessels of 495,000 tons in 1929. In 1931, 500,000 tons of additional shipping were under construction in Soviet yards. The freight turnover in Soviet ports in 1930 was 46,500,000 tons, as against 44,500,000 tons in 1913.

ELECTRIFICATION. Under the Five-Year Plan a system of 64 regional power plants with a capacity of 5,300,000 kilowatts was to be completed. By the close of 1930, 31 regional plants with a total capacity of 1,300,000 kilowatts were in operation. The giant plant on the Dnieper River, which was to have an eventual capacity of 558,000 kilowatts (over 750,000 horse power) was nearing completion at the close of 1931. Partial operation was scheduled for the summer of 1932.

Construction of a second giant power station at Kemerovo, Siberia, was begun at the close of 1930. Its capacity was to be 560,000 kilowatts. The total Russian output of electric power in millions of kilowatt hours was: 1913, 1945; 1927-28, 5105; 1928-29, 6208; 1931, 10,600.

GOVERNMENT. A description of the constitution of the Union of Soviet Socialist Republics will be found in the YEAR BOOK for 1923. Toward the close of 1931 the Council of People's Commissars was composed as follows: Chairman of the Council, V. M. Molotov; Vice Chairmen, J. E. Rudzutak, V. V. Kuibyshev, A. A. Andreyev; Commissar for Foreign Affairs, M. M. Litvinov; for Army and Navy, K. E. Voroshilov; for Internal Supply, A. I. Mikoyan; for Foreign Trade, A. Rosenholtz; for Transportation, A. A. Andreyev; for Water Transportation, N. M. Yanson; for Posts and Telegraphs, A. I. Rykov; for Finance, G. T. Grinko; for Workers' and Peasants' Inspection, J. E. Rudzutak; Chairman Supreme Economic Council, G. K. Ordjonikidze; Chairman State Planning Commission (Gosplan), V. V. Kuibyshev; Commissar for Agriculture, Y. A. Yakovlev; for Labor, A. M. Tsikhon. The chairmen of the Central Executive Committee were: M. J. Kalinin, G. J. Petrovsky, A. G. Chervikov, Ganzanfar Mussabekov, Netyrbay Aitakov, Faizulla Khodzhaev, Maksim Nusrutulla. These chairmen of the Central Executive Committee are the presidents of the constituent republics. Josef Stalin, General Secretary of the Russian Communist party, exercised the controlling influence in government and politics.

#### HISTORY

INTERNAL DEVELOPMENTS. The third and "crucial" year of the Five-Year Plan brought the Soviet régime both striking victories and severe repulses. Three major objectives of the plan were achieved—the political socialization of peasant holdings, the laying of foundations for an independent industrial system, and the completion of primary industrial plants in the interior. Despite slackness in some industries, the general advance in industrial and agricultural production continued. Finally, Soviet diplomacy aided by the dissensions of the Western European states effectively banished the threat of an economic boycott by the capitalist powers.

On the other hand, the Soviet effort to convert Russia overnight to a highly industrialized nation encountered three great obstacles. One was the world economic depression, which, by reducing the value of Soviet exports, cut down imports of much-needed foreign machinery and technical services, and forced a general slackening in the tempo of industrial development. Secondly, adverse weather conditions reduced the amount of grain available for export and the opposition of the peasants on collectivized farms made it difficult for the Government to ship abroad even the available export surplus. Thirdly, a lack of integration or balance in the rapidly expanding socialized economic structure became painfully evident.

The cumulative effect of these adverse factors was that the scarcity of consumption goods continued, arousing dissatisfaction among the masses. Furthermore, the reduced returns from exports, reflected in an increasingly unfavorable balance of trade, aroused fears in some quarters that the Soviet government would be forced to suspend payments on its foreign commercial

debts, variously estimated at from \$150,000,000 to \$450,000,000. This in turn threatened to reduce imports of foreign machinery, purchased partly on credit, which were essential to the planned development of the Soviet industrial structure. During the first six months of 1931, Soviet exports exceeded those for the same period of 1930 by 754,000 tons, but their value was \$63,730,000 less.

With these primary factors in view, it is possible to understand the full significance of the new economic policy introduced by Josef Stalin on June 23, 1931. Stalin's announcement was compared in importance to Lenin's "New Economic Policy" of ten years earlier. It caused a far-reaching revision of socialistic labor and industrial policies and methods in the direction of greater individual responsibility and of reward in proportion to the services rendered. As summarized by the *Associated Press*, Stalin's new programme called for: (1) The readjustment of wages to make the scale commensurate with the type of labor performed and the reduction of labor turnover; (2) meeting the shortage of industrial labor by the transfer of more peasants to industry as agriculture progressed toward mechanization; (4) improvement of the labor organization within industry to allow for the better distribution of labor and the elimination of "irresponsible methods"; (5) the more rapid development of skilled workmen, engineers, and technicians from among the working class; (6) the termination of the "class war" and the welcoming of specialists of the Czarist régime into industry on a full equality with other workers; (7) greatest development of interior sources of industry and of the piece-work system.

Another change instituted following Stalin's speech of June 23 was the formal abandonment in principle of the continuous-operation five-day week, with a staggered system of rest-days for the workers and everyday operation of machinery. Two years of trial had shown that in many industries the continuous production idea put too great a test on machinery. After experiments with various rearrangements, a basic six-day week with a uniform rest-day for both men and machinery was adopted. A normal six-hour work-day was planned under this schedule. Nominally the change went into effect December 1, but it was understood that the transition would be gradual and the new law was not mandatory for all industries. A series of later decrees inaugurated campaigns for the expansion of the livestock industry, greater discipline and technical knowledge among industrial workers, and the curbing of "kulak tendencies" among the peasants of the collective farms.

The new giant enterprises, the first of which were painfully slow in reaching a respectable rate of production, were making a better showing by the latter half of 1931.

Toward the end of the year, however, there were increasing indications that in 1932, the final year of the Five-Year Plan, production quotas would have to be revised downward. An emergency committee headed by V. V. Kuibyshev, chief of the State Planning Commission, was appointed October 18 to speed the mobilization of the food crops for export. The 1932 programme was adopted at a meeting of the Central Executive Committee commencing December 20. And a meeting of the Central Committee of the Russian Communist party was called by

Stalin, as Secretary General of the party, for Jan. 30, 1932, to discuss the preliminary programme for the second Five-Year Plan. The "control figures" for 1932 presented a general programme roughly equivalent to that projected for the fiscal year ending Sept. 30, 1933, which was the final year of the original Five-Year Plan.

Factional strife within the Communist party was relatively quiescent during the year. Stalin remained in complete control and the Right and Left elements in the party apparently made little effort to revive their opposition to his policies. Indeed, Rykov, Bukharin, Tomski, and other prominent leaders of the Right opposition which was crushed in 1930, were given important posts in the Government and the party presented a more united front than for a number of years. Nor was there trustworthy evidence of popular political unrest. The results of the annual party "cleansing," made known April 23, showed that of 2,040,658 enrolled Communists on February 1, 1,273,000 were examined as to their orthodoxy before party tribunals, about 100,000 were dismissed, and 156,000 were reprimanded and placed on probation for a year. Of the total party membership, 67 per cent were said to be wage earners, 22 per cent peasants, and 11 per cent professional persons.

At the sixth biennial All-Union Congress of Soviets, held in Moscow in March, the piece-work system for agricultural labor, tested with good results on the state farms, was widely applied to the collective farms. The Congress was attended by 1570 voting delegates (including 321 women) and 883 advisory delegates. Of the total delegates, 72.8 per cent were members of the Communist party, 2.4 per cent of the Communist Youth League, and 24.8 per cent non-party members. Sixty-six different nationalities within the Soviet Union were represented.

Several additions were made to the cabinet portfolios during the year. A Commissariat for Agriculture and a Commissariat for Water Transportation were created. The Commissariat for Trade was divided into a Commissariat for Foreign Trade and a Commissariat for Internal Transport. A. I. Rykov, who was ousted from the chairmanship of the Council of Commissars in 1930 as a result of the intra-party struggle in which he opposed Stalin's plan for speeding up industrial production and collectivization, returned to the Council in 1931 as Commissar for Posts and Telegraphs.

**FOREIGN RELATIONS.** Emboldened by the steady internal progress of the Soviet Union, the Commissar for Foreign Affairs played a more important rôle in world, and particularly European, politics than had been possible before. Soviet foreign policy during the year was primarily economic in character. It aimed to promote the Five-Year Plan through the maintenance of peace, the opening up of new markets to Soviet exports, and the securing of liberal credit terms for Soviet purchases abroad. The promotion of a world communist revolution, which Lenin considered essential to the successful establishment of a communist state in Russia, was, at least temporarily, abandoned. The Third International still functioned at Moscow, with the tacit support and approval of the Soviet government. But its world activities were subordinated to the exigencies of the Soviet Union's political situation.

During the first months of the year Soviet diplomacy, aided by the dissensions of the capital-

ist powers, succeeded in banishing a major threat to the Five-Year Plan and socialist reconstruction in Russia. A movement among the Western powers headed by France for an economic boycott of the Soviet Union had reached serious proportions. It was stimulated by damage to certain foreign business interests caused by cheap Russian exports and by the widely expressed fear that the complete industrialization of Russia would enable her to drive many capitalist industries to the wall. France and Belgium had introduced a licensing system for many Soviet products. Austria, Hungary, and Rumania had imposed restrictions on Soviet exports; similar action was contemplated by Yugoslavia and other states. In the United States, the Commissioner of Customs on Feb. 10, 1931, indirectly banned lumber and pulpwood imports from the four chief exporting districts of Northern Russia on the ground that convict labor was employed in the labor camps. On February 27, Canada imposed a ban on Soviet coal, lumber, pulpwood, furs, and asbestos; the Soviet government retaliated April 19 by prohibiting the purchases of Canadian goods or use of Canadian shipping.

The boycott movement fell to the ground when it became evident that Germany, Italy, and Great Britain were reaping the benefits by increasing their trade with the Soviet Union. Both Germany and Italy in April concluded important trade agreements with Russia, advancing liberal credits in return for larger Soviet orders. More liberal credit terms were secured in Great Britain, while in the United States boycott propaganda was unsuccessful in the attempt to bar manganese and other Russian products. The Soviet-German agreement, signed at Berlin, April 14, pledged the Soviet Union to place with German firms additional orders totaling 300,000,000 marks (about \$72,000,000) by Aug. 31, 1931. In return, credit periods ranging from 13 to 28.8 months were granted by German industrialists. The agreement with Italy provided for government-guaranteed credits of 75 per cent on Soviet orders up to 350,000,000 lire (about \$18,400,000), the credits extending over 25 months after delivery. A treaty of commerce and navigation was signed with Turkey in March, and a new trade treaty with Persia on October 27.

The political foundation for the trade treaties with Italy and Germany had been laid by Foreign Commissar Litvinov when he supported the German delegation as against France at the December, 1930, session of the Preparatory Disarmament Commission in Geneva. Italy also aligned herself with Germany and the Soviet Union at Geneva, due undoubtedly to the increasing Franco-Italian tension. This trend toward an entente among the Soviet Union, Germany, and Italy aroused much alarm among students of European politics.

According to Walter Duranty, the well-informed Moscow correspondent of the *New York Times*, the Soviet policy in support of an anti-Versailles Treaty bloc changed sharply in the spring of 1931 when the influence of the British Foreign Office was exerted in Berlin and Rome to check this trend. There followed Litvinov's proposal before the European Union Commission of the League of Nations (May 18, 1931) for an "economic non-aggression pact" to allow friendly competition between communism and capitalism. See UNITED STATES OF EUROPE; LEAGUE OF NATIONS.



Meanwhile the anti-treaty bloc had been completely—although possibly only temporarily—dissolved as a result of the tightening of the economic crisis and the threatened financial collapse of Germany. With the sharp increase in French influence (see FRANCE under *History*), the Conservative trend in Great Britain, the increasing difficulty in finding markets for Soviet exports, and, later, the possibility of dangerous complications in Manchuria, Litvinov found it advisable to cultivate friendly relations with France and her allies, while striving to maintain a certain community of interest with Germany and Italy. Negotiations were inaugurated and on July 11 the French government set aside its decree of Oct. 3, 1930, placing special restrictions on Soviet imports. Reciprocally the Soviet government removed its retaliatory restrictions against imports from France. A non-aggression pact between the two countries was initiated in the autumn but aroused strong objection in the French press when published by the *Echo de Paris* Dec. 21, 1931. The pact had not been ratified by the end of the year.

The Franco-Soviet negotiations were accompanied by the resumption in August of conversations with the Polish Foreign Office looking toward a non-aggression pact. These negotiations had been carried on intermittently for nine years; their success depended largely upon the attitude of France and on the status of Polish-German relations. Russia now had similar non-aggression pacts with Germany, Turkey, Lithuania, Persia, and Afghanistan; the Afghan treaty was signed at Kabul in June, 1931, and in the same month the German-Soviet neutrality and economic non-aggression treaty of 1926 was renewed in Moscow. Toward the end of October a treaty of friendship and neutrality, concluded with Turkey in 1925, was renewed for a five-year period. The Soviet-Lithuanian treaty of 1926 was renewed in May, 1931, for five years (see LITHUANIA).

In the Far East, the strife between Japanese and Chinese forces in Manchuria caused the Soviet government grave concern, particularly when the fighting moved toward the Chinese Eastern Railway (jointly operated by Soviet and Chinese staffs) and the Japanese forces captured Tsitsihar. While this concern was reflected in the Soviet press, the Soviet Foreign Office announced during October and November that the Soviet government was observing strict noninterference in the struggle, and would maintain a policy of peace. Relations with Finland remained strained, largely as a result of the development of the anti-Communist Lapuan movement in Finland.

The Soviet Union continued its economic penetration of Chinese Turkestan, Mongolia, northern Manchuria, Afghanistan, Persia, and Turkey. Motor roads were being built into Chinese Turkestan from the Turk-Sib Railway completed in 1930, opening up a trade area largely inaccessible from China proper. The increase of Soviet influence in Mongolia is described in the article MONGOLIA. Although the negotiations with China with regard to the Khabarovsk protocol of 1929 had collapsed, the Chinese Eastern Railway was operated in accordance with the Russian terms.

An important development of Soviet relations with foreign countries during the year was a decided change in the trend of Soviet foreign trade, which was probably implicit in the changed credit situation. While credit terms on Soviet orders were improved in Germany, Italy, and

Great Britain, in the United States, in line with the general credit stringency and as a result of the uncertainty about import restrictions and proposed embargo legislation, they were markedly less favorable. As a result of these conditions Germany definitely displaced the United States in 1931 as the principal country furnishing Soviet imports. During 1931 Soviet orders placed in Germany aggregated \$219,184,000, compared with \$135,060,000 in 1930. Soviet orders placed in Great Britain aggregated \$14,973,118, against \$12,398,834 in 1930. Soviet orders placed in the United States in 1931 were valued at \$51,232,000, compared with \$149,223,000 in the year 1929-30.

See SIBERIA; SOVIET CENTRAL ASIA; TRANS-Caucasian Socialist Federated Soviet Republic; POLAR RESEARCH; EXPLORATION. Also FINLAND, POLAND, RUMANIA, TURKEY, and FRANCE under *History*; MILITARY PROGRESS, NAVAL PROGRESS.

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UNIONS. See TRADE UNIONS.

**UNITARIAN CHURCH.** A denomination believing in one God in one person and, consequently, in the purely human personality of Jesus. The Unitarian Church in the United States developed as a modification of Congregationalism in New England, which led to the formation of the American Unitarian Association in 1825. This association is the executive organization of the Unitarian churches to-day. Each church is an independent congregation, and the denomination requires no adherence to a formal creed in its worshipers and no profession of a particular doctrine in its ministers.

The one hundred and sixth annual meeting of the American Unitarian Association was held in Tremont Temple, Boston, May 19, 1931. According to latest available statistics, the denomination had 419 churches, 376 of which were active; 127,320 members; 3170 Sunday-school officers and teachers and 20,823 pupils. The denominational publications are the *Christian Register* (weekly) and the *Unitarian News Letter*. The officers of the association in 1931 were: President, the Rev. Louis C. Cornish, D.D.; secretary, the Rev. Walter R. Hunt, D.D.; treasurer, Henry H. Fuller. Headquarters, 25 Beacon Street, Boston.

UNITAS FRATrum. See MORAVIANS.

**UNITED BRETHREN IN CHRIST.** A denomination which resulted from the religious awakening of Philip William Otterbein, Martin Boehm, and their co-workers. Its theology is Arminian, while its beliefs are those of the earlier, evangelical denominations; baptism is ad-

ministered by any mode desired by the applicant. The church is divided into 33 annual conferences, including those in China, Japan, the Philippines, Porto Rico, and West Africa. In 1931 there were 1681 charges, 2985 organized churches, 1856 active ministers, 409,407 church members, 2775 Sunday schools with an enrollment of 425,008, including teachers and officers. The amount raised by the church for all purposes in 1931 was \$5,457,388. Conference missionary appropriations amounted to \$86,766, and general home missionary appropriations to \$154,635.

The church maintains the following educational institutions: Bonebrake Theological Seminary, Dayton, Ohio; Otterbein College, Westerville, Ohio; Lebanon Valley College, Annville, Pa.; Indiana Central College, Indianapolis, Ind.; York College, York, Nebr.; and Shenandoah College, Dayton, Va. *The Religious Telescope* is the official paper of the church, and *The Watchword* the young people's paper. The United Brethren publishing house (the Otterbein Press) and the church headquarters are in Dayton, Ohio.

**UNITED CHURCH OF CANADA, THE.** See CANADA, THE UNITED CHURCH OF.

**UNITED STATES. AREA AND POPULATION.** The area of the United States, exclusive of Alaska, is 3,026,789 square miles. The area of the non-contiguous lands, which include Alaska, Guam, and certain Pacific Islands, Hawaii, the Panama Canal Zone, The Philippine Islands, Porto Rico, American Samoa, and the Virgin Islands, is 711,582 square miles. Thus, the total area of the United States and its possessions is 3,738,371 square miles. The population of the Continental United States (understood to exclude Alaska) was 122,775,046 on Apr. 1, 1930, by the Fifteenth Federal Census. According to the previous census it was 105,710,620 on Jan. 1, 1920. The populations of the several States and insular possessions in 1930 may be found in the articles on each. See also CENSUS.

According to a preliminary count made by the Bureau of the Census, the number of "families" in the United States on Apr. 1, 1930, was 29,980,146. By the term was understood any group of persons living together as one household, and each person living alone was counted as a "family." The average number in such groups was 4.1 persons in 1930; it had been 4.3 in 1920. The average varied for States, from 4.9 for North Carolina to 3.5 for California and Nevada.

As to color or race, the population of 1930 had, for its chief element, 108,864,207 whites. These did not include persons of Mexican origin, who had, however, been classed as whites in the Census of 1920. The number of whites in 1920, minus the estimated total of 700,541 Mexicans in the country at that time, was 94,120,374. On this basis the white population increased by 15.7 per cent for the decade. The Negro population, next in total number, was 11,890,498 for 1930, as against 10,463,131 for 1920; it increased in the decade by 13.6 per cent. Mexicans numbered 1,422,533 in 1930, and formed the third largest separately classed racial element; Indians numbered 332,397, Chinese 74,954, Japanese 138,834, Filipinos 45,208, Hindus 3130, Koreans 1860 and all others 780.

The proportion of males to females declined, for the whole population, to 102.5 per cent (1930), from 104.0 (1920). It varied by sections, being, in 1930, 102.2 in the North, 100.9 in the South and 109.5 in the West. It varied by origin also,

being 101.1 for native whites, 115.1 for foreign-born whites and only 97 for Negroes, among whom the females predominated.

Persons of foreign birth in the United States on Apr. 1, 1930, numbered 14,204,149, as compared with 13,920,692 in 1920. This represents an increase of 283,547 or 2.0 per cent, which was more than accounted for by the increased number of females. The number of foreign-born females showed an increase over 1920 of 5.0 per cent, while males decreased 0.4 per cent. Decreases in the number of foreign-born occurred in all geographic regions except the Middle Atlantic, East North Central, and Pacific. The farm population in the United States showed a net increase in 1930 for the first time since 1922.

**AGRICULTURE.** See AGRICULTURE; AGRICULTURE, U. S. DEPARTMENT OF; sections on *Agriculture* under the various States; and articles on CORN, WHEAT, etc.

**INDUSTRY AND COMMERCE.** The year presented on the whole a continuation of the recession in business that had marked its predecessor. With relatively few exceptions as to regions, individual industries, or general divisions of activity, the decline continued in prices, employment, the quantity of production and the amount of marketing. See BUSINESS REVIEW; FINANCIAL REVIEW. The leading manufacturing industries of the United States will be found discussed under separate articles, such as AUTOMOBILES; BOOTS AND SHOES; etc. For engineering works, see BRIDGES; CANALS; PORTS AND HARBORS; SHIPBUILDING, etc. See also CHEMISTRY, INDUSTRIAL.

**FOREIGN TRADE.** The commerce with other nations, which had been sharply affected in 1930 by the passage of the United States Revenue (tariff) Act of that year, was again severely reduced in 1931, by the world depression and other causes. One of these was the imposition of higher tariffs by Great Britain and a number of other nations. The impairment of a number of the foreign monetary systems likewise had a depressing influence.

As viewed month by month, the foreign trade of the country shrank in all but three of the successive months of 1931, as to exports, and in all but the same number, but not entirely identical months, as to imports. The balance of exports tended to diminish. For August imports were actually higher, this partly for seasonal reasons; and for December, the excess of exports was but \$30,638,000, as against \$66,220,000 for December of 1930.

FOREIGN TRADE, BY MONTHS  
[000 omitted]

	Merchandise Exports		Merchandise Imports	
	1931	1930	1931	1930
Jan.	\$ 249,598	\$ 410,849	\$ 183,148	\$ 310,968
Feb.	224,346	848,852	174,946	281,707
March	285,901	869,549	210,202	300,460
April	215,077	851,732	185,706	307,824
May	203,970	820,085	179,694	284,683
June	187,077	294,701	173,455	250,343
July	180,724	266,761	174,460	220,558
Aug.	164,808	297,765	166,679	218,417
Sept.	180,229	312,207	170,884	226,352
Oct.	204,900	326,896	168,708	247,967
Nov.	193,555	288,987	149,480	203,593
Dec.	183,578	274,856	152,940	208,686
Totals	2,423,759	8,848,181	2,089,802	3,060,908

The imports of gold in 1931 were \$612,119,000; exports totaled \$466,794,000. See GOLD.

**MINERAL PRODUCTION.** The article MINERAL PRODUCTION AND RESOURCES gives the latest avail-

able official figures for mineral production in the United States. The more important minerals mined in the United States are treated in separate articles. There are also paragraphs on mineral production in the articles on the individual States.

**RAILWAYS.** See separate article on **RAILWAYS**.

**SHIPPING.** See articles **SHIPPING** and **SHIP-BUILDING**.

**FINANCE.** See the article **PUBLIC FINANCE**.

**EDUCATION.** See the articles **EDUCATION IN THE UNITED STATES** and **UNIVERSITIES AND COLLEGES**. Separate articles on the most important universities and colleges also are given under their respective titles. Sections on education are included in the articles on the several States.

#### ADMINISTRATION

**THE PRESIDENT.** President Hoover was mainly occupied throughout the year with details of the conduct of Federal policies dealing with the economic depression through measures of public relief, of Federal and independent finance and of foreign relations. The chief of these are related elsewhere (see *Financial Policies*, below, and for his messages to Congress and his treatment of bills, *Legislation*).

President Hoover had promoted, at the close of 1930, an agreement among the chief railroad companies of the Northeast (exclusive of New England) upon a plan for their consolidation into four systems, in the interest of economical operation. But he refrained from pressing this plan upon the Interstate Commerce Commission, and the matter remained unsettled until the end of 1931. See **RAILWAYS**. On January 1 the President proclaimed the London Treaty for the Limitation of Naval Armaments to be in force, and praised it as likely "to stimulate further peaceful endeavors during the coming year." He afterward urged the need of further steps to reduce armaments, notably in an address of May 4 to visiting members of the International Chamber of Commerce. Leaving Washington on March 17, he made a brief trip to Porto Rico and the Virgin Islands on board the battleship *Arizona*.

At Valley Forge, on Memorial Day, he delivered an address in which he compared the trials of the existing time with those that Washington's troops had endured on that spot, and exhorted the Nation to steadfastness. He initiated, late in July, the suggestion that Germany purchase from the United States great quantities of the latter's surplus wheat and cotton on liberal credit, but the proposal encountered much opposition among growers of these commodities, who did not wish to see the Government's holdings exclude theirs from an important section of the export market.

In June President Hoover made a trip through West Virginia, Kentucky, and Ohio, interspersed with train-platform talks. Proceeding to Indiana, he delivered at Indianapolis an address reviewing his administration and declaring it his policy to lead the country out of economic difficulty while holding fast to the doctrine of individualism. This utterance, in view of the dissatisfaction of Progressives and others with failure to take more radical Federal steps toward renewing economic activity, was taken as offering either a bid for Presidential candidacy in 1932 or, at the least, an appeal for conservative Republican support in the time to intervene. At Marion, O., on June 16, Mr. Hoover attended

the dedicatory exercises at the tomb of Warren G. Harding and made an address in which he spoke of the late President Harding as a "kindly and gentle spirit" who had been "betrayed by a few men whom he had trusted." On June 17, at the dedication of the reconstructed tomb of Abraham Lincoln, he again spoke, giving particular emphasis to the need for a more general respect of law, a subject that had been rendered particularly conspicuous in connection with the Prohibition law.

In response to agitation against short-sellers, which had lately been stirred up by severe declines in the prices of securities and commodities, Mr. Hoover issued on July 10 a statement condemning bear speculators and declaring that "if these gentlemen have that sense of patriotism which outruns their immediate profit . . . they will desist from their manipulations." This attack on short-sellers was widely controverted on the ground that the fall in prices was natural to the time and not the result of manipulation; and in view of subsequent further declines the prices of June later appeared high by comparison.

Events forced President Hoover, despite the declaration in favor of individual salvation made in his address of June 15, to issue his memorable statement of October 7 (see *Financial Policies*, below).

In a public statement of October 27, President Hoover declared that the problem of granting independence to the Philippine Islands was "one of time." See **PHILIPPINES** under *History*.

**FINANCIAL POLICIES.** Emergencies brought on by the economic depression compelled the Administration to carry on a number of exceedingly difficult and important financial policies. It had to meet the difficulties of the Federal Treasury, of the system of intergovernmental debts and reparations, of the upset in the international monetary situation brought about by British abandonment of gold payments, of the American railroads, of the domestic banking institutions, of its own burden of aid for agriculture and the unemployed, and, not least, of the urgent demands made on the Federal Government for financial assistance to one class or another.

No single controlling rule of action to cover all these requirements was adopted, but the President in some cases and, in others, one or other of the administrative organizations dealt with matters as they arose. The most difficult period in the course of the year opened early in June, when it became apparent that Germany was unlikely to continue payments under the Young Plan.

**Intergovernmental Moratorium.** Secretary of State Stimson and Secretary of the Treasury Mellon had both gone to Europe, ostensibly for vacations, and were there early in June. President Hoover, apparently apprised that conditions in Germany required immediate action, prepared a statement proposing that all governments involved in the arrangements for intergovernmental payments consent immediately to a moratorium of a year. He obtained privately the approval of a considerable number of the leading Senators of either party for this proposal. It was then published on June 20, and took provisional effect as of July 1 through a protocol signed at London on August 11. The French government obtained certain stipulations for the protection of its particular interest in maintenance of the Young Plan.

The direct financial effect of the moratorium on the finances of the United States was to cut off for the fiscal year 1932, at its outset, receipts in repayment of principal and in payment of interest, of \$159,520,000 from Great Britain, \$50,000,000 from France, \$17,706,125 from Italy, and \$21,774,000 from others, plus all or much of a yearly payment of \$15,745,020 from Germany. The moratorium, however, remained subject to necessary validating action on the part of Congress. President Hoover determined against calling a special session for this purpose, and the required enactment accordingly awaited the attention of the long session convening on December 7.

The immediate effect of the President's proceeding on the economic situation abroad was not what had been hoped. A rush to extract short-term credits lodged in Germany was precipitated; the Darmstaedter und Nationalbank suspended on July 13, compelling the German government to close the exchanges, stop dealings in bills of exchange and declare a temporary closure of banks in general. The effect of these adverse developments on the United States was to bring about some of the very misfortunes that the moratorium had been designed to avoid. A great total in American short-term credits placed in Germany became for the time uncollectible.

*The Hoover Credit Memorandum.* It thus became necessary for the Hoover Administration to take a further step with regard to the German situation. On July 21 the so-called Hoover credit memorandum was issued by the Department of State and was presented to the London conference of the powers then discussing plans to stabilize German financial conditions. This memorandum diagnosed the supervening trouble in Germany as a flight of capital from that country, bearing on the short-term credits for which it was indebted. The memorandum recommended that the governments of the chief financial nations encourage their bankers to facilitate the "maintenance for an adequate period" of outstanding credit lines in Germany.

Steps were taken in harmony with this recommendation. They included the formation of an international committee, set up by the Bank for International Settlements and having Albert H. Wiggin as American member, to inquire into the immediate credit needs of Germany. See REPARATIONS and WAR DEBTS; GERMANY and FRANCE under *History*.

*Support for Sterling.* The collapse of the British monetary system followed close upon the German credit panic and brought domestic consequences far more trying. The Administration refrained from any public act, comparable to the moratorium proposal, for the financial succor of Great Britain. The Federal Reserve Bank of New York, however, granted a credit of \$125,000,000 on August 1 to the Bank of England, which, with other banking credit later granted, proved inadequate to prevent the Bank of England's forced suspension of gold payments on September 20. See GREAT BRITAIN under *History*.

*Assistance to American Banks.* There followed, in the American market a collapse of securities, in which issues of bonds of the character proper to bank investment became in many cases virtually unmarketable for blocks of even moderate size. The solvency of many banks had been gradually impaired during the year. The lack of a market for many bonds of strict investment character had rendered it necessary for Controller

of the Currency Pole as early as June to permit National banks to report holdings of bonds at "full" value or at partial deduction for falling price, in order that the banks might make satisfactory reports of condition. This course became no longer sufficient.

President Hoover therefore issued on October 7 through the press a reassuring statement carrying a definite proposal for the succor of embarrassed banks. This statement condemned the "foolish withdrawal of currency" from the banks and declared "apprehension wholly unjustified in view of the thousandfold resources we have for meeting any demand." The statement proposed the formation of a National Credit Corporation to rediscount "banking assets not now eligible for rediscount" (such as loans on security collateral); advances from Federal Reserve Banks on assets of closed banks; permission to the Federal Reserve Banks, through act of Congress, to increase the field of credit eligible for rediscount; the creation, "if necessity requires" of a Finance Corporation similar to the defunct War Finance Corporation, with public funds at its command; and appropriation through Congress of Federal funds for further subscription to stock of Federal Land Banks, for the promotion of additional credit accommodation to farmers.

Immediate steps were taken, through the Federal Reserve system, to bring into being the first of these proposals, that of the National Credit Corporation. This body was chartered in Delaware, with a capital of \$1200, of which \$100 was allotted to each of the Federal Reserve districts. The organization then proceeded to promote the creation of subsidiary regional groups and with the aid of these it sought subscriptions to a proposed issue of its notes, the proceeds of which were to be used to furnish the cash required for its rediscounting operations. By the middle of November the greater part of \$500,000,000 had been subscribed. The subscriptions were prorated to banks in general on the basis of 2 per cent of each institution's loans and discounts. While subscriptions were, in form, voluntary, they were stimulated by announcement that the President expected every bank to subscribe.

*Conference with Premier Laval.* Outward financial happenings in the United States and abroad promoted an outward movement of gold from the United States somewhat similar to that from London which had preceded the collapse of British currency. The exported gold went chiefly to Paris, which was already embarrassingly overstocked with the metal, and thus it became advisable for the Administration at Washington and the French Government to take steps in coöperation. A move for such action was made by Premier Laval of France. In the latter part of October he made a brief trip to the United States and spent the better part of two days in personal conference with President Hoover at the White House. The two issued on October 25 a joint statement, asserting that they had discussed the economic situation with particular reference to international relations, reduction of armaments, payment of intergovernmental debts, and the stabilization of international exchange. It was further declared that both agreed that the European powers chiefly concerned should take the initiative as to further action on postponement of intergovernmental payments and that both were convinced of the importance of maintaining monetary stability. Shortly after the conference the withdrawal of

gold from the United States to France slackened. See FRANCE under *History*.

**Home Loan Discount Banks.** Extending his efforts at the formulation of financial relief to the field of real-estate mortgages, in which the savings banks and building-loan institutions of the country faced an embarrassing situation, President Hoover, after consultation with authorities on mortgages, issued on November 13 a new public statement, declaring that he would propose to Congress the creation of a system of home-loan discount banks. The proposed banks had for their stated purpose the relief of financial strain on building-loan associations, saving banks, and other mortgage-holding institutions, and the promotion of home ownership. The total capital of twelve proposed mortgage banks was to be, initially, some \$150,000,000, and by issuing their bonds they were designed to rediscount some \$1,800,000,000 of mortgages. They were not directly to acquire mortgages, and were to rediscount those of not over \$15,000 of principal. See BANKS AND BANKING.

**President Against Cash Bonus.** A number of proposals for the use of Federal appropriations to benefit one or another particular group of persons were agitated. The most urgent of these was a campaign to organize the sentiment of the American Legion (q.v) in support of a demand for the immediate payment in cash of the face value of the Adjusted Service Compensation Certificates. President Hoover took the vigorous course of going to Detroit and addressing the annual convention of the Legion on September 21. He represented the proposed cash prepayment of the Bonus as a scheme that would put upon the Federal Treasury a burden beyond its ability to meet in a period of reduced revenue and high expenditures. The convention accordingly voted down its Bonus resolution.

**Farm Board and Crop Surplus.** The Farm Board, loaded up with wheat and cotton bought in the effort to sustain the prices for the crops of 1930, was in no position, for lack of further funds, to sustain the crops of 1931. It accordingly announced on March 23 that it would not continue its purchases into the new crop months. President Hoover did not intervene, and was reported as holding the view that the Board had full power to shape its own policy. With the advent of the new crop season there followed severe declines in the prices of wheat and cotton, both of which, losing the support of Federal purchases, fell to unprecedented levels in the course of the summer. The Board, which faced heavy carrying charges on its stocks of wheat and cotton, became a potential seller of these commodities in competition with the new-crop producers and handlers.

Pressure was then brought on the Administration to prevent the Board, by its sales, from crowding the new crops out of the market. President Hoover thereupon communicated with the Board, to suggest, in the terms of the White House statement on the subject, "a more definite policy." The Farm Board yielded to the extent of declaring in a statement of June 30 that it would not attempt the anticipated unlimited selling at home and abroad, and would restrict itself to sales of 5,000,000 bushels of wheat a month, exclusive of certain contemplated sales to foreign governments, and that it would purchase new wheat with the proceeds of sales made "for the purpose of clearing trade channels."

Wheat sank thereafter to a closing price of 48

cents at Chicago for the July option, at the end of July. President Hoover announced on July 31 that the Government was "suggesting" through Ambassador Sackett to the Government of Germany that it might purchase from the Farm Board a substantial quantity of wheat and cotton on liberal credit. The negotiation of these sales was held up by divers difficulties, but an exchange of some of the Farm Board's wheat for Brazilian coffee was arranged with Brazil and, subsequently to the Yangtse flood the Nationalist Government of China at Nanking bought a large consignment of Farm Board wheat on long credit, agreeing on September 3 to take some 15,000,000 bushels.

With regard to cotton, the Farm Board on its own initiative addressed to the governors of the cotton States on August 12 an appeal for the plowing under of one-third of the growing cotton. This suggestion proved impracticable and was strongly opposed in many of the States involved. It had no effect to prevent the gathering in the autumn of the country's second heaviest cotton crop. In November the Farm Board agreed to carry 3,300,000 bales of cotton until the following July 31, while private interests undertook to carry another 3,100,000.

**Treasury Financing.** One of the most troublesome problems of the Administration was to keep the Treasury in funds in the face of a deficit accumulating far more rapidly than the estimates had reckoned. The fiscal year 1931 ended on June 30 showing a Treasury deficit for the period of \$903,000,000 approximately, virtually the whole of which had been accumulated in the final six months. This compared with a deficit of \$331,000,000 foreshadowed by President Hoover's budget expositions of the previous December. The method for meeting this unforeseen drain on the Treasury was left to Secretary of the Treasury Mellon. His general scheme was the issue, to public subscription, of short-term Treasury notes or bills every few weeks, covered from time to time by issues of bonds of distant maturity, with which the notes or bills were ultimately taken up. The accounted deficit for the fiscal year was due in part to the statutory requirement that nearly \$400,000,000 be applied to debt reduction; but the money for this purpose had not all immediately been spent for the purchase and extinction of bonds, and part of it temporarily remained in the Treasury. Mr. Mellon's handling of the borrowing problem was successful up to September, when he floated at par an issue of 3 per cent bonds. The issue, however, was taken slowly, the time of subscription having to be extended. Subsequently the prices of Federal long-term obligations fell to such levels as increased the difficulty of further resort to borrowing at distant maturity to supply the Government's current needs. In the first half of the fiscal year 1932, moreover, the deficit accelerated, increasing at the average rate of about \$225,000,000 a month. These conditions rendered it necessary to resort more considerably to short-term indebtedness.

**Government and Railroads.** Reduced business activity in 1931 cut down heavily the traffic and revenue of the railroads. These, as a class, thus became candidates for governmental succor, along with farmers, banks, and the unemployed. President Hoover made an effort to improve their condition at the outset of 1931 by pressing upon the Interstate Commerce Commission the adoption of a plan, suitable to the chief participants in outline at least, for the consolidation of the Eastern



lines into a small number of large systems. His effort was without immediate effect, for the negotiations over details of the plan dragged out through the year, leaving actual consolidation under its terms unaccomplished. See RAILROADS.

The business of finding other means of treating the railroads' troubles was left to the companies themselves and to the Interstate Commerce Commission. The companies petitioned the Commission for a general increase of 15 per cent in their freight rates. The filing of this petition on June 17 brought the Commission a deluge of protests from shippers and allied interests. The Commission granted hearings on the petition. At these hearings the railroads were able to establish their contention that they needed more revenue. They were backed by the pleas of associations of savings institutions and other investment interests, to the effect that the maintenance of the standing of the railroads' bonds depended on their getting more revenue. But it was contended with equal force by opponents of the petition that an increase in freight rates would bear hard on business and might so greatly reduce traffic as to bring no compensating advantage to the carriers.

The Commission sought a third way out of the dilemma. It issued on October 20 a decision in which it denied the 15 per cent increase in freight rates but proposed in its stead specified increases on the rates for divers sorts of freight, conditional on the companies' consenting that proceeds of such increases should be paid to such companies as might need the money in order to cover the payments of their fixed charges. The railroad executives later discussed the proposal and favored its approval, with a condition of their own (detailed in a new petition filed November 19), this being that companies paying proceeds to other companies should rate payments not as definitive alienation of money but as advances ultimately repayable when circumstances allowed. The decision, in its effect on the market position of the railroads' securities, had but a moderate and transitory favorable effect.

*Administrative Economies.* An effect of the adverse financial position of the Federal Government was the resort of the Administration, as the year progressed, increasingly to severe measures of retrenchment. These were applied particularly to the Army and the Navy. They entailed not only cuts in estimates for the fiscal year 1933 but reductions in current-year costs of operation and maintenance. Steps were taken also to postpone pay increases among the employees of Federal departments and organizations.

The cutting of expenditure for the Navy drew bitter criticism from the Navy League, which on October 28 issued a statement accusing President Hoover of "abysmal ignorance of why navies are maintained" and of "efforts at every turn to restrict, to reduce, and to starve the United States Navy." President Hoover replied in a public statement that the League's attack was marked by "untruths and distortions." In accordance with his practice of reliance upon fact-finding bodies, he appointed a committee of his own selection "to examine the accuracy" of the Navy League's statement. The committee made a report on November 6 stating that it had found inaccuracies, false assertions, and erroneous conclusions in the statement.

*FOREIGN AFFAIRS.* Treated under *Financial Policies*, the chief development in the Government's foreign affairs was the proposal of a

moratorium of one year in payments on inter-governmental debts and reparations. (See *Congress*, below.)

*Disarmament.* With regard to international proceedings toward disarmament, the Administration took action in favor of that end. It accepted an invitation to attend the World Conference on Disarmament called to convene at Geneva on Feb. 2, 1932. A proposal from the Italian government, in September, that governments agree not to expand their armaments within a year, was accepted by the United States, and some 40 governments. See DISARMAMENT.

*Manchuria.* The military occupation of a great part of Manchuria by Japan in the autumn led to diplomatic action on the part of the United States as a signatory of the Kellogg-Briand pact for the renunciation of war. After direct diplomatic exchanges on the subject with the principal parties, Secretary of State Stimson followed the policy of letting the League of Nations take the lead in the work of composing the Sino-Japanese difference. The Department of State authorized P. B. Gilbert early in October to attend the meetings of the League Council on the subject, in a consultative capacity. Japan made objection to American participation in the League's action, but this was later withdrawn. Moved by the continuance of Japanese military operations, the United States obtained from Japan in November assurances that these would not be extended beyond certain limits. A tentative arrangement for accord between Japan and China was drawn up through the League of Nations early in December. See LEAGUE OF NATIONS; JAPAN under *History*.

*St. Lawrence River.* Secretary of State Stimson began discussions with the Canadian Minister at Washington on November 14, preparatory to the negotiation of a treaty to provide for the joint development of the St. Lawrence River as a waterway. This proceeding aroused opposition from the government of New York State, as well as from the Canadian Province of Quebec, as both of these governments claimed direct rights not subject to alienation by treaty without their consent. See CANADA under *History*.

*Nicaragua.* In Nicaragua the armed forces of the United States were maintained throughout the year, but their number was reduced according to President Hoover's statement to Congress, to the minimum needful for training the Nicaraguan constabulary and "the rendering of appropriate support for such instruction."

*Haiti.* In Haiti definite moves were made toward releasing the country from the United States' supervision. See HAITI, NICARAGUA, SALVADOR, and CUBA under *History* for developments in the Caribbean policy of the United States.

*Treaties.* A treaty of arbitration and conciliation with Switzerland was signed on February 16. One modifying the Bryan Peace Treaty with Italy was signed on September 23. An extradition treaty with Italy, on May 6. A Treaty of friendship, commerce, and consular rights with Poland, on June 15. One relating to establishment and sojourn in Turkey, on October 28.

*The Butler Incident.* Major General Smedley D. Butler, U.S.M.C., in a public address at Philadelphia, asserted that he had been told that Premier Mussolini of Italy had run over a child and made no attempt to succor the victim. This brought about a protest from the Italian government on January 26, through Ambassador de



Martino. The United States offered a formal apology on January 29. Butler was court-martialed, reprimanded, and later voluntarily retired from the Marine service.

**THE TREASURY.** Secretary Mellon's intimate knowledge of banking and finance was employed to the advantage of the Treasury throughout the year in the delicate operations attending issuance of Federal indebtedness, which was rendered inevitable by the accumulation of deficits; these ran at the rate of about \$150,000,000 a month for the latter half of the fiscal year 1931 (ending June 30) and somewhat higher thereafter. He followed the course of issuing Treasury notes or certificates at intervals of a few weeks and of refunding these in part by the issue of bonds, at intervals of a few months, so long as the obtainable interest rates remained low enough to permit of the latter course. The increasing Federal borrowings and the prostration of the prices of capital issues obliged him in December to alter this course to the extent of offering \$1,300,000,000 entirely in obligations of one year's maturity or less, chiefly for the refunding of maturing notes. Secretary Mellon made detailed recommendations as to a plan of higher taxation to cover part of the deficit. These will be found under *Congress*, below.

In accordance with an executive order of President Hoover, the Treasury Department opened on June 11 the income-tax returns in its possession to the examination of the authorities of those States which had income-tax systems of their own. See **PUBLIC FINANCE**.

**WAR DEPARTMENT.** A report on the Corps of Engineers' survey of the route for an inter-oceanic canal through Nicaragua was published, giving Colonel Dan I. Sultan's estimate of the probable cost of constructing the canal as approximately \$750,000,000. While his report represented the project as possible of execution in a physical sense, the high estimate of cost tended to remove the possibility from early practical consideration. A War Policies Commission, created by a resolution of the 71st Congress and consisting of six cabinet members and four members of either house of Congress, held hearings in May and obtained, among the views of representatives of many groups, those of the War Department, presented by Gen. Douglas MacArthur, Chief of Staff, U.S.A. He stressed the planning of defensive measures in advance, and especially of plans for mobilization and for the adequate control of industry in war.

**DEPARTMENT OF LABOR.** Secretary of Labor Doak exerted himself early in the year to combat the tendency of companies, which increased as time passed, to cut wages. He issued the warning on May 18 that in view of assurances given by large employers earlier in the depression, reductions in wages would be considered by the Administration a violation of confidence, and that organized labor might feel justified in countering with demands for higher wages. Increasing economic pressure led employers in a number of industries, particularly the railroads and copper-mining companies, to seek or effect reductions later on. Through Secretary Doak and Secretary of Commerce Lamont was arranged in July a conference of employers and workers' representatives in the soft coal industry, with a view to improving employment in that industry, but no definite change in conditions resulted.

**DEPARTMENT OF THE INTERIOR.** Secretary Wil-

bur adopted at the end of March a plan re-organizing the Indian administration. The change involved placing the activities for the Indians' health, education, agriculture, and industry under an assistant to the Commissioner, in charge of human relations. These activities were thus segregated from those concerning irrigation, forestry, and lands, which were put under an assistant in charge of property matters. Secretary Wilbur declared in his annual report a purpose to advance the time when the Indians would tend to merge with the population through the exercise of their own wish to attain that end.

The contract for the construction of the Hoover Dam on the Colorado River with power house and appurtenant works was let by Secretary Wilbur on March 11 to the Six Companies, Inc., upon their bid of \$48,890,999 (exclusive of materials and machinery). Operations were begun immediately thereafter.

The administration of the Virgin Islands (q.v.) was transferred to the Department by executive order on February 27, and a civilian Governor of the Islands, Paul M. Pearson, was appointed by the President upon the Department's recommendation. A Committee on the Conservation and Administration of the Public Domain, which had been appointed by the President under the terms of an act of Apr. 10, 1930, rendered in March, 1931, a report recommending that the United States take steps for the transfer of the remnant of the public domain (178,979,446 acres), with exception of areas essential for certain Federal purposes and, provisionally, of mineral resources, to the several States in which such land lay. Secretary Wilbur was a member of this commission; its chairman was former Secretary of the Interior James A. Garfield.

**POST OFFICE.** For the fiscal year ending June 30, 1931, the postal deficit, apparently because of shrinkage in the volume of the mails, and consequently of receipts, rose to \$146,066,190 (gross) and to \$98,018,881 (net of certain non-postal expenditures). This net deficit was more than 60 per cent in excess of the net deficit of \$58,546,269 for the fiscal year preceding. Postmaster General Brown, although acknowledging the higher deficit as the result of shrinkage in the mails, advocated in his report that Congress raise the rate of postage on non-local letter mail to 3 cents an ounce or fraction. The expenses of the rural free delivery system were included in the total producing the net deficit.

On June 30, 1931, the postal system had 1181 post offices of the first class, 3512 of the second class, 10,802 of the third class and 33,077 of the fourth. Employees in offices of the first two classes numbered 133,205, exclusive of postmasters, rural carriers, special-delivery messengers, and motor-vehicle employees. The number of the clerks decreased by 390, net, in the year; that of carriers by 375. The average salary of clerks increased to \$2166.93, from \$2156.75. That of city carriers, to \$2083.65, from \$2075.63. The rural free delivery routes numbered 42,212 on June 30, 1931, and were estimated to serve 25,528,435 individuals.

Pieces transmitted in foreign mails, parcel post excepted, numbered 447,771,288 dispatched and 388,697,146 received; a decrease, from the previous fiscal year, of 14.14 per cent in number dispatched and 4.97 in that received. The mileage of air routes increased to 23,488 on June 30, 1931, from 14,907 a year earlier. There were carried

by airplane during the year 8,579,422 pounds of mail. The air service cost \$16,995,734; there were flown 21,381,852 miles of scheduled service.

Sales of stamps during the fiscal year totaled \$524,630,179 and fell \$50,656,391 below those of the year previous. The quantity of second-class matter handled was 1,465,603,540 pounds which was 10.07 per cent less than that for the previous fiscal year. The limit of size for parcel-post packages was raised to 100 inches and that of weight to 70 pounds, from 84 inches and 50 pounds, as of August 1.

Postal savings deposits increased beyond all precedent to \$353,237,907 on June 30, 1931, from \$173,332,684 a year earlier. The increase coincided with evidence of lack of confidence in some of the banks and was reported in the press to have made some further progress later in the calendar year 1931.

NAVY DEPARTMENT. Secretary of the Navy Adams made considerable reductions in the expenditures of the Navy both as to estimates for the fiscal year 1932 and as to actual disbursement for 1931. It resulted from the latter that he reported \$140,458,451 of the \$498,264,700 available as remaining unexpended at the end of the fiscal year 1931. Reductions were reported to have been made at the repeated insistence of President Hoover. In his annual report in December Secretary Adams cited leading naval officers' opinion that costs of depreciation and replacement were not met. The issue of the report followed closely on a controversy of the Navy League with the President over allegations to the effect that he was starving the Navy.

FEDERAL FARM BOARD. Chairman Legge of the Farm Board, under whom had been undertaken its most ambitious policies, resigned in March, and was succeeded by James C. Stone of Kentucky. Under Chairman Stone no effort was made to continue the pegging of the market for wheat, cotton or any other chief crop into the new crop year.

The operations of the Farm Board, from its outset to June 30, 1931, were tabulated as follows:

Commodity	Net commitments	Amounts advanced	Repayments
Beans and soy beans .....	\$685,049	\$685,049	\$71,859
Coffee .....	50,000		
Cotton .....	144,511,117	140,525,937	95,674,997
Dairy products ..	18,299,352	13,291,662	4,235,354
Citrus fruits ..	3,300,000	3,020,882	712,818
Grapes and raisins .....	20,382,622	20,105,361	5,434,009
Other deciduous fruits .....	2,248,232	1,844,717	353,596
Miscellaneous fruits and vegetables .....	451,000	350,470	9,398
Grain .....	51,115,082	47,215,932	34,236,294
Honey .....	45,839	45,839	6,158
Livestock .....	6,979,704	4,829,704	1,661,559
Nuts .....	412,869	308,743	80,207
Potatoes .....	621,800	445,000	46,000
Poultry and eggs ..	618,000	531,600	139,500
Rice .....	1,383,538	938,538	198,529
Seeds .....	197,141	153,141	37,214
Tobacco .....	2,782,131	2,782,131	580,178
Wool and mohair ..	23,749,276	18,741,746	2,899,527
Total .....	277,832,758	255,866,458	146,367,203
Cotton stabilization .....	135,318,855	133,460,038	58,506,156
Grain stabilization .....	276,972,604	272,972,604	112,823,842
Grand total .....	690,124,217	662,299,100	317,697,202

From a financial statement of the revolving fund submitted by Chairman Stone it appeared that the Farm Board had drawn \$400,000,000 of the total (\$500,000,000) of the fund provided for it, up to June 30, 1931. The statement is given in the accompanying table.

While this statement presented a cash balance of nearly \$60,000,000, a great part of this sum had been committed to divers purposes, though payments had not yet been made. It appeared, however, that the Grain Stabilization Corporation, in addition to using the money of the revolving fund, had borrowed some \$83,000,000 from banks up to June 30. While such loans were not stated to be a direct obligation of the Farm Board, they were of such a nature as might have a bearing on its financial position. See AGRICULTURE under *Federal Farm Board*.

ASSETS	
Cash on deposit with Treasury of the United States .....	\$ 59,977,608.82
Other assets:	
Effective merchandising loans .....	49,979,676.27
Facility loans .....	13,066,721.62
Educational loans .....	30,000.00
Commodity loans .....	45,632,903.78
Stabilization loans .....	235,102,643.59
Accrued interest receivable as of June 30, 1931 .....	1,715,875.70
Delinquent notes and accounts in litigation and/or suspended .....	789,863.26
Total .....	\$405,755,382.54
CAPITAL AND INCOME	
Revolv. fund * .....	\$400,000,000.00
Interest collected .....	4,579,506.84
Accrued interest, not collected .....	404,579,506.84
Total .....	\$405,755,382.54

\* The final \$100,000,000 of the \$500,000,000 authorized was made available on July 1, 1931.

FEDERAL POWER COMMISSION. Reorganized by statute, the Power Commission was handicapped during much of the year by the question at law raised by the Senate over the validity of the appointment of its chairman, George Otis Smith, which the Senate had first confirmed and afterward asked the President to resubmit (see *71st Congress, 2nd Session*). Justice Gordon of the Supreme Court of the District of Columbia, in first instance, denied on December 5 the motion brought before him against Smith on behalf of the Senate; the case for the Senate was to be appealed to the United States Supreme Court.

The Board rendered on April 3 a ruling widely regarded as ranking it with the thoroughgoing advocates of Federal control of water power. In this ruling it denied the long-pending application of the Appalachian Electric Power Company for a "minor part" permit to carry out a \$11,000,000 hydro-electric project at a site on the New River, near Bradford, Pa., without its having to submit to Federal supervision. The New River was represented as not navigable and therefore not within the scope of the Commission's supervision. But the Commission held that this river entered navigable waters below and that those damming its water might affect the conditions for navigation in the larger stream. A number of States had appeared at divers times before the old Commission to sustain the principle of State disposal of non-navigable waters. The decision bore on numerous similar cases.

VETERANS' ADMINISTRATION. Federal services for the relief of all veterans of the United States

who had served in any war were consolidated by executive order of July 21, 1930, pursuant to an act of July 3, 1930. The Veterans' Administration, thus created, reported on June 30, 1931, after about a year of operation, that there were on its rolls 1,349,812 beneficiaries, exclusive of services of insurance, adjusted compensation, hospital and domiciliary care and civil service retirement. Of this total, which included both living veterans and kin of deceased ones, 8 related to the War of 1812, 547 to the Mexican War, 9753 to Indian wars, 193,721 to the Civil War, 239,860 to the Spanish-American War, 22,571 to the Regular Establishment, and 883,352 to the World War.

**Hospitalization.** After the authorization in 1924 of hospital service to veterans on account of disabilities not resulting from war service, the number of those hospitalized for other than war disabilities rose rapidly and persistently until at the end of the fiscal year 1931 the latter's number exceeded that of the war disability cases and formed 54.27 per cent of the total. Of 35,139 patients at the end of the fiscal year, 33,302 were veterans of the World War. The total of cases was 4598 higher than that of a year previous and 4260 higher than the previous top number, recorded in March of 1922. There were 109,649 hospital admissions in the fiscal year 1931. Hospital deaths numbered 5209. Under an act of Mar. 4, 1931, to provide additional hospital room, the Veterans' Service undertook building operations in 20 places in divers parts of the country, to provide 3024 hospital and 350 domiciliary beds at the estimated cost of \$8,157,000. The number of beds available in 54 veterans' hospitals on June 30, 1931, was 26,307.

**Pensions.** The number of veterans receiving Civil War pensions was 39,426 on June 30, 1931, and had diminished by 9565 in the fiscal year. There were also on the rolls 153,437 widows and minor children of Civil War veterans, a decrease of 14,237. Veteran pensioners of the Spanish War numbered 193,286 and had increased during the fiscal year by 6921. Widows and minor children of veterans of this war received pensions to the number of 33,437. The total of the year's pension disbursements was \$234,419,721.

**Adjusted Compensation.** Under the act of Feb. 27, 1931, the Veterans' Service administered the work of making loans to World War veterans at the rate of 50 per cent of the face values of their certificates, at interest of 4½ per cent a year; 2,063,578 such loans were made, to the total of \$795,569,520, up to June 30. As earlier loans had been made, the total of loans on certificates was \$1,087,195,525 on June 30.

#### CONGRESS

**SEVENTY-FIRST CONGRESS, SECOND REGULAR SESSION.** The concluding session of the Congress, which had convened on December 1, 1930, reassembled after the year-end holiday. The dissension between the Administration and the predominant groups of both houses, which had sprung up in December, over the question how far to go with appropriations for Federal relief of the distressed, burst out with renewed vigor. Advocates of more extensive grants became defiant of the Administration and rejected its recommendations on a number of points. The chief of these was the proposal for a great cash distribution to the veterans of the late World War.

**Bonus Legislation.** The plan for a cash distribution to veterans did not at first take the form of a loan bill. Representative Garner of Texas introduced early in 1931 a measure for the immediate payment to veterans of the cash surrender value of their adjusted service certificates. Secretary of the Treasury Mellon, Under-Secretary Mills and General Hines, Administrator of Veterans' Affairs, all opposed this measure. Mr. Mellon appeared before the Senate Committee on Finance on January 28 and gave his opinion that the similar Senate measure to pay veterans full face value of their certificates would unduly tax Federal credit. He expressed like views before the House committee on January 29.

In the meantime the executive committee of the American Legion declared (January 25) for immediate retirement of the certificates for cash, and its spokesman presented its views at the committee hearings a few days later. The Ways and Means Committee invited divers leading citizens to appear and express their views. One of these, Owen D. Young, appearing on February 4, suggested that the Government lend up to 50 per cent of face value of certificates to needy veterans only. The loan suggestion was seized upon, but the suggested restriction of the loan to veterans in need was disregarded. The Bacharach bill was drawn and introduced; it provided for immediate loans to all veterans of the late war, in amounts, except as reduced by such loans as they might previously have received, up to 50 per cent of face value of their certificates, at 4½ per cent interest.

In short order, and despite further adverse views from Mr. Mellon, the House brought the measure to a vote. Suspending the rules, it passed the bill on February 16, after a perfunctory debate of 40 minutes, by a vote of 363 to 39. President Hoover wrote a letter opposing the loan bill to Senator Smoot of Utah, chairman of the Senate Committee on Finance, where the bill was next lodged. But the committee reported the bill out almost immediately, and the Senate passed it on February 19 by a vote of 72 to 12. President Hoover sent the measure back to Congress on February 26 with a veto message in which he stated a probability that the loan might force a rise in taxes. The House overrode the veto on the same day, by 328 votes to 79; the Senate, on the day after, by 76 to 17, thus completing the enactment of the bill.

**Additional Drought Relief.** Reports of the prevalence of want in certain drought-stricken areas, particularly in Arkansas, published about New Year, brought on a demand for further immediate measures for the relief of suffering farmers. The President had favored the plan of leaving the succor of cases of personal distress to the American Red Cross. Senator Caraway of Arkansas, opposing this plan, introduced a separate bill carrying an appropriation of \$25,000,000 for the specific purpose of furnishing food to the drought sufferers. A similar provision had been stricken from the drought relief act which the Senate had passed late in 1930 and which the House had just sent to the President. This act, which appropriated \$45,000,000 for loans to furnish funds to farmers in the drought area, for divers specified purposes, did not specify human food. President Hoover signed the act on January 15.

He opposed Federal grants to feed destitute farming folk. Instead he advocated provision for this purpose through the Red Cross and sponsored

its campaign to raise \$10,000,000 for the emergency. The Senate none the less proceeded to pass on January 19 the Robinson bill in a form appropriating \$25,000,000 to be expended by the Red Cross itself in feeding the sufferers. The measure then went to the House. There Chairman Payne of the Red Cross declared before a subcommittee of the Committee on Appropriations that the Red Cross had resolved not to accept a Federal appropriation for this purpose if it were made. See RED CROSS, AMERICAN NATIONAL.

The committee accordingly voted on the 29th against recommending the measure to the House. When this body delayed bringing the matter to a vote a group of Senators issued a statement threatening to force a special session if the bill did not go through. President Hoover replied with a statement urging that the responsibility for relief of the personally destitute be left to private charity. The Democratic and insurgent Republican Senators backing the measure then decided to alter it. A compromise acceptable to the President was reached on February 6. By this compromise the already enacted farmers' relief measure was amended to admit an appropriation of \$20,000,000 for secured loans to stricken farmers for the production of the crop of 1931 and for "further agricultural rehabilitation." The latter phrase was understood to be circumlocution for "human food," on the theory advanced by Watson of Indiana, that "You cannot rehabilitate farms with dead farmers." The measure was passed in this form by both houses on February 14, as part of the Department of the Interior's supply bill, and was immediately signed by the President.

*Bills to Aid Employment.* The bill of Senator Wagner, Democrat, of New York, which had passed the Senate in the spring of 1930 and which had subsequently remained with the House, was passed by the House on February 23, through a combination of Democrats and insurgent Republicans. It would have abolished the existing Employment Service in the Department of Labor and created in its place a bureau of the Department of Labor, to be known as the United States Employment Service, to be headed by a director general to be appointed by the President, at a salary of \$8500 a year, and to set up a system of employment offices throughout the country. The President vetoed the measure on March 7, largely on the ground that the existing Federal employment service was "finding places of employment for men and women at the rate of 1,300,000 per annum," and should be continued.

Another bill of Senator Wagner, that providing for the planning in advance of Federal public works, with a view to their execution in times of unemployment, was passed in amended form, and was signed by President Hoover on February 10. The Bacon-Davis law, requiring that the scale of wages prevalent in a community—in practice the union scale—should be paid for any public works under Federal contract, was enacted on February 28.

*Naval Appropriation.* The expenditure of \$30,000,000 for renovating the battleships *New Mexico*, *Mississippi*, and *Idaho* was authorized by an act of February 26. In order that the work might start early in the ensuing fiscal year an appropriation of \$10,000,000 toward the required amount was included in the second deficiency bill.

A bill that had been introduced in the endeavor to authorize the expenditure of \$74,000,000 toward a naval building programme with a view to bring-

ing the Navy nearer the limits allowed under the Treaty of London failed of passage. Considerable provision for construction was nevertheless made. An appropriation of \$23,800,000 for continuing the work on the existing 9-cruiser programme and another appropriation of \$10,000,000 for beginning with the construction of 11 destroyers were both included in the Naval Appropriation act. This act, the last of the departmental supply measures to pass the session, went to the President on February 27, carrying \$358,000,000, and was duly signed.

*Extra Appropriations and Financial Measures.* Containing chiefly items of appropriation that President Hoover had recommended to Congress on February 2, the Second Deficiency bill, as enacted, carried some \$84,000,000, of which \$10,000,000 as above stated was for naval construction; about \$24,000,000 was for the uses of the Veterans' Administration, in addition to other grants. The total of the appropriations for the whole session was thus brought up to \$5,178,107,522, according to an estimate published at the time of adjournment. This was the heaviest total of appropriations reported for any session subsequent to 1919.

Authority to issue additional bonds of the United States up to the further total of \$8,000,000,000 was conferred on the Secretary of the Treasury by the passage on March 2 of an act amending the Second Liberty Loan act. The amendment simply extended to \$28,000,000,000, from the original \$20,000,000,000, the total of United States bonds that might be issued by the Secretary of the Treasury under the war powers conceded by the original act. The amendment was required because more than \$18,000,000,000 of the original total had been issued either for purposes of refunding or as original debt, and because of the approach of Federal option to convert outstanding Liberty bonds; also, because heavy appropriations in combination with diminishing Federal revenue would render it necessary in the early future to increase the Federal indebtedness considerably in order to meet Treasury deficit.

The Liberty Loan amendment was recommended to Congress by Secretary Mellon in a communication of January 5. He suggested also that the original act be amended so as to exempt holders of future issues from payment of surtaxes. The resulting bill introduced in the Senate by Smoot of Utah provided for such exemption; but the Senate amended the measure by striking out surtax exemption, and the House concurred.

*Prohibition Law.* Congress passed on January 8 the Stobbs act, modifying the Jones act so as to provide lower penalties for minor offenders under the latter law. The report of the Wickersham Commission (the Law Enforcement Commission) previously created by Congress to study the state of the enforcement of law in general and of Prohibition in particular, was submitted to Congress on January 20. See PROHIBITION.

*Other Legislation.* "The Star Spangled Banner" was made the National anthem by an act of March 3. In conformity with legislation in a number of States to protect dairy interests against the competition of oleomargarine with butter, Congress enacted on March 3 the Brigham law, imposing a prohibitive Federal tax of 10 cents a pound on colored oleomargarine. The measure carried as a rider the bill of Senator George of Georgia classing turpentine as a farm commodity entitled to the benefits of the Agricultural Market-

ing act. A uniform Saturday half-holiday for all the civil service employees of the Government was created by statute; such a half-holiday had previously been granted to some 300,000 postal employees, in the Post Office Supply bill. About 400,000 other employees were covered by the Half Holiday act.

Under the terms of the Cable act, women citizens of the United States were not to forfeit their citizenship by marriage with foreigners, unless they should make a formal renunciation of American citizenship; and women who had lost citizenship by marriage with ineligible aliens might again become citizens by naturalization.

*Measures Not Enacted.* Both houses came at last to an agreement on the disposal to be made of the \$145,000,000 Federal power plant at Muscle Shoals. The House agreed to a large part of the plan for Federal operation which Senator Norris of Nebraska had supported for years. The compromise measure as adopted provided that the Government must find a lessee within a year or else itself operate a plant for the manufacture of nitrates at the Shoals; the Government was to operate the plant for the production of power in any case. The President returned the bill with his veto. On March 3 the Senate voted by 49 against 34 to override the veto, but this majority was short of the necessary two-thirds, and the measure was therefore lost.

A bill to provide Federal aid to mothers and infants, on the general plan of the defunct Sheppard-Towner Maternity act, was introduced by Senator Jones and passed by the Senate. In the House it was coupled with the Cooper measure for Federal contribution to the improvement of health in rural sections. The combined bill was accepted by a conference committee but was prevented, by congestion of business, from coming to a vote in the closing hours of the Senate.

The proposal to change the Constitutional date for the convening of the regular sessions of Congress so as to eliminate "lame duck" sessions, or sessions in which members superseded in the November elections still sat, was again before Congress, as in a number of previous sessions, but failed to pass, the session itself being of the "lame duck" category. The passage of the Vestal Copyright bill was not completed by the Senate. A treaty with Canada to permit the diversion of an additional 20,000 cubic feet a second of water at Niagara Falls to the use of power companies in exchange for improvements to be made by them at the brink of the falls to improve the flow was rejected by the Senate Committee on Foreign Relations and failed of ratification.

*Dispute Over Power Board Appointees.* Though the Senate had confirmed the nomination of George Otis Smith to be chairman of the reconstituted Power Board and likewise the nominations of Commissioners Draper and Garsaud, and though their appointments had subsequently been duly certified, the Senate voted on January 9, by 44 to 37, to request the President to recommit the nominees' names. The three commissioners had been sworn in on December 23, had convened as a quorum of the Commission, and had by their first official act discharged Charles A. Russell, solicitor to the old Commission, and William V. King, its chief accountant; they also dismissed Frank E. Bonner, its secretary. This proceeding gave insurgent Senators the impression that the new Commission intended to subserve private power interests. Walsh (Democrat) of Montana, at the

reassembling of Congress in January, reckoned that two executive-session days had not passed since the Commissioners had been confirmed. He accordingly cited a Senate rule permitting a move to reconsider confirmations within two executive-session days, moved the reconsideration, and offered the motion passed by the Senate.

A point involving constitutional powers was thus brought up. President Hoover refused to re-submit the nominations. In a special message of January 10 to the Senate he declined "to admit the power of the Senate to encroach on the Executive functions by removal of a duly appointed executive officer under guise of reconsideration of his nomination." The Senate, holding apparently to the Constitution, Art. 1, Sec. 5, Par. 2, that each House might determine the rules of its own proceedings, voted to recommit the names of its own motion, on the 23d. On February 4 it further voted not to confirm the appointment of Chairman Smith. Attorney General Mitchell had meanwhile ruled that the Smith appointment was valid. The Senate proceeded to institute proceedings of *quo warranto* against Smith, with a view of testing the contention in the Supreme Court.

*Investigations.* The Senate left in existence six investigating committees, to inquire into lobbying, campaign funds, post office leases, economic conditions, banking facilities and the condition of Indians. Of these, the committee on lobbying had before it a charge that a Senator had received \$100,000 from a domestic sugar company during the period of tariff legislation; Davis (Republican) of Pennsylvania had asked for the investigation and denied that the charge was true in regard to him. The committee on campaign funds prosecuted the investigation of the disposal of funds received by Bishop Cannon in the course of the campaign against Alfred E. Smith for President in 1928. The disposal of contributions banked personally by Cannon was traced at great length later through banking accounts.

SEVENTY-SECOND CONGRESS, FIRST SESSION. The Seventy-Second Congress convened for the first time on December 7, in regular session. It adjourned for its year-end recess a little over a fortnight later, on December 22, to reconvene on Jan. 4, 1932. In the brief time that it sat in 1931, it disposed of a single major task, that of approving the moratorium on intergovernmental payments that had been proposed and executed by the Administration and that had gone into effect provisionally on July 1.

*Constitution of the Houses.* While it had appeared at the time of the election of the House in 1930 that the Republicans might have a bare majority, the later occurrence of deaths among the body of representatives-elect and of elections to fill the vacancies thus created left the Democratic group in possession of 219 seats at the opening of the session, while Republicans held 214 seats. There were, in addition, one Farmer-Labor member and one vacancy in Vermont, to be filled by an election in January. The Democrats could thus outvote the rest of the House, actual and prospective, by three.

In the Senate the situation was different. On strict party lines and in the absence of the Democratic Senator-elect Huey P. Long of Louisiana, who had elected to remain away and continue holding the office of Governor of his State, the Republican members held the deciding vote. They could in addition, in case of an even division, rely on the deciding ballot of the Presi-



dent of the Senate, Vice President Curtis. In actuality the Republican numerical strength in the Senate was meaningless, as approximately half a dozen of the Senators listed as Republican were Progressives whose adherence to party plans of the Republican group was not reliable. Mrs. Thaddeus H. Caraway, widow of Senator Caraway of Arkansas, succeeded to his seat and became the first woman Senator of more than transitory and honorary tenure.

*Organization of the Houses.* It happened in consequence of party division that, while the House of Representatives was speedily organized, the activity of the Senate was impeded by a prolonged hitch in the matter of organization. The difficulty arose over the election of a President *pro tempore*. Senator Moses of New Hampshire was the choice of the regular Republicans for reelection to this position. He had, however given offense to some at least of the population of the more westerly States by a public allusion, made some time before, to certain respected mouthpieces of opinion in that region, in which he styled them "sons of the wild ass." His loss of popularity with his Progressive colleagues deprived him of the votes of 12 Senators, who distributed their votes, on the first ballot, among Norris of Nebraska, McNary of Oregon, and Jones of Washington. As three Republicans were paired with Democrats, there remained but 33 regular Republican votes for Moses. Pittman of Nevada received the 42 Democratic votes not paired, which did not suffice for a majority. The revolting 12 included, besides 9 recognized Progressives, the reputedly regular Republicans Capper of Kansas, Thomas of Idaho, and Jones of Washington. In many subsequent ballots the Republican dissidents refused either to accept Moses or to give their votes to Pittman. The deadlock persisted until the year-end recess. It interfered with the full organization of the Senate, but did not prevent the Republicans from voting on December 14 the reelection of the chairmen of committees (Progressives' chairmanships included), nor the making of committee selections by party conferences.

A dispute over the qualification of Senator-elect Bankhead, Democrat, of Alabama, relating to his contested election, and a like dispute over Bailey of North Carolina were left pending in the Committee on Privileges and Elections, but both men were admitted to the oath on the opening day.

The House of Representatives was promptly organized. On the opening day of the session John N. Garner of Texas, Democrat, was elected Speaker by the full party vote of 218 (he himself not voting). Snell of New York, the Republicans' choice for Speaker, received 207 votes; he was afterward chosen Republican floor leader. The Speakership settled, the committee allotments were promptly made. The House majority appointed a committee to confer with representatives of the Senate's Democratic group on matters of joint policy in legislation, and the Democrats of the Senate named a similar committee.

*The President's Message.* The annual Presidential message was read to a joint session of the Congress on December 8. It stated that upon the initiative of the United States government a year's postponement of payments on intergovernmental debts had been granted, but it left the recommendation as to legislative action to

legalize this postponement for a later message. In the consideration of the domestic economic situation, President Hoover's theory that depression had been augmented by a "continuing credit paralysis" was emphasized. It was urged that "our first step toward recovery was to reestablish confidence and thus restore the flow of credit." For the current fiscal year the indicated Federal receipts were represented as \$1,683,000,000, the deficit with inclusion of expenditure for the statutory yearly retirement of debt as \$2,123,000,000, and the net increase of debt as \$1,711,000,000. A temporary increase in taxes, to terminate two years from the following July 1, was represented as inevitable, and it was anticipated that even though it should obtain of such an increase the Government would "reach the utmost safe limit of its borrowing capacity by the expenditures for which we were already obligated and the recommendations proposed." Congress was admonished against committing the Government to other expenditures.

The President's recommendations called for considerable appropriation. He proposed that the Treasury be empowered to subscribe to further stock of Federal land banks; that a system of home-loan banks be created; that a Reconstruction Finance Corporation be created, with a "reasonable capital" to be subscribed by the Treasury and with power to issue debentures. A warning was given, however, against excessive further expansion of the schedule of Federal public works, which was estimated as contributing to the livelihood of some 10,000,000 persons, for the current year, at a Federal expenditure of \$780,000,000. Wholesale revision of the tariff was opposed. Amendment of the banking laws to meet "changed financial and commercial conditions" was recommended. Legislation to aid the consolidation of railroads in the interest of economy and to improve the method of their regulation was advocated. The transfer of the administrative functions of the Shipping Board to the Department of Commerce was sought. In the interest of economy, "insistent and determined cuts in Governmental expenditure" were proposed.

Following a recommendation in the Presidential message, the House passed, on December 19 by *viva-voce* vote, and sent to the Senate a bill to amend the Federal Farm Loan Act, thereby to provide from the Federal Treasury \$100,000,000 of additional capital for the Federal Land Banks.

*Budget Message.* The President sent to Congress on December 9 the annual budget. It provided, for the fiscal year 1933, receipts of \$2,576,530,202, as against receipts of \$2,238,878,800 for 1932. The excess in receipts, for the latter year, was set forth as "estimated" and was based on existing taxation only. The expenditures for 1933 were put at \$3,996,872,450, as against \$4,361,839,800 for 1932. Reductions were provided in the totals for almost all departments and main establishments, in annual appropriations, and in less degree, in permanent appropriations. The deficit for 1933 was represented as \$1,416,949,448, as against \$2,122,683,695 for 1932. The President advocated that Congress reduce this deficit and "balance the budget for the fiscal year 1933, except for statutory debt retirement," by increasing taxes along the lines recommended by the Secretary of the Treasury, in a manner designed to yield an additional amount aggregating approximately \$920,000,000.



**Message on Foreign Affairs.** On December 10 the President sent to Congress a third message, dealing with foreign affairs in general, but having as its particular point his advocacy of the moratorium on intergovernmental payments, which required prompt legalization by enactment. This message cited the earlier declaration of President Hoover, "I do not approve in any remote sense of the cancellation of the debts to us." It recommended as "highly desirable" that a law should be enacted before the maturity of many foreign payments to the United States coming due on December 15. Although the President recorded himself again as against cancellation, he recommended the re-creation of the World War Foreign Debt Commission, "with authority to examine such problems as may arise."

**The Mellon Tax Proposal.** Secretary of the Treasury Mellon communicated to Congress on December 9 the plan of taxation to which the President's budget message referred. This plan was substantially that Congress return to the tax system of 1924. It was advocated, further, that Congress increase postal rates sufficiently to cut the postal deficiency by \$75,000,000 in the fiscal year current and to do away with it altogether thereafter. Mr. Mellon declared for maintaining the sinking-fund arrangements on the Federal debt, as a policy in accord with the basic principles of national finances. The reversion to the taxes of 1924 was recommended on the consideration that the country "knew the burdens to be expected under such a law." The proposal thus advocated personal income taxes with lower exemptions and with higher normal tax and surtax rates; a somewhat higher rate for corporation income taxes; higher maximum rate on estate taxes and lower exemption; and restored taxes on automobiles, autotricks, and automobile accessories. It lowered the level for exemption on admittance tickets to 10 cents, from \$3.

**Enactment of the Moratorium.** The House acted with little delay to legalize the agreement negotiated by the Administration in the summer, putting off for a year the payment of debts owed by foreign governments to that of the United States. The bill to this end, as reported December 17 by the Committee on Ways and Means, contained a section declaring it to be "against the policy of Congress that any of the indebtedness of foreign countries to the United States should be in any manner canceled or reduced." The bill, with this section as part of it, was passed by the House on December 18, by a vote of 317 to 100. For the bill voted 120 Democrats and 198 Republicans; against it, 95 Democrats and 5 Republicans. The chief event of the bill's passage through the House was a bitter speech of McFadden of Pennsylvania in opposition, in which the President was asserted to have subverted banking interests in granting the moratorium and was severely blamed.

In the Senate the measure was attacked by Johnson of California and a small number of individual Senators. Johnson opposed the moratorium on the specific ground that France could still collect from Germany "non-postponable annuities on account of reparations." An effort was made to destroy the efficacy of the bill by attaching divers amendments to it, but the amendments were voted down and the bill was adopted on December 22 by a vote of 69 to 12. Six Republi-

cans and 6 Democrats voted against it. The President signed the bill on the following day.

#### JUDICIARY

**SUPREME COURT.** The resort of some States to laws taxing chain stores otherwise than as merchants in general were taxed brought before the Supreme Court questions of high importance to retail merchandising. Indiana's system of license fees for such stores, imposed at rates, for each place of business, rising according to the number of places within the State operated by the same owner, was upheld by a decision of May 18. Associate Justice Roberts, writing the decision, laid down the view that "the fact that a statute discriminates in favor of a certain class does not make it arbitrary, if the discrimination is founded on a reasonable distinction." The decision was a close one, four Justices dissenting. Nevertheless the Court declined on October 12 to review the decision. The appeal of the Great Atlantic and Pacific Tea Company against the North Carolina tax on chain stores was rejected on October 26, the Court holding that the principles laid down in the Indiana case held here also. Hearing for an appeal against the Mississippi tax on chain stores was refused on October 16.

**Interstate Motorbus Taxation.** The Court held nevertheless in a decision of April 13 that States might not impose graduated privilege taxes on motorbus companies engaged in interstate commerce except where the tax was clearly for the use of the highway.

**Other Tax Decisions.** With regard to State taxation of National banks, the Court ruled on December 7 that a tax imposed by New York State in 1923 and in part similar to the tax invalidated in 1922, on the capital and undivided surplus of National banks, was void. This later tax had been collected from 1923 to 1926, and its invalidation affected some \$26,000,000, principal and interest on amounts that had been paid by National banks in New York during that period. The Court granted a refund of part of taxes paid by certain National banks under the law of Iowa, accepting the contention that payment had been exacted from them at a higher rate than that on competing moneyed capital. On April 13 in a State tax case the rule was laid down that a State might not tax a corporation on business transacted outside its bounds.

**Federal Acts and Powers.** The constitutionality of the act authorizing the construction of the Hoover Dam in the Colorado River was upheld against the contentions of the State of Arizona in a decision of May 18. See LAW, PROGRESS AND DEVELOPMENTS. The executive order of President Hoover closing the Federal public lands to those seeking permits to prospect for oil and natural gas was sustained by the Court on May 18 against litigation to compel the issue of further permits.

**Oil Cracking Case.** In a decision of April 13, the Court found the Standard Oil Companies of Indiana, and New Jersey, the Texas Company and certain others, prosecuted under the Sherman law for having agreements as to common use of their patents for the production of gasoline from petroleum by the so-called cracking process, not to have violated that law. The decision was rendered by eight Justices and was unanimous. Justice Stone abstained from consideration of the case. As Attorney General, in

1924, he had instituted the prosecution. The decision reversed that rendered in the District Court for Northern Illinois. Justice Brandeis, in the Supreme Court decision, wrote that the special master examining the evidence had found that the defendants had not pooled their patents relating to cracking processes and that they had not monopolized or attempted to monopolize any part of the trade in gasoline. The prosecution had ranked for some years among the foremost of the Government's anti-trust activities.

*Suits of State against State.* The chief litigation of State against State concluded during the year was that of New Jersey against New York. See **WATERWORKS AND WATER PURIFICATION**.

In another action New Jersey sought a decree to prevent the dumping of garbage from New York City at sea by scows—a means of disposal which fouled the New Jersey beaches. The Court gave the decree to prevent this, but granted New York City time to construct incinerators.

*Status of Foreigners.* It was held in a decision of November 23 in a case appealed by the Italian Consul at New York, that, an alien domiciled in the United States dying intestate and without heirs, his estate should go to the Government of his country, if treaty so provided.

*Other Decisions.* A much noted decision of Federal Judge William Clark in the Sprague case in New Jersey, rendered on Dec. 10, 1930, declaring the Eighteenth (Prohibition) Amendment invalid on the ground that it delegated power inherent in the people but had not had popular ratification, was reversed by the unanimous decision of eight Justices, Justice Hughes abstaining, on February 24. An appeal of ex-Secretary of the Interior Fall from his Federal sentence to prison for bribery in the disposal of Federal oil leases was denied on June 1 and Fall subsequently was sent to prison. See **LAW, PROGRESS AND DEVELOPMENTS** under *The Supreme Court of the United States*.

**OTHER FEDERAL COURTS.** Application of the parties in the consent decree of 1920, restricting the business activities and practices of the meat packers, for a modification of that decree was granted in part in a new decree issued by Justice Jennings Bailey of the Supreme Court of the District of Columbia on January 5. They were to be allowed to extend their wholesale operations in unrelated lines and to use their means of distribution for the handling of additional products. On the other hand the Court denied them permission to sell meats and other articles at retail, holding that such proceedings would work harm to the retail dealer.

A decision rendered by a special court of three Judges of the Circuit Court of Appeals at St. Louis on February 6 was adverse to the action brought by the Department of Justice to prevent a merger of the Standard Oil Company of New York and the Vacuum Oil Company. The Government desisted from an appeal of this decision, and thus the way was made clear for the reunion of two former constituent parts of the old Standard Oil Company, which had been dissolved as a monopoly under the Sherman Act in 1911.

#### ELECTIONS

While the autumn elections, in their direct bearing on national affairs, were limited to the filling of a small number of vacancies in the House of Representatives, the closeness of the party division in the Congress shortly to convene rendered

the outcome unusually important. There was in addition the indirect national result effected by votes, in State and municipal elections, strongly adverse to the Federal Administration party.

Five Representatives were elected on November 3 in four States; three of them were Democrats and two Republicans. The Democrats were J. J. Delaney, New York, 7th District; M. L. Sweeney, Ohio, 20th District; Michael J. Hart, Michigan, 8th District. The Republicans were J. B. Hollister, Ohio, 1st (Cincinnati) District, and E. L. Stokes, Pennsylvania, 2d District. The results had been uncertain in the Ohio 1st; here the Democrats had hoped to win the seat left vacant by the death of Speaker Longworth, and were disappointed. But in the Michigan 8th they made up this disappointment by a victory that had not been expected. The Election-day results brought the composition of the House to this stage: Democrats, 217; Republican, 215; Farmer-Labor, 1; vacancies, 2.

New Jersey, where a House vacancy for the 5th District was to be filled by a specially called election on December 1, elected A. Harry Moore, Democrat, Governor on November 3 by the exceptionally high Democratic vote of 735,713 (unofficial) to 503,387 for David Baird, Jr., Republican. This result was followed by the election of a Democrat, P. H. Stewart, on December 1 to fill the vacancy, as Representative from the 5th District. In Kentucky, Ruby Laffoon, Democrat, was elected Governor to succeed a Republican. These State results as well as strong Democratic votes in numerous city elections, notably in New York State and Connecticut, were widely interpreted as implying dissatisfaction with Republican national policy.

*Partisan Politics.* In the Republican party the year was marked by a tendency of members to fall away from support of the Administration, in some directions. The Progressive Republicans were particularly restive. Under the auspices of Senator Borah of Idaho and Senator Norris of Nebraska was held, a week after the adjournment of the 71st Congress, a conference of "left-wing" Republicans and Democrats, meeting at Washington. President Hoover was severely criticized, more energetic measures to cope with distress among the destitute were demanded and the President was asked to call an extra session at an early date unless economic conditions should promptly improve. Progressive activity was renewed in November, when the members of the Wisconsin delegation held conferences with other Progressives in order to unite and enforce some of their demands. O. B. Lovette, an Independent Republican elected to the 72nd Congress, on the other hand, declared himself in August to be in favor of the Republican group in the House.

The Democratic party made some effort to settle its position on the Prohibition issue. The Democratic National Committee met at the beginning of March, but withstood an effort on the part of John J. Raskob to have it take a definite position on the subject. Later in the year an effort was started to raise a subscription to cancel the "Raskob mortgage," the indebtedness of the National organization to Chairman Raskob for advances made by him in the 1928 campaign.

See **MILITARY PROGRESS; NAVAL PROGRESS; UNEMPLOYMENT; FRANCE** under *History*.

**UNITED STATES MILITARY ACADEMY.** A government institution at West Point, N. Y., for the theoretical and practical training

of cadets for the military service of the United States, opened in 1802. On Sept. 1, 1931, the total number of cadets was 1260. There were 217 members on the faculty. The academy is a component part of the Regular Army of the United States and is maintained solely by appropriations from the War Department, which in 1931 amounted to \$3,226,127 for salaries and maintenance of public works. The library contained over 110,000 volumes. Superintendent, Maj. Gen. Wm. R. Smith, U. S. A.

**UNITED STATES NAVAL ACADEMY.** A school for the education and training of midshipmen in Annapolis, Md., founded in 1845. The total number of midshipmen at the beginning of the academic year 1931-32 was 2022. The faculty numbered 238. The library contained 73,625 volumes. Midshipmen, after graduation, are commissioned as ensigns in the U. S. Navy. Superintendent, Rear Admiral Thomas C. Hart, U. S. N.

**UNITED STATES OF EUROPE.** M. Aristide Briand's proposal of May 1, 1930, for the establishment of a European political union (see 1930 YEAR BOOK) underwent extensive modification during 1931. The political features of M. Briand's project were definitely rejected. For a European federation, with an elaborate constitution, functioning independently of the League of Nations, there was substituted an organization to serve as an adjunct of the League in promoting economic collaboration among the European states.

These developments took place at four full sessions of the Commission of Inquiry for European Union, appointed by the League Assembly Sept. 17, 1930. The Commission's meetings were held in Geneva in January, May, and September (two sessions). See LEAGUE OF NATIONS for developments at each session.

At the May session the French representatives advanced a counter-proposal to the Austro-German Customs Union project of March 21 (see GERMANY, AUSTRIA, and FRANCE under *History*). The French plan envisaged an economic federation of European states through the exchange of reciprocal trade advantages between the industrial and agricultural states. The Commission appointed an economic coördination committee, to which it referred the new French proposal, an Italian proposal for bilateral commercial agreements (see ITALY under *History*), and a draft project for economic non-aggression submitted by Maxim Litvinov, Soviet Commissar for Foreign Affairs (see UNION OF SOVIET SOCIALIST REPUBLICS under *History*). It also approved a plan for the establishment of an International Agricultural Mortgage Credit Company (see LEAGUE OF NATIONS). An international committee of economic experts met in Geneva in June and August and drew up a report outlining methods for economic rapprochement among the European nations which was studied and adopted by the committee on economic coördination Sept. 1 and 2.

The Commission of Inquiry met again September 3, drawing up a report to the League Assembly containing suggestions for further examination of various economic problems. The League's Sixth Committee, which was charged with the disposal of the Commission's report, turned the matter over to a drafting committee, which decided (1) that the Commission of Inquiry should confine itself to problems of purely European concern, (2) that the Commission should continue indefinitely in existence, and (3) that its report should be indorsed. The final session of the Commission for the year was

held September 26, at which M. Briand was elected chairman for 1932. See LEAGUE OF NATIONS; INTERPARLIAMENTARY UNION. Consult Edouard Herriot, *The United States of Europe* (New York, 1930); William Martin, "Europe As I See It Today," *International Conciliation*, May, 1931; Vera Micheles Dean, "European Efforts for Economic Collaboration," *Foreign Policy Reports*, vol. vii, No. 12, Aug. 19, 1931.

**UNITED TEXTILE WORKERS.** See LABOR, AMERICAN FEDERATION OF; STRIKES AND LOCK-OUTS.

**UNIVERSAL CHRISTIAN COUNCIL ON LIFE AND WORK.** See INTERNATIONALISM.

**UNIVERSALISTS.** A religious denomination, existing chiefly in the United States, Canada, Japan, and Korea, which holds as part of its doctrine the universal fatherhood of God and the final harmony of all souls with God. In 1931 there were 28 State conventions and two State conferences. The number of churches was 583; ministers in fellowship, including lay licensees, 523; church members, 50,139; and Sunday schools, 395. The denominational periodical, the *Christian Leader*, is published weekly. Victor A. Friend of Melrose, Mass., was president of the general convention in 1931. Headquarters, 176 Newbury Street, Boston.

**UNIVERSE, THEORIES AND STUDIES.** See ASTRONOMY; GEOLOGY; PHYSICS.

**UNIVERSITIES AND COLLEGES. ATTENDANCE.** Attention in college groups was directed toward the effect that adverse economic conditions might have on attendance. The statistics of enrollment for 1931 gathered by Dean Raymond Walters of Swarthmore College and reported in *School and Society* on Dec. 12, 1931, indicated that as a whole, enrollment as reported by 444 different universities and colleges was slightly higher than for the previous year. The increase, however, was very slight, being only six-tenths of 1 per cent. When compared with the previous year, the totals for full time enrollment showed that out of 437 institutions, 201 showed a decrease. The remaining 236 had an enrollment equal to or in advance of the preceding year. Among the 50 institutions enrolling 3000 or more, 24 reported increased attendance, 24 decreased, and one retained the same enrollment for the two years. These 50 institutions enrolled 293,193 full time students in 1930. In 1931, the enrollment was 293,084. In the institutions having an enrollment of from 1000 to 3000 full time students, 41 showed a decrease and 59 an increase, while one retained the same enrollment. This group enrolled 167,212 full time students in 1930. This had increased to 171,102 in 1931. Among the institutions enrolling from 500 to 1000 students, 48 reported decreases and 62 increases. The total increase in students, however, was very small, being only the difference between 75,066 in 1930 and 75,955 in 1931. The group enrolling less than 500 students included 182 institutions. Eighty-eight of these showed decreases; 90 increases; and 4 had the same enrollment. The total enrollment decreased from 59,332 in 1930 to 58,983 in 1931.

The total enrollment of full time students in the 444 institutions that reported was 599,124 in 1931. This was an increase of 3721 students over the previous year.

The total enrollment in these 444 institutions including full time students, part time students, and summer session students for 1931 was 926,611. This was a decrease of 5417, or one-half of

1 per cent as compared with the same total for 1930. The largest liberal arts enrollments were reported by the University of California, 10,650; Minnesota, 4473; New York University, 4403; College of the City of New York, 4238; and Michigan, 3990.

The University of California also had the largest enrollment of men with 4881; then follows the College of the City of New York, 4328; Harvard, 3266; New York University, 2962; and Minnesota, 2554. The largest enrollments of women undergraduates were in California, 5760; Minnesota, 1191; Wisconsin, 1616; Illinois, 1609; and Michigan, 1454. Hunter College, New York City, with an enrollment of 4456, was by far the largest women's college.

**EXPENDITURES.** The U. S. Office of Education reported the expenditures, public and private, for the year 1930 for all colleges and universities throughout the United States. The grand total expended was \$563,547,070. Of this amount the expenditures for publicly controlled institutions of college grade was \$225,816,044, and for privately controlled institutions \$337,731,030.

The following summary gives the expenditures for certain items:

	Public	Private
Cost of resident instruction	\$ 81,733,771	\$109,333,054
Organized research . . . .	13,511,576	4,495,971
New buildings and grounds	27,144,080	66,530,646
New equipment . . . . .	9,444,467	6,526,301
Operation and maintenance of plants . . . . .	16,834,204	29,108,896
Libraries . . . . .	3,285,051	6,336,407
Administrative and general	12,176,657	25,991,392
Other items, including un-itemized total . . . . .	\$225,816,040	\$337,731,030

**CHANGES IN ORGANIZATION.** During 1931, there were more pronounced changes in college organization than were evident in any previous year. The different institutions, through their faculty groups or alumni, began to make very thorough studies of their offerings, as well as the methods employed in their schools. This was not due to any pronounced criticisms of the institutions, but rather it seemed to be the outcome of a growing conviction on the part of the institutions themselves that important changes must be brought into higher education. The year marked the beginning of the new plan at Chicago University (q.v.). This experiment was being watched carefully by most other institutions. Brown University submitted itself to a survey conducted by a number of experts chosen from other institutions. The new college at Bennington, Vermont, completed its required endowment and began to make definite provision for its opening in September, 1932. While the plans for this college called for marked changes in the ordinary college procedure, there was no tendency on the part of other institutions to criticize it.

During the decade, 1921-31, many of the larger institutions have urged the need for limiting the number of students who enroll. In some cases they set up an arbitrary limit to their enrollment. At the same time, they made an effort to choose those who would profit most by the type of training that the institutions were best prepared to give. The efforts that had been made in this direction were beginning to be manifested. The College Entrance Examination Board passed resolutions approving "the general proposal to establish a series of validating examinations." They also

agreed to offer such special examinations as soon as the necessary funds were found.

It was believed that these examinations would give valuable supplementary information regarding the candidates. The board was also developing a series of examinations in English that were designed to test the English abilities of students from foreign lands. The purpose was to select only those who could profit by instruction that was offered in the institutions that made use of such examinations. In keeping with the general plan of selecting students who best could profit by work in the institutions, the Association of American Medical Colleges was making use of a medical aptitude test. It now consisted of six parts: (1) Scientific Vocabulary, (2) Visual Memory for Anatomical Drawing, (3) Memory for Descriptive Material, (4) Premedical Information, (5) Learning and Retention of Material and (6) Understanding of Difficult Printed Material. The total working time required for taking the test was one and a half hours.

There were many changes in college curricula. Yale abolished mid-year examinations and made changes in the general method of instruction. Dean Mendell described the plan as follows:

Each student at Yale shall select not more than five courses each year, and juniors and seniors whose work is of quality grade may, with the written approval of the class officer or dean, elect less than five courses.

A student will be admitted to the junior class in full standing only when he has completed successfully the entire work of his junior year, and the same with the senior-class entrants.

The student will be recommended for the degree only when he has completed successfully the work of all four years and has received a grade of 275, or better, in at least six courses.

Early in February each year at the call of the dean's office, each instructor shall make a report on the quality of work being done by each student in his course. All students whose work at the time is unsatisfactory in three courses will be placed on general warning; the same for students on two subjects after a review of the student's status in all subjects. Any student who at the close of the year has failed in two courses will be dropped from the college.

Any student who during freshman and sophomore years has not received a grade of 275 or higher in at least two courses shall be dropped from the college.

The Johns Hopkins University adopted a new curriculum. The announcement gives the following tentative description:

1. Students will concentrate in "subjects" rather than departments.

2. Requirements will be stated in terms of knowledge rather than hours, courses, points.

3. A student may be legitimately asked to acquire by himself information which can be profitably got out of books.

4. The part of a student's programme which concerns his specialty will be determined by the student in consultation with his departmental adviser.

5. The part of it which is general throughout the group to which his specialty belongs will be determined by the group-faculty. For instance, it now appears that every student in the social science group will be expected to know, among other things, modern European and American history whether he is specializing in economics, ethics, education, political science, or history.

6. To eliminate the danger of a student's forgetting a course once passed, and to bind a student's studies together, near the end of the year in which a man presents himself for his degree, he will take comprehensive examinations in both his specialty and his group. The former will be set by his department, the latter by his group and will cover, to repeat, subject-matter not merely courses.

There seemed to be a growing conviction that the four-year college course was not adapted to the needs of many students who were seeking admission. Dr. E. H. Wilkins, president of Oberlin College and president of the Association of American Colleges, presented to that organiza-

tion a proposal of a type of organization that would be adapted to the needs of young people who were not preparing for the professions. He urged that such young people really needed a training which would enable them to live well as members of society. He believed that this work could be completed in three years; therefore, he proposed three-year general colleges.

**FELLOWSHIPS AND SCHOLARSHIPS.** In recent years the number of important fellowships and scholarships available to worthy students had been gradually increased. Such fellowships were in addition to those offered by the various institutions for work within their own walls. Some were restricted as to subjects that were to be studied, and some specified particular countries or institutions. The stipends vary from \$250 to \$5000. The greater number were for \$1000 to \$1500. Among the fellowships and scholarships that were announced were the following: Graduate fellowships of the American Association of University Women. This association awards annually from 10 to 13 graduate fellowships "to encourage women to devote themselves to scientific work and scholarly practice." The number of fellowships awarded varies from year to year, as several are bi-annual and one tri-annual. The stipends vary from \$1000 to \$2000.

The American-Scandinavian Foundation supports six scholarships for persons who desire to study in the Scandinavian countries. The Carnegie fellowships for graduate library study for 1931 provided for nine candidates who would live in the United States and three who would live in Canada. The grants range from \$1000 to \$2500. The Charles A. Coffin Foundation, a creation of the General Electric Company, granted fellowships to nine college graduates. The fellowships were to enable promising persons to engage in technical research and postgraduate work.

The Commission for Relief in Belgium Educational Foundation awarded five scholarships to American students for study in Belgium during 1931-1932. Each fellowship carried traveling expenses and stipend sufficient for a year's advanced work at a Belgian university. In turn, 18 fellowships were awarded in Brussels to Belgian students who came to American universities.

The Commonwealth Fund granted fellowships to thirty students from Great Britain and the Dominions who entered American universities in the fall of 1931. These students were to spend two years in study and travel in the United States.

The Garvan scholarship pays tuition and \$500 annually at any college or university in the United States to six high-school students who were winners in an essay contest. Mr. and Mrs. Francis P. Garvan instituted this contest in 1923. All 48 high-school students, including the 1931 winners, received college or university tuition for four years and a substantial sum to help them in their college education. This was the eighth and final series of the scholarships.

The Oberlaender Trust founded by Gustav Oberlaender of Reading, Pa., as a part of the Carl Schurz Memorial Foundation announced the awards of money for the support of six American citizens who were actively engaged in professional and research work that would promote good will between the United States and German-speaking countries. The funds are derived from the income of a \$1,000,000 trust fund.

The Social Science Research Council granted

scholarships to 31 American scholars. The purpose was to aid mature scholars of demonstrated capacity in completing undertakings which promised significant contributions to social sciences.

The Institute of International Education announced a considerable number of grants to American students for study in foreign countries. These fellowships were arranged by the various foreign governments and universities in recognition of the opportunities offered to foreign students in America. The countries included are France, Austria, Germany, Hungary, Italy, Switzerland, and Spain.

The Rhodes scholarships were also available for students who desire to study at Oxford. The John Simon Guggenheim Foundation offered exchange fellowships for students who desired to study in Latin America and for Latin American students who desired to pursue their work in institutions within the United States.

**GIFTS AND BEQUESTS.** The year 1931 was marked by many large benefactions. For the year ending June, 1930, Harvard announced receipts of \$14,571,697. Total gifts to Yale during the year were more than \$12,000,000. For the year 1931 the gifts to Columbia amounted to \$3,083,828, New York University received about \$3,500,000, and the University of Chicago more than \$3,000,000. Bennington completed the raising of \$1,261,909 and other colleges, including Amherst, Boston College, Cornell, and Mt. Holyoke each completed endowments of \$500,000 or more. Among the gifts of \$100,000 or more, the following were announced: Bates College received a conditional gift from the Board of Education of the Northern Baptist Division of \$100,000. This was conditioned upon gifts of \$900,000 from other sources by 1930. Brown University received \$100,000 by the will of the late Lucian Sharpe. The University of California received a grant of \$175,000 for the establishment of a scholarship for poor girls and a professorship in United States History by the will of the late James William Byrne. The University of Chicago received a bequest of approximately \$1,000,000 by the will of the late Albert B. Kuppenheimer and \$500,000 from the Rockefeller Foundation.

The Catholic University of America received a legacy of \$300,000 under the will of George L. Duval. Claremont College received a gift of \$650,000 from Mr. and Mrs. A. S. Bridges. The gift is for the purpose of building a new auditorium to seat 2500. Columbia University received the money for a new library and school of library service building from Edward S. Harkness. The cost of the building was estimated at \$3,500,000. The Cleveland Schools of Art will receive \$975,000 by the will of Mrs. Elizabeth Stevenson Burk.

The Groton School was to receive \$500,000 by the will of William A. Gardner. Hamline University completed the raising of \$500,000 which was needed to claim the gift of \$250,000 from the Rockefeller Foundation. Lehigh University received the bulk of the \$500,000 estate of Dr. Charles William MacFarlane.

Middlebury College was to receive \$200,000 under the will of Charles M. Swift. Mt. Holyoke College was to receive a grant of \$375,000 from the General Education Board. The New England Conservatory of Music received \$100,000 by the will of Charles H. Ditson. New York University received a bequest of \$853,982 from the estate of William H. Nichols. Stanford University received a gift of \$2,500,000 from an anonymous



donor, for the construction of a new medical building in San Francisco. The gift was contingent upon the University raising \$1,250,000 as an endowment. The University of Pennsylvania received an unrestricted gift of \$1,000,000 from Mr. Cyrus H. K. Curtis and \$160,000 from the Rockefeller Foundation. Wells College announced the completion of an endowment fund of more than \$500,000. Yale University was to receive more than \$1,000,000 by the will of the late Chauncey M. Depew, Jr. To this was to be added a similar sum under the will of Chauncey M. Depew which made such provision in case his son left no children. The institution also received \$426,658 by the will of the late Samuel S. Betts.

**SPORTS.** The criticism of college sports continued during the year, while gate receipts for the various games were said to have shown a very decided decrease. Several institutions endeavored to improve the conditions under which sports are conducted. The University of Pennsylvania announced a complete reorganization of athletics in that institution. It created a Department of Physical Education, with a director having the title and rank of Dean.

Bulletin No. 26 of the Carnegie Foundation for the Advancement of Teaching entitled *Current Developments in American College Sports* gives a summary of the changes in the relation of sports to the educational work of institutions.

See **EDUCATION**, articles on the separate colleges and universities, and sections on *Education* in articles on the various countries.

**UPPER VOLTA.** See **FRENCH WEST AFRICA**.

**UR.** See **ARCHAEOLOGY**.

**URUGUAY.** ūru-gwā or ōrōō-gwī. A republic on the southeast coast of South America, bounded by Brazil on the north and Argentina on the west. Capital, Montevideo.

**AREA AND POPULATION.** Uruguay's area of 72,172 square miles makes it the smallest state in South America. The population on Jan. 1, 1931, was estimated at 1,903,083 (1,429,585 in 1928). For the period 1926 to 1930, annual births and deaths averaged 44,104 and 19,309, respectively. The respective rates per 1000 inhabitants were 24.6 and 10.8. A total of 230,454 persons entered Uruguay through the various ports during 1930 and 203,109 departed; entries and departures for 1929 were 201,781 and 184,514, respectively. The estimated population of the chief cities in 1930 was: Montevideo, 600,000; Salto, 35,000; Paysandú, 37,000; Mercedes, 30,000.

**EDUCATION.** Primary education is compulsory up to the age of 14. In December, 1930, a total of 162,115 pupils were enrolled in the public schools, the average attendance being 124,106. There were more than 11,000 students enrolled in the University of Uruguay at Montevideo in 1929.

**PRODUCTION.** About 60 per cent of the total area of Uruguay was devoted to stock raising, about 20 per cent to mixed stock and crop farms and ranches, and 7 per cent primarily to crop-raising farms. The value of the principal crops for the agricultural year 1928-29 was as follows: Wheat, \$14,136,000; corn, \$7,896,000; and linseed, \$3,651,000. In 1930, there were 7,098,000 cattle and 20,510,000 sheep. The 1930 census showed that since 1925 the number of cattle had decreased 15½ per cent, while the number of sheep had increased 42 per cent. Cattle slaughtered by the frigorificos in 1930 numbered 1,613,380; sheep, 3,003,172; swine, 61,455. The 1929-30 wool clip was estimated at 154,000,000 pounds. As com-

pared with 1929, exports of wool increased 53.3 per cent in volume in 1930 but declined 19.4 per cent in value. Local industries use imported coal and oil fuel almost exclusively. Meat packing is the principal industry, followed by flour milling, shoemaking, and tanning. The industrial census of 1930 showed 7400 establishments, with 94,000 employees and a total output valued at 236,000,000 pesos (about \$243,000,000 at par).

**COMMERCE.** According to preliminary reports, exports in 1931 totaled 76,000,000 pesos and imports 82,000,000 pesos, compared with exports of 89,302,000 pesos and imports of 100,864,000 pesos in 1930 (the peso exchanged at an average of \$0.8586 in 1930 and \$0.5536 in 1931). The United States in 1930 supplied 25.7 per cent of all imports and took 7.7 per cent of the total exports. Respective shares of other trading nations were: United Kingdom, 16.9 and 33 per cent; Germany, 10.2 and 12.4; Argentina, 10 and 12.3. The United States retained a diminished lead in Uruguay's import trade in 1931. Of total exports equivalent to \$86,612,000 in 1930, \$72,279,000 represented animals and animal products and \$9,083,000 agricultural products.

**FINANCE.** The Uruguayan General Accounting Office reported revenues and expenditures for the fiscal year ended June 30, 1930, at 58,916,879 pesos and 59,702,024 pesos, respectively. The resulting deficit was 785,745 pesos (1,906,319 pesos, if extra-budgetary income was deducted from revenues). A deficit of 6,005,504 pesos was anticipated for the fiscal year 1930-31. Actual receipts were 53,401,074 pesos. The 1931-32 budget estimated revenues at 58,803,962 pesos and the deficit at 1,795,953 pesos. The public debt on Oct. 31, 1931, totaled 238,841,722 pesos, compared with 219,324,000 pesos on Jan. 31, 1930. The unit of currency is the peso, with a par value of \$1.0342.

**COMMUNICATIONS.** Railway lines in 1930 aggregated 1717 miles, most of which were privately owned. Of the 22,487 miles of highway in 1930, 709 miles were macadam and 20,317 miles were unimproved. A total of 18,225 vessels, of 16,678,000 net registered tons, entered the ports in 1929. A seven-day round-trip passenger air service between Montevideo, Buenos Aires, and New York and Chicago was inaugurated Oct. 6, 1931.

**GOVERNMENT.** Under the constitution of Jan. 3, 1918, legislative power is vested in the Parliament of two houses, the Chamber of Representatives, elected by universal suffrage of males over 18 years of age, and the Senate, chosen by an electoral college which is elected by popular vote. Executive power is vested in the President elected by direct popular vote and a national administrative council of nine members. Dr. Gabriel Terra was inaugurated President on Mar. 1, 1931, succeeding Dr. Juan Campisteguy.

**HISTORY.** The inauguration of President Terra on Mar. 1, 1931, followed the announcement of the Electoral Court on January 21 that he had been elected in the voting of Nov. 30, 1930, by 105,069 votes to 131,777 votes for his closest rival, Dr. Luis Alberto Herrera, of the Blanco party (see 1930 YEAR BOOK). Dr. Terra and the National Council of Administration devoted their efforts chiefly to pressing economic and financial problems. The steady decline in the exchange value of the peso to \$0.3490 in October, 1931, the lowest point reached in many years, and an average of \$0.5536 for 1931 greatly disturbed the import trade and reduced Government revenues, although aiding the movement of export products. In order



to obtain additional peso funds to meet interest and service charges on the public debt, the Government was forced to reduce salaries, pensions, and retirements, increase land taxation, and raise the import tariff.

In its efforts to ameliorate the effects of the depression, the Government secured Congressional authorization to purchase the exportable surplus of wheat and corn, with exclusive selling rights for export. Exchange operations were placed under the control of the Bank of the Republic and when exchange continued to weaken the Government on October 10 declared a commercial moratorium, later extended to Dec. 31, 1931, on all foreign drafts and bills for collection which had been presented and accepted for payments before August 5. Congress also authorized the Administration to establish machinery for the eventual monopolistic control of the refining and distribution of petroleum products, the distillation of alcohol, and the manufacture of cement for public works. Luxury imports were temporarily curtailed. While the National government maintained interest and service payments on the foreign debt during 1931, its position at the end of the year was difficult. The City of Montevideo had been forced (December 4) to suspend the remittance of debt service payments due in New York, owing to inability to purchase dollar drafts.

At the invitation of the Uruguayan government, Argentina, and Brazil sent representatives to an economic conference at Montevideo December 15, which sought to work out methods of economic collaboration between the three countries. The proposal for a customs union was rejected, but at the close of the conference December 30 an agreement was signed recommending strict government control of the meat industry in each country and the appointment of a permanent joint commission to protect and expand foreign markets for meat exports. A bilateral trade agreement between Brazil and Uruguay was also formulated for submission to the two Governments.

Uruguay was one of the three Latin American republics which escaped a revolutionary overturn of the government during 1930 and 1931. However, the business and commercial interests in Uruguay became increasingly restive under radical and restrictive legislation enacted by Congress, voicing their discontent in a number of street demonstrations. Led by President Terra, a movement developed favoring amendment of the Constitution to abolish the National Administrative Council and other features of the cumbersome commission form of government. Congressional elections held November 29, gave the Government party a majority in Congress. A site for the construction of a United States legation in Montevideo was purchased June 18, 1931. See ARGENTINA and BOLIVIA under *History*.

**URAL AREA.** See SIBERIA.

**UREASE.** See CHEMISTRY, INDUSTRIAL.

**USHER, REAR ADMIRAL NATHANIEL REILLY,** U. S. N., RET. An American naval officer, died in Potsdam, N. Y., Jan. 9, 1931. He was born in Vincennes, Ind., Apr. 7, 1855, and was graduated from the U. S. Naval Academy in 1875, being promoted through the grades to rear admiral in 1911. He commanded the torpedo boat *Ericsson* during the Spanish-American War, and served on the General Board of the Navy Department during 1903-04 and the Bureau of Navigation during 1904-06. He was detailed in 1911, to the Navy

Department in Washington as president of the Naval Examining and Retiring Boards, and was appointed commander of the 4th division of the Atlantic fleet in 1912, of the 2d division in 1912-13, and of the 3d division in 1913. He also was made commander of the Navy Yard at Norfolk, Va., in 1913 and of that at New York in 1914, where he remained during the World War, organizing the scout patrol system and directing the transport of men and supplies to France. He was retired in 1919.

**UTAH. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 507,847, in 1920 it was 449,396. The native whites numbered 452,183 (1930), 385,446 (1920); foreign-born whites, 43,772 (1930), 50,455 (1920). Mexicans, first grouped separately from the foreign-born whites in 1930, then numbered 4012. Among other races represented in 1930 were Negroes, 1180; Indians, 2869; Chinese, 342. The urban population (dwellers in communities of at least 2500) rose to 266,264 (1930), surpassing the rural group, from 215,584 (1920). Rural dwellers increased somewhat also, to 241,583 (1930), from 233,812 (1920).

Of 170,013 persons reported in 1930 as gainful workers, 41,283 were in agriculture, chiefly as farmers; 32,456 in manufacturing and mechanical industries; 27,067 in trade; 19,128 in transportation; 14,056 in professional service; 12,521 in industries of mineral extraction. Salt Lake City, the capital, had 140,267 inhabitants (1930), 118,110 (1920); Ogden had 40,272 (1930); 32,804 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ...	1931	610,000	831,000*	\$8,892,000
	1930	636,000	1,295,000*	9,712,000
Wheat .....	1931	257,000	4,679,000	2,527,000
	1930	276,000	6,892,000	4,516,000
Sugar beets ..	1931	49,000	504,000*	...
	1930	44,000	553,000	3,874,000
Potatoes .....	1931	15,000	1,950,000	780,000
	1930	12,000	2,160,000	1,296,000
Oats .....	1931	43,000	1,290,000	516,000
	1930	46,000	1,840,000	754,000
Barley .....	1931	38,000	1,216,000	632,000
	1930	42,000	1,806,000	939,000

\* Tons.

**MINERAL PRODUCTION.** As rendered by the U. S. Bureau of Mines in 1931, the total value of the mine production of the metals gold, silver, copper, lead, and zinc for 1930 was \$48,653,464; this was slightly more than half as great as the corresponding total for 1929, which was \$95,985,201. The quantity of coal mined fell to 4,275,000 short tons for 1930, from 5,160,521 for 1929, or by value (1929), \$12,725,000. The total value of the State's mineral production was \$115,130,581 for 1929; for 1928, \$97,381,148.

The mines of Utah in 1931 produced gold, silver, copper, lead, and zinc valued at about \$26,661,600, a decrease of nearly \$22,000,000 from the output of 1930, according to estimates of the U. S. Bureau of Mines. Large decreases were recorded in the output of all metals, and serious decreases in their value figured at the average sales prices for 1931. The curtailed production, combined with distinctly declining metal prices, resulted in an output which, with the exception of 1922, had a lower value than for any year since 1908. Utah remained first in the United

States in the production of silver, but it ranked third in copper after Arizona and Montana, and third in lead after Missouri and Idaho. The dividends reported paid by mining companies in Utah in 1931 amounted to about \$10,683,800, exclusive of \$2,188,578 paid by one company which controls mines at Eureka and Bingham, as well as mines in other States. The dividend total compares with \$19,165,125 paid in 1930 and \$38,167,339 paid in 1929. Gold production decreased considerably from \$4,309,148 in 1930 to about \$3,812,100 in 1931.

The silver output decreased from 13,129,421 ounces in 1930 to about 7,894,483 ounces in 1931, and the production was about 600,000 ounces more than that of Idaho, which was second in silver production in the United States. For 11 years Utah has been the leading silver producer of the United States. The value of the silver output decreased from \$5,054,827 to about \$2,289,400, and the average price of silver declined from 38.5 cents an ounce in 1930 to 29 cents an ounce in 1931. Copper decreased from 180,526,423 pounds in 1930 to about 151,315,663 pounds in 1931, the smallest output since 1922. The value decreased from \$23,468,435 to about \$12,559,200 as a result of a decrease in the average price of copper from 13 cents a pound in 1930 to 8.3 cents a pound in 1931. From 1925 to 1929 Utah ranked second in copper production after Arizona but in 1930 and 1931 the State took third place after Arizona and Montana. The decrease in the copper production of Utah in 1931 was about 16 per cent. The lead output decreased from 230,980,780 pounds in 1930 to about 146,581,580 pounds in 1931, and the value decreased from \$11,549,489 to about \$5,570,100. The average sales price of lead declined from 5 cents a pound in 1930 to 3.8 cents a pound in 1931. The zinc, recovered chiefly from concentrates leached or smelted, decreased from 88,990,938 pounds in 1930 to about 63,068,420 pounds in 1931. The average sales price of the various grades declined from 4.8 cents a pound in 1930 to 3.8 cents a pound in 1931, and the value of the output decreased from \$4,271,565 to about \$2,430,800.

**MANUFACTURES.** Federal Census figures gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 654 (18 per cent more than that for 1927). These employed 15,650 wage earners (an excess of 15.2 per cent over the number for 1927). The wages paid them amounted to \$19,765,145 (more than had been paid in 1927 by 18 per cent). Materials for manufacture, plus fuel and purchased electricity, cost \$159,191,176 (an excess of 32 per cent over 1927). The manufactured product was valued at \$216,529,294 (exceeding that of 1927 by 32.7 per cent). Value added by manufacture was placed at \$57,338,118. Salt Lake City had 263 establishments, 5683 wage earners there employed, a wage total of \$7,339,804, and a product of \$43,255,519.

**FINANCE.** State expenditures of the year ended June 30, 1930, as reported to the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$9,513,584 (of which \$3,656,430 was for local education); for interest on debt, \$454,850; for permanent improvements, \$2,744,891; total, \$12,713,325 (of which \$3,817,546 was for highways, \$1,685,752 being for maintenance and \$2,131,794 for construction). Revenues were \$13,362,095. Of these, property and special taxes formed 43.4 per cent;

departmental earnings and remuneration to the State for officers' services, 9.3; sale of licenses, 28.7 (including gasoline sales taxes amounting to \$2,226,488). The State's funded debt outstanding on June 30, 1930, was \$10,285,000, of which \$7,260,000 was for highways. Net of sinking-fund assets, it was \$5,263,444. On a property valuation of \$723,052,970, were levied in the year State taxes of \$5,310,592.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 2196.03. There had been a small addition of 2.33 miles to total of operated line during the year preceding, and 0.8 mile was abandoned.

**EDUCATION.** The Legislature created a fund to be employed for equalization of the schools in different parts of the State. This fund was to provide a sum in the proportion of \$5 to every inhabitant of school age, and was additional to the already existing fund providing a State contribution at the rate of \$25 for every pupil.

**LEGISLATION.** The regular session of the State Legislature enacted a personal income tax in accord with a recommendation of Governor Dern. The rate of the tax was graduated from 1 to 4 per cent; exemptions allowed were \$1000 of income for the single, \$2000 for the married and \$400 on account of each dependent child. An offset up to one third of this tax was allowed for property taxes. Upon corporations was placed a so-called excise tax, based, however, on corporate income. It carried the rate of 3 per cent of such income and allowed the one-third offset for property taxes paid, thus bringing the actual rate for most corporations to 2 per cent.

In conformity with a constitutional amendment adopted in 1930 the Legislature made provision for creating a school equalization fund, for which the payments were to start at one dollar to each school child in 1932 and rise yearly, to five dollars for each child in 1936. A new bipartisan tax commission was created with power to equalize taxes not only as between counties but also within a county. The gasoline tax was raised to four cents a gallon, from three and a half, and several hundred miles of county roads were taken into the State system, for which the proceeds of the gasoline tax cared. Building projects to the total of \$250,000 were authorized for the avowed purpose of aiding unemployed persons.

The State Land Board was rendered appointive and received authority over matters of flood control. The law on juvenile courts was redrafted. Provision was made for the State's taking over, as junior colleges, two church schools. The operation of airplanes was put under regulation in conformity with the uniform law recommended by the U. S. Department of Commerce.

**POLITICAL AND OTHER EVENTS.** The State's law prohibiting the advertising of cigarettes and tobacco on billboards and in cars was declared valid on April 7 by the State Supreme Court in a decision rendered by a majority of one of the five members.

**OFFICERS.** Governor, George H. Dern; Secretary of State, Milton H. Welling; State Auditor, Ivor Ajax; State Treasurer, A. E. Christensen; Attorney-General, George P. Parker; Superintendent of Public Instruction, C. N. Jensen.

**JUDICIARY.** Supreme Court: Chief Justice, James W. Cherry; Associate Justices, Daniel N. Straup, Elias Hansen, William H. Folland, Ephriam Hansen.

**UTAH, UNIVERSITY OF.** A State institution of higher education in Salt Lake City, founded in 1850. The total enrollment for the autumn of 1931 was 3248 and for the summer session of the same year, 670. The faculty numbered 183, exclusive of 17 on leave of absence. The endowment of the university amounted to \$802,000, and the income for 1930-31 was \$911,000. The library contained 106,592 volumes and 29,903 pamphlets. The Union building, opened Nov. 25, 1931, was erected by students, alumni, and friends of the university at a cost of \$400,000. President, George Thomas, Ph.D.

**UZBEKISTAN.** See SOVIET CENTRAL ASIA; ANTHROPOLOGY.

**VACUUM TUBE.** See ELECTRICAL INDUSTRIES.

**VANDERBILT UNIVERSITY.** A nonsectarian institution of higher learning for men and women in Nashville, Tenn., founded in 1873. The enrollment for the autumn term of 1931 was 1411. The faculty numbered 252. Productive funds of the university amounted to \$19,853,819; the annual income was \$1,040,514; and the value of the property was estimated at \$6,441,807. The library contained 145,000 volumes. Chancellor, James H. Kirkland, LL.D., D.C.L., Ph.D.

**VARIATIONS.** See ZOOLOGY.

**VASSAR COLLEGE.** A nonsectarian institution for the higher education of women in Poughkeepsie, N. Y., founded in 1861. The enrollment for the autumn of 1931 was 1142. The faculty in 1930-31 had 165 members, including 13 on leave of absence. The endowment, including fellowships and scholarships, amounted to \$7,600,000; the income from funds was approximately \$425,000. Gifts received during 1930-31 were in excess of \$360,000. There were 171,000 volumes in the library. President, Henry Noble MacCracken, Ph.D., L.H.D., LL.D.

**VATICAN CITY.** A sovereign state, officially known as the State of Vatican City, established within the city of Rome as the seat of the Papacy on June 10, 1929, in accordance with the Italo-Vatican (Lateran) treaty of Feb. 11, 1929. Ruler in 1931, Pope Pius XI (Achilles Ratti).

Vatican City comprises 108.7 acres, including St. Peter's Square, and has its own coinage, import duties, railway station, postal facilities, telegraph, radio-telegraph, and radio. At the census of Dec. 31, 1930, there were 639 inhabitants, including 495 Italians and 118 Swiss. The Pope exercises full legal, judicial, and executive powers, delegating the latter to a governor and a council of state of 20 members named by the Pope. A special tribunal exercises the judicial power on behalf of the Pope, but appeals may be carried to the *Sacra Romana Rota* and to the Supreme Tribunal of the *Segnatura*. With the exception of St. Peter's Square, the territory is policed by a Papal Gendarmerie of 120 persons. The chief officials of the Vatican City at the beginning of 1931 were Commendatore C. Serafini, the Governor, and Cardinal Pacelli, Cardinal Secretary of State, who conducted the foreign relations.

**HISTORY.** Among the outstanding developments of 1931 were the quarrel between the Vatican and the Fascist government of Italy (see ITALY under *History*) and the collapse of a part of the Vatican library on December 22, with the destruction of many valuable books and other works. See ROMAN CATHOLIC CHURCH; LITHUANIA, SPAIN, MEXICO, and BOLIVIA under *History*.

**VEGETABLES.** See HORTICULTURE.

**VEHICLES, MOTOR.** See AUTOMOBILES.

**VENEZUELA**, vēn'ē-zwē'lā, *Sp. pron.* vā'nā-thwā'lā, or *Amer. Sp. pron.* vā'nā-swā'lā. A republic on the north coast of South America, bordering the Caribbean Sea. Capital, Carácas.

**AREA AND POPULATION.** Venezuela has an area of about 352,143 square miles and a population estimated in 1930 at 3,250,000, compared with 3,026,878 (including 136,147 aborigines) in 1926. From 1926 to 1930, births averaged 91,969 annually, deaths 58,538, immigrants 25,144, and emigrants 18,730. The chief cities, with their 1926 populations, are: Carácas, 135,253; Maracaibo, 74,767; Valencia, 36,804.

**EDUCATION.** Primary education is free and nominally compulsory. In 1929, pupils in Government primary schools numbered 80,788; in private schools, 10,344; in State schools, 9253; in municipal schools, 9070; in secondary schools, 462; in special schools, 1456; and in higher educational institutions, including the Central University at Carácas, 372.

**PRODUCTION.** Venezuela is primarily an agricultural country, with coffee and cacao the chief crops. Mining, livestock raising, pearl fishing, and manufacturing are important also. The coffee crop is normally about 13,200,000 pounds; cacao, about 11,000,000 pounds; sugar, 22,400 metric tons (1929-30); cotton, about 8,600,000 pounds; tobacco, about 4,500,000 pounds. Corn, beans, and wheat are other products. Livestock was estimated at 2,750,000 cattle, 550,000 swine, 125,000 sheep, 200,000 horses, 50,000 mules, and 2,250,000 goats. Mineral production in 1930 included: Petroleum, 137,675,000 barrels; gold, 58,729 troy ounces; mined copper, 3294 metric tons; asphalt, 54,332 metric tons (1929). The forests yield balata, tonka beans, divi-divi, hardwoods, and medicinal plants. Petroleum refining is the only large-scale manufacturing industry. The pearling industry was nationalized in 1931.

**COMMERCE.** In 1929, Venezuela's exports were valued at \$150,262,000 and imports at \$87,400,000. Petroleum and its products comprised about 75 per cent of the total export value. Imports were principally machinery, oil-field supplies, foodstuffs, electrical goods, textiles, cement, and iron and steel products. In 1929, the United States furnished 55 per cent of all imports and took (directly) 28 per cent of the exports, in addition to much petroleum taken indirectly. According to United States statistics, Venezuela's imports from the United States declined to \$15,600,000 in 1931 from \$32,969,000 in 1930, while exports to the United States declined to \$26,800,000 from \$36,868,000 in 1930.

**FINANCE.** The budget for the fiscal year ended June 30, 1932, calculated revenues at 150,000,000 bolivars and expenditures at 144,800,000 bolivars, compared with respective 1930-31 estimates of 202,598,500 and 201,800,000 bolivars (1 bolivar equals \$0.1930 at par). Actual revenues for 1929-30 were 243,660,000 bolivars (\$47,026,000) and actual expenditures 324,922,000 bolivars (\$62,710,000). The foreign debt was completely paid off in 1930 and on Dec. 31, 1930, the internal debt amounted to 26,487,742 bolivars.

**COMMUNICATIONS.** In 1931, there were 587 miles of railway line, including 68 miles of Government owned line; 11,160 miles of navigable waterways, 2211 miles of highway, a three-day air service from La Guaira to New York, and air lines connecting Carácas with Trinidad via

Ciudad Bolívar, and La Guaira with Maracaibo and Curaçao. Vessels with cargo entering the ports in the foreign trade in 1929 totaled 2200, of 3,894,000 net registered tons, and vessels clearing with cargo numbered 8674, of 12,040,000 tons. Shipments of petroleum accounted for the preponderance of outgoing tonnage.

**GOVERNMENT.** Under Constitutional amendments passed by Congress in 1929, the executive power is vested in the President, elected by Congress for seven years, in conjunction with the Commander-in-chief of the Army and the Cabinet Ministers. The actual ruler in 1931 was Gen. Juan Vicente Gómez, who established himself as dictator in 1908. There is a Congress of two chambers, with very limited powers.

**HISTORY.** On July 13, 1931, General Gómez reassumed the Presidency of Venezuela, which the dictator had turned over to Dr. Juan Bautista Pérez in May, 1929. The resignation of President Pérez, which took place on June 13, ostensibly at the insistence of Congress, followed disquieting developments of a political and economic nature. Rumors of revolt along the Colombian border leaked out of the country in April and May, coinciding with the intensification of the economic depression, the reduction of petroleum production by American oil companies, and the consequent decline in Government revenues. Before returning to the post of chief executive, Gómez insisted that the Constitution be revised to extend the powers of the President and his independence of Congress. The new Ministry formed July 14 included: Minister of Foreign Affairs, Dr. Pedro Rafael Tinoco; Treasury, Dr. Efraín González; War and Marine, Gen. Eleazar López Contreras; Industry, Gen. R. Cayama Martínez; Public Works, Dr. M. Centeno Grau.

Due to the elimination of the foreign debt, the Government escaped the exchange difficulties which forced many other Latin American countries to default on foreign debt payments. Business circles, however, were adversely affected by the weakening exchange value of the bolívar, which was quoted at around 5.55 to the U. S. dollar early in January, 1931, and at about 6.68 to the dollar in November and December, 1931. The Government crushed two invasions by insurrectionists during the year. In May, Gen. Juan Pablo Penabaz was captured during a foray into the country from Colombia. Another filibustering expedition, organized in Mexico under Rafael Urbina, was defeated and captured, after 48 invaders were killed. Most of the survivors were pardoned after court-martial proceedings in Venezuela and returned to Mexico.

**VERGIL.** See PHILOLOGY, CLASSICAL.

**VERMONT.** **POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 359,611; in 1920 it was 352,428. The native whites numbered 315,904 (1930), 307,291 (1920); the foreign-born whites, 43,061 (1930), 44,526 (1920); Negroes, 568 (1930), 572 (1920). The number of persons reported as gainful workers in 1930 was 138,484; of these, 20,737 were farmers, 14,803 farm workers for pay, 15,432 factory workers. Burlington, the most populous city, had 24,789 inhabitants (1930), 22,779 (1920); Rutland, 17,315 (1930), 14,954 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops raised in Vermont in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ..	1931	907,000	1,213,000*	\$11,524,000
	1930	912,000	1,084,000*	11,924,000
Potatoes ....	1931	17,000	2,550,000	1,275,000
	1930	15,000	2,475,000	2,228,000
Corn .....	1931	64,000	2,944,000	1,855,000
	1930	60,000	2,580,000	2,580,000
Oats .....	1931	61,000	1,952,000	781,000
	1930	56,000	1,848,000	979,000

\* Tons.

**MINERAL PRODUCTION.** Much the greater part of the State's mineral production of 1929 came from its marble and granite quarries. The quantity of stone produced was 307,240 short tons for 1929 and 448,060 for 1928. Though these quantities were slight in relation to the stone production of many other States, the high average price of the stone gave it a substantial aggregate value, which was \$9,435,680 for 1929 and \$9,438,790 for 1928. In the quarrying of slate the State held second place among the States of the Union. The total value of its yearly production of slate, however, fell off by about one-third to \$2,463,241 for 1930, from \$3,704,894 for 1929. The production of lime and talc amounted, for each, to more than \$500,000 in 1929. Copper and silver were mined, on a very small scale, in 1929. The total value of the State's mineral production was \$14,602,589 for 1929; for 1928, \$14,648,737.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering 1929 gave the number of the State's manufacturing establishments as 871 (about 1 per cent fewer than for 1927). These establishments employed 25,832 wage earners (fewer by 1.6 than had been employed in 1927). Their wages amounted to \$31,491,384 (2.4 per cent less than had been paid in 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$65,430,102 (6.4 per cent less than the cost for 1927). The manufactured product of 1929 attained the value of \$138,367,070 (surpassing that for 1927 by 3.2 per cent). The value added by manufacture was placed at \$72,936,968.

**FINANCE.** State expenditures of the year ended June 30, 1930, as reported to the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$6,906,414 (of which \$566,290 was for local education); for interest on debt, \$404,026; for permanent improvements, \$4,425,294; total, \$11,735,734 (of which \$7,248,748 was for highways, \$3,067,640 being for maintenance and \$4,181,108 for construction). Revenues were \$11,094,486. Of these, property and special taxes formed 28.7 per cent; departmental earnings and remuneration to the State for officers' services, 5.9; sale of licenses, 44.5 (including gasoline sales taxes amounting to \$1,874,827). The State's funded debt outstanding, both gross and net of sinking-fund assets, on June 30, 1930, was \$9,658,532. On a property valuation of \$332,064,390 were levied in the year State taxes of \$1,211,709.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 1056.19. There had been added to operation, during 1930, 5.45 miles of line, while operation of 6.14 miles had been given up.

**EDUCATION.** For the academic year 1930-31 the enrollments of pupils in the public schools of the State totaled 65,903. Of these, 54,105 were in common schools or elementary grades, and 11,798 were in high schools. The year's expenditures for public school education totaled

\$5,938,940. The yearly salaries of teachers were estimated to average \$965.

It was made obligatory in 1931 that intending teachers take two years of training beyond high School in order to qualify.

**CHARITIES AND CORRECTIONS.** The Department of Public Welfare, created in 1923, was in 1931 the branch of the State government performing the central duties with regard to institutions for the care and custody of persons. It had at its head a Commissioner (William H. Dyer). It supervised not only the State institutions but welfare institutions, agencies and activities in general. Its supervision extended over the State's parole system. The State institutions, with their populations as reported in December, were: Vermont State Hospital, 940; State Prison and House of Correction for Men, 410; State Prison and House of Correction for Women, 60; Vermont Industrial School, 252; Brandon State School, 264; Vermont Sanatorium, 74.

**LEGISLATION.** Among the measures passed by the regular biennial session of the Legislature was one to permit the sexual sterilization of idiots, imbeciles, the feeble-minded, and the insane. The use of deception in advertising was rendered a criminal offense subject to penalty. Regulations were made for eating places where oleomargarine was used. All such places were required to post placards to advise customers of the fact.

**POLITICAL AND OTHER EVENTS.** To fill the unexpired term, ending in 1935, of U. S. Senator Frank R. Greene, who had died on Dec. 17, 1930, an election was held in March. Warren R. Austin, obtaining the Republican nomination at the primary election on March 3, was duly elected on March 31, defeating Stephen M. Driscoll, Democratic candidate, in a light vote. The ancient boundary dispute with New Hampshire, in which Vermont claimed territory to the middle of the course of the Connecticut River, was submitted by the U. S. Supreme Court to a special master for the taking of evidence.

**OFFICERS.** Governor, Stanley C. Wilson; Lieutenant-Governor, Benjamin Williams; Secretary of State, Rawson C. Myrick; Treasurer, Thomas H. Cave; Auditor of Accounts, Benjamin Gates; Attorney-General, Lawrence C. Jones; Commissioner of Education, Francis Bailey.

**JUDICIARY.** Supreme Court: Chief Justice, George M. Powers; Associate Justices, Leighton P. Slack, Sherman R. Moulton, Frank D. Thompson, Warner A. Graham.

**VERMONT, UNIVERSITY OF.** An endowed institution of higher education in Burlington, Vt., receiving some State aid, founded by Ira Allen in 1791. The 1931 autumn enrollment was 1263. The registration for the 1931 summer session was 1000. The faculty numbered 200. The endowment amounted to \$2,241,000, and the income for the year was \$729,000. The library contained over 135,000 volumes. President, Guy W. Bailey, LL.D.

**VETERANS' ADMINISTRATION.** See UNITED STATES under Administration.

**VETERINARY MEDICINE.** The year saw no new invasion of the United States by any enzootic disease of livestock from abroad and was marked by a continued advance in the work of eradicating tuberculosis, the Texas fever tick and sheep scabies and by the progress of control work with bovine infectious abortion, fowl pox and pullorum disease of poultry. Of particular importance was the appearance in the San Joaquin Valley of California of a new disease of

the horse and mule with a resulting loss of some 3000 animals and its spread during the summer of 1931 into adjoining states.

**LIVESTOCK TUBERCULOSIS ERADICATION.** The work of eradicating tuberculosis from cattle proceeded rapidly and exceeded all former years in volume of business. Three States were added—Indiana on July 1, and Wisconsin and Ohio at the close of the year—to those that had completed the testing of their entire area and were officially designated as modified accredited areas, signifying the practical freedom of their cattle herds from tuberculosis. This recognition came after 13 years effort during which time more than 3,000,000 tests were made in Indiana, 10,000,000 in Wisconsin and 4,000,000 in Ohio. Altogether, 13,782,273 head of cattle in 1,162,414 herds were tested during the fiscal year ended June 30, 1931, or about 936,000 more than in any previous year. The percentage of reactors dropped from 1.7 per cent to 1.5 per cent.

The work was conducted under combined Federal, State and county appropriations aggregating nearly \$20,000,000 of which the greater part was for paying indemnity to owners for cattle condemned as a result of the test. On July 1, there were a total of 1223 tuberculosis-free counties in the United States and by December 31, 42.6 per cent of all the counties were declared to be practically free of bovine tuberculosis. At the end of December there were accredited 2,768,911 cattle in 165,345 herds and 3,428,707 herds with 31,415,805 cattle under supervision.

The retesting of cattle in modified accredited areas resulted in conclusive evidence that bovine tuberculosis could be kept at a minimum, provided attention is given to the necessary sanitary measures. Although misunderstanding regarding the work and lack of appreciation of its benefits resulted in opposition in a few localities the progress was so steady generally that most State officials estimated the time when the testing of all counties would be completed.

Several important cases were taken up in the courts of various parts of the country during the year to determine the constitutionality of the laws requiring cattle to be tuberculin tested, with results upholding the statutes in every instance. In addition to the eradication of tuberculosis under (1) the accredited herd and (2) the area plans, the work at the end of the year included (3) eradication from swine, (4) investigations relative to interstate shipments, (5) tuberculosis in fowls, and (6) the control and eradication of paratuberculosis better known as Johne's disease. The testing of cattle with johnin or avian tuberculin showed Johne's disease to exist in a slight degree in 12 States. Increased efforts made to trace the sources of infection in swine affected with tuberculosis resulted in finding tuberculous fowls responsible for a large majority of the slight cases of tuberculosis in swine.

**INFECTIOUS ABORTION.** The activity in research and the application of present knowledge in combatting infectious abortion was continued, reports of accomplishments having been made by many States. From Connecticut came the report that the disease had been eradicated from 35 breeding herds and nearly eradicated from 16 others, with 80 additional herds under observation. The practicability of maintaining a herd free from the disease was demonstrated by a herd of 178 females in that State which had been free from abortion since 1925, no precautions having



been taken other than in the introduction of animals, the barns having been open to visitors.

The agglutination testing of animals in this herd during the 4.5 years was considered to show clearly that blood positive reactions do not occur in a clean herd although some nonspecific reactions, usually slight, may occur in the lower dilutions.

It was found in work with seven experimental herds in New Hampshire that infectious abortion could be eliminated from a herd by applying the agglutination test combined with a practical plan of sanitation and isolation of each of the groups of negative, positive, and suspicious reactors—thus confirming findings in other States.

**MASTITIS.** This disease of the dairy cow commonly known as garget and from which dairymen suffer loss quite commonly was being given increased attention by investigators. Treatment by ultra-violet ray radiation applied directly to the quarter of the udder affected in 14 cows was found in Idaho to be an efficient means of eliminating clinical symptoms of the chronic form such as flaky milk, swelling and fever. Very satisfactory results were obtained in Michigan from the use of a living autogenous streptococcus vaccine, some 75 head being treated with favorable results.

**TEXAS FEVER AND CATTLE TICK ERADICATION.** That substantial progress was being made in eradicating the cattle tick from areas in the South was evidenced by the Order of Secretary of Agriculture which became effective Dec. 1, 1931, releasing 16,607 square miles of territory in Arkansas, Florida, and Texas from the tick quarantine. The Order requarantined 217 square miles in Louisiana making the net gain in territory freed from quarantine 16,390 square miles. These four States contained the only areas remaining under Federal tick quarantine in continental United States.

Of the entire area originally tick infested and quarantined 85 per cent had been freed from the pest by systematic eradication.

**ANAPLASMOSIS.** It was determined that this infectious disease of cattle occurring in many cattle raising sections of the United States and easily confused with Texas or tick fever in the tick quarantined areas may be transmitted by the common American dog tick as well as by the common cattle tick, the brown dog tick, and the tabanid or horse fly. A study of the spread of the disease indicated that mass surgical operations such as dehorning, castration, ear cropping, and bleeding may play a very important part in its transmission.

**SCABIES ERADICATION.** The eradication work with sheep scabies was continued in coöperation with State livestock sanitary officials, 21,775,139 inspections having been made and 3,788,224 dippings of sheep supervised. Those found to be infected numbered 565,448 or 33 per cent less than in the preceding year. In the control and eradication of cattle scabies 3,465,161 inspections and 843,894 dippings of cattle were made in the course of coöperative work by the State sanitary authorities and the Federal Bureau of Animal Industry and the Office of Indian Affairs. A total of 233,177 head of cattle were found to be infected, an increase of 161 per cent over the preceding year. The increase was caused by a large number of cattle found infected in Nebraska and Texas. Two outbreaks in California resulting from the introduction of infected cattle, were promptly eradicated.

**DOURINE ERADICATION.** It was believed that the Navajo Indian Reservation in Arizona and New Mexico was free from dourine no case having been reported during the year. Preliminary testing was carried on in southwestern Idaho and southeastern Oregon to determine the location and extent of infection, which with the infected area in northern Nevada where much work has been done, were held under State quarantines. Much preliminary work was done on the San Carlos Indian Reservation in Arizona where the disease is believed to exist extensively.

**HOG CHOLERA CONTROL.** The occurrence of hog cholera was unusually severe in some parts of the United States during the autumn. It at times threatened to cause losses as serious as those of the outbreak in the fall of 1926 but the prompt use of antihog-cholera serum saved herds that would otherwise have been lost. The veterinary officials in about two-thirds of the principal hog producing States reported no increase in hog cholera over 1930. In the remaining third the disease was more prevalent.

**ENCEPHALOMYELITIS OF HORSES AND MULES.** During the summer of 1930 a disease involving the brain and spinal cord of the horse and mule, later found to be caused by a filterable virus, appeared in the San Joaquin Valley of California in epizootic form. There were some 6000 cases of which 3000 succumbed within 3 to 8 days after the symptoms appeared. From the central part of the State the disease spread and in the summer of 1931 over 1200 cases were reported in the northern and southern parts of California and cases were found in four counties of Nevada and a few in Oregon and Arizona.

**FOWL POX AND AVIAN DIPHTHERIA.** Workers in Great Britain were led to conclude that fowl pox or contagious epithelioma and avian diphtheria are two distinct disease entities which may occur simultaneously or independently, there being no cross immunity between them. The practice of vaccination early in the fall against fowl pox continued to increase the so-called feather follicle and stick methods being commonly employed. In western Washington only 27 of 45,000 fowls vaccinated in the field contracted fowl pox during the fall and winter months. The results as based upon reports of poultrymen justified the use of vaccine on pullets between 3 and 4 months of age. In Oregon the vaccination of turkeys with fowl pox virus was highly successful.

Evidence was obtained in Hawaii of the transmission of fowl pox to healthy chicks by the common house mosquito, thus confirming the findings previously reported. The disease was prevented by screening the runs and houses. Positive transmission by another mosquito, *Aedes vexans*, from 2 to 27 days after the mosquitoes had fed on fowl pox comb lesions was secured in work in New York.

**PULLORUM DISEASE OF THE FOWL.** A continuation of control work with pullorum disease further demonstrated the value of the serum agglutination test in detecting infected fowls, thus making possible the freeing of flocks from the disease. Less reliable results were obtained from the use of the wattle test. Ten years of blood testing of breeding fowls for the control of the disease in California led to the conclusion that tests should be made at intervals of a month or six weeks until the flock is free from infection. Official reports from New Hampshire show that losses from the disease that were as high as 60



per cent of all chicks hatched the year before the testing was commenced have dropped to from 3 to less than 0.5 per cent in the last three years.

A new and simplified test for pullorum disease of poultry was developed which was a modification and simplification of the agglutination test. This promised to make it possible within a minute or two to determine whether or not a fowl is infected. Further evidence was obtained that brooder pneumonia is in young chicks the lung form of pullorum disease.

**COCCIDIOSIS.** Studies of coccidiosis resulted in the recognition and description during the year of many new forms in the domestic animals including two in the fowl, one in the bovine and two in the rabbit.

**LIVESTOCK POISONING.** Several important contributions were made to the knowledge of livestock poisoning on the range. A form of swell-head occurring in the western part of Texas that is the cause of heavy losses at times was found to be due to feeding on the range plant *Agave lecheguilla*. The broad-leaved milkweed was found in Texas to be poisonous to sheep and goats. Bitterweed was also found to be poisonous. Fitweed was discovered in investigations in Nevada to be dangerously poisonous to sheep and cattle. The intravenous injection of freshly defibrinated normal blood in North Dakota resulted in a large proportion of recoveries of cattle suffering from sweet clover disease and which had shown the effects of serious hemorrhage.

**STOMACH WORMS OF SHEEP AND GOATS.** Studies aimed at a more effective control of the stomach worm in lambs were continued. In Texas the use of a 1.7 per cent solution of copper sulphate plus 1 per cent Blackleaf 40 as a drench gave very encouraging results. In Michigan a 4-ounce dose of suspension of colloidal iodine containing 1 per cent of iodine and a sulphate in solution administered by the drench method readily entered the fourth stomach and was effective in killing the stomach worms in 97 of 98 lambs thus treated. The common species of stomach worm found on the Pacific coast was controlled by the administration of tetrachlorethylene.

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**VICTORIA.** A state of the Australian Commonwealth, occupying the southeastern part of the island continent. Area, 87,884 square miles; estimated population Jan. 1, 1931, 1,790,817, as compared with 1,531,280 at the census of 1921. Melbourne, the capital and chief city, had about 1,014,600 inhabitants on Jan. 1, 1931, or more than half the entire population. The population of other towns on Jan. 1, 1930, was: Geelong, 43,580; Ballarat, 42,200; Bendigo, 33,700. The estimated increase in population in 1930 was 13,752.

The value of all production in the fiscal year ended June 30, 1929, totaled about £103,223,197, distributed as follows: Agricultural, £14,364,655; pastoral and dairying, £29,137,413; mining, £1,794,141; forest, £1,713,580; manufacturing (value added in process of), £50,840-

864; miscellaneous, £5,372,544. The final estimate of the wheat crop for 1930-31 was 53,814,369 bushels from 4,600,200 acres (25,412,587 bushels from 3,566,135 acres in 1929-30). Oats, barley, potatoes, hay, wine grapes, currants, and raisins are other leading crops.

The value of direct overseas imports in 1929-30 was £41,881,524 (£20,310,352 in 1930-31); of overseas exports, £36,499,943 (£25,854,785 in 1930-31). State revenue in 1929-30 amounted to £27,323,842 (£28,156,034 in 1928-29); expenditure, £28,496,712 (£28,104,947). Expenditure charged to the loan fund in 1929-30 was £6,034,779 and the net state debt on June 30, 1930 was £155,714,797. For the 1931-32 budget, see AUSTRALIA under *Finance*.

Executive power is vested in a governor, acting through a responsible ministry, and legislative power in a parliament of two houses—the Legislative Council of 34 members elected for six years and subject to property qualifications, and the Legislative Assembly of 65 members, elected for three years by male and female suffrage.

Governor in 1931, Lieut. Col. Lord Arthur H. T. Somers; Premier, E. J. A. Hogan (Labor).

**VILNA (WILNO).** See POLAND and LITHUANIA under *Area and Population, History*.

**VIRGINIA.** POPULATION. According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 2,421,851; in 1920 it was 2,309,187. The native whites numbered 1,746,585 (1930), 1,587,124 (1920); the foreign-born whites, 23,820 (1930), 30,785 (1920). The Negroes decreased in number to 650,165 (1930), from 690,017 (1920). Of a scattering of 1281 (1930) of other races, the chief part, 779, were Indians. The rural population was almost stationary, being 1,636,314 (1930); 1,635,203 (1920). The urban population (dwellers in communities of 2500 or over) rose to 785,537 (1930), from 673,984 (1920).

Of 880,276 persons reported in 1930 as in gainful occupations, those in agriculture numbered 270,836, of whom 150,450 were farmers. In manufacturing and mechanical industries were 204,207; in trade, 98,720; in domestic and personal service, 92,577; in transportation, 84,985; in professional service, 50,919; in the extraction of minerals, 17,332. Richmond, the capital, had 182,929 inhabitants (1930), 171,667 (1920); Norfolk, 129,710 (1930), 115,777 (1920); Roanoke, 69,206 (1930), 50,842 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Corn	1931	1,527,000	43,061,000	\$19,808,000
	1930	1,498,000	16,478,000	17,302,000
Hay, tame	1931	904,000	993,000	11,916,000
	1930	811,000	424,000	9,498,000
Potatoes	1931	118,000	14,160,000	7,788,000
	1930	117,000	13,689,000	13,689,000
Tobacco	1931	163,000	106,276,000	7,439,000
	1930	186,000	112,530,000	9,903,000
Apples	1931	.....	21,889,000	8,756,000
	1930	.....	7,700,000	7,315,000
Wheat	1931	603,000	13,266,000	7,694,000
	1930	591,000	9,160,000	8,885,000
Peanuts	1931	153,000	165,240,000	3,140,000
	1930	139,000	100,080,000	8,102,000
Cotton	1931	71,000	43,000	.....
	1930	89,000	42,000	.....
Sweet potatoes	1931	88,000	4,750,000	1,662,000
	1930	37,000	2,960,000	2,960,000
Oats	1931	189,000	4,838,000	1,645,000
	1930	152,000	2,630,000	1,578,000

\* Tons. \* Pounds. \* Bales.

**MINERAL PRODUCTION.** More than half of the State's total mineral production of 1929 was made up of coal. Coal-mining activity diminished in 1930, in Virginia as in most other coal States. There were produced in the State's mines, in 1930, 11,115,000 short tons of coal, as against 12,748,306 tons, by value \$20,942,000, produced in 1929. Clay products attained the value of \$2,948,309 for 1929 and of \$2,940,832 for 1928. The yield of stone was 3,605,210 short tons for 1929 and 3,289,350 for 1928; in value, \$3,662,567 (1929) and \$3,358,104 (1928). The total value of the State's mineral production for 1929 was \$39,752,683; for 1928, \$38,770,281.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 3274 (about 34 per cent above the number for 1927). These establishments employed 118,399 wage earners (more than those employed in 1927 by 3 per cent). Wages paid them amounted to \$116,847,113 (exceeding the wages of 1927 by 5.6 per cent). Materials for manufacture, plus fuel and purchased electricity, cost \$358,749,349 (3.6 per cent more than these items had cost for 1927). The manufactured product was valued at \$727,606,298 (exceeding that of 1927 by 8.4 per cent). Value added by manufacture was placed at \$368,856,949. Richmond, the most active manufacturing centre, in 1929, had 302 establishments, which employed 16,429 wage earners, paid them wages of \$17,267,854, and produced goods to the value of \$217,996,635.

**FINANCE.** State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$27,808,044 (of which \$6,449,285 was for local education); for interest on debt, \$961,201; for permanent improvements, \$13,896,488; total, \$42,665,733 (of which \$17,098,857 was for highways, \$5,772,559 being for maintenance and \$11,326,298 for construction). Revenues were \$42,583,225. Of these, property and special taxes furnished 25.3 per cent; departmental earnings and compensation to the State for officers' services, 10.4; sale of licenses, 52.3 (in which was included a gasoline sale tax that produced \$7,251,142). Funded debt outstanding on June 30, 1930, totaled \$28,548,224, of which \$7,428,000 was for highways. Net of sinking fund assets, the debt was \$26,439,882. On an assessed valuation of \$774,143,857 the State levied in the year ad valorem taxes of \$5,438,088.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 4515.59. Additions to line under operation during the previous year had totaled 20.49 miles, while operation of 10.19 miles had been given up. In 1931 were built 33.2 additional miles of first and 5.39 of second track.

**EDUCATION.** For 1930 the number of the State's inhabitants of school age was reckoned as 724,137. There were enrolled in the public schools, in the academic year 1930-31, 578,066 pupils. Of these, 512,751 were in common schools or elementary grades, and 65,315 were in high schools. The year's expenditures for public-school education were: for operation, \$20,795,918; for capital outlay and debt service, \$4,909,055. Salaries of teachers, by the year, averaged \$909.

**CHARITIES AND CORRECTIONS.** The central agency in matters affecting the care and custody of persons, was the State Department of Public

Welfare, composed of a board of five members, a commissioner as executive head and a number of administrative bureaus covering such fields as county and city organization, activities among children, the needs of crippled children, service for veterans, mental hygiene and psychiatry.

**POLITICAL AND OTHER EVENTS.** The severe strike at the Riverside and Dan River cotton mills in Danville terminated at the end of January after a duration of some four months, by the return of the strikers without their having obtained any definite concession. About 3000 workers were involved. In Norfolk, on June 7, a fire caused by an explosion aboard an oil barge destroyed six blocks of buildings in the waterfront and wholesale section, doing damage estimated at more than \$3,000,000. In July the \$7,500,000 bridge spanning the Potomac between the Lincoln Memorial in the city of Washington and Arlington in Virginia was completed, including the steel draw at its centre. But the opening of the bridge was delayed to coincide with the Washington bicentenary celebration to take place early in 1932. The 150th anniversary of the surrender of Cornwallis at Yorktown was celebrated, at Yorktown, October 16-19, with ceremonies in which the Federal Government, the several States and representatives of the French nation took part.

**OFFICERS.** Governor, John Garland Pollard; Lieutenant-Governor, James H. Price; Secretary of the Commonwealth, Peter Saunders; State Treasurer, John M. Purcell; Auditor of Public Accounts, T. Coleman Andrews; Attorney-General, John R. Saunders; Superintendent of Public Instruction, Dr. Sidney B. Hall; Commissioner of Agriculture, George W. Koiner.

**JUDICIARY.** Supreme Court of Appeals: President, Preston W. Campbell; Associate Justices, Louis E. Epes, H. W. Holt, E. W. Hudgins, H. B. Gregory, George W. Browning, Joseph W. Chinn.

**VIRGINIA, UNIVERSITY OF.** A nonsectarian institution of higher education in Charlottesville, Va., founded in 1819. The enrollment for the autumn session of 1931 amounted to 2534. For the 1931 summer session there was an enrollment of 1831. The faculty numbered 148. The productive endowment of the university amounted to \$10,000,000; the annual State appropriation was \$400,000; and the total annual income was \$1,741,352. There were 171,899 volumes in the library. Acting President, John Lloyd Newcomb. See also PUBLIC AFFAIRS, INSTITUTE OF.

**VIRGIN ISLANDS.** A small island group about 60 miles east of Porto Rico, purchased from Denmark for \$25,000,000 by the United States Jan. 25, 1917; the name is also applied to a group of islands included in the British colony of the Leeward Islands (see LEEWARD ISLANDS). The Virgin Islands of the United States consist of the islands of St. Thomas (28 square miles), St. Croix (84 square miles), and St. John (20 square miles), together with numerous smaller islands and cays. Total area, 132 square miles. Capital, St. Thomas on the island of St. Thomas.

The population at the census of 1930 totaled 22,012, of whom 13,501 were classed as urban and 8511 as rural. Negroes comprised 78 per cent of the population, whites 9 per cent, and persons of mixed blood 12 per cent. The population of the three principal islands was: St. Croix, 11,413; St. Thomas, 9834; and St. John, 765. With slight variations the population has declined steadily since 1835, when it totaled 43,178. The 15 per cent

decline since 1917 is largely due to emigration to the mainland of the United States. St. Thomas (population 7036), the chief port and considered the best harbor in the West Indies, has coaling and oil-fueling facilities and until 1931 was a United States naval base.

**PRODUCTION, ETC.** The chief industries are sugar cane cultivation and cattle raising on the island of St. Croix and the production of bay rum on St. Thomas. There were 254 farms at the census of 1930. In 1930-31, only one of the four sugar factories was in operation; the sugar cane acreage declined from 8885 acres in 1917 to 5823 in 1929. Sugar production in 1930 was 5750 tons. The bay rum industry has been steadily expanding, the exports increasing to 124,000 gallons in 1930, as compared with an annual average of 82,000 gallons from 1921 to 1930. The islands are not self-supporting economically, and a Federal contribution of about \$500,000 annually is required to make up the deficit in the budget. Including the compensation of naval doctors and others assigned to the islands, the Federal contribution for 1931 was estimated by Secretary of the Interior Wilbur at about \$700,000, or \$32 for each inhabitant of the islands. The government in 1931 was carrying forward a programme intended to make the islands ultimately self-supporting. It included the stimulation of the tourist trade, further sub-division of the land, reforestation, diversification of agriculture, and the promotion of more scientific methods of farming.

Trade is chiefly with the United States. In 1931, imports from the United States were valued at \$1,250,406 (\$1,672,903 in 1930), and exports to the United States at \$408,932 (\$768,342).

**GOVERNMENT.** Transfer of the administration of the islands from the Navy Department to the Department of the Interior was announced by President Hoover Jan. 30, 1931, and became effective Feb. 27, 1931. Officials of the new civil administration were: Governor, Paul M. Pearson; Lieut.-Governor of St. Croix, Lawrence N. Cramer. Administratively the islands are divided into two municipalities—that of St. Croix and that of St. Thomas and St. John. Legislative function are vested in the Colonial Council of each municipality, consisting of a majority of elected members and a minority appointed by the Governor.

President Hoover made an official visit to St. Thomas on Mar. 25, 1931, in connection with his trip to Porto Rico. He called nation-wide attention to the economic condition of the islands in a subsequent statement to the effect that the United States, in purchasing them, had "acquired an effective poorhouse, comprising 90 per cent of the population." "The people," he said, "cannot be self supporting either in living or government without the discovery of new methods and resources."

**VITAL STATISTICS.** The U. S. Department of Commerce estimated the population of the world in 1931 at about 1,992,500,000 and 39.2 persons for every square mile of land. In this tabulation data for 103 countries on area, population, and density were employed, using official statistical publications of the individual nations. The United States, with a land area of 2,973,776 square miles and an estimated population of more than 124,000,000 has a density of 41.7 persons per square mile. Alaska has the smallest density of any country listed; with only 59,000 inhabitants for 586,400 square miles of land, a density of 0.1.

Females generally outnumber males throughout the world, data for 33 nations indicate. Fifty-one out of every 100 persons in the United States are males. In the United States 21.7 per cent of the inhabitants are under 10 years, 19 per cent between 10 and 19, 17.4 per cent between 20 and 29, 15 per cent between 30 and 39, 11.5 per cent between 40 and 49, 7.9 per cent between 50 and 59, and 7.5 per cent over 60. See *CENSUS*.

Preliminary statistics indicated that there were about 150,000 fewer births in the United States in 1931 than in 1930 and it was estimated that if such a decline continued further revisions downward of previous estimates of future population would be necessary.

According to Dr. O. E. Baker, economist of the U. S. Department of Agriculture, the population of the United States will reach a maximum of about 145,000,000 by 1960 unless restrictions are relaxed or the number of births increase, both of which conditions appear unlikely. In fact, Dr. Baker stated, a continuance of the sharp decline in births probably would mean a maximum population by 1955 or even by 1950. The drop of births in 1931 was estimated to be fully twice as large as the annual average decline in the decade of urban prosperity. For birth and mortality rates in other countries see *GERMANY, GREAT BRITAIN, FRANCE, etc., under Area and Population*.

Provisional figures for 1930 for the United States birth-registration area (exclusive of Utah) tabulated by States on page 831, showed that the birth rate was 18.9, the same as the rate for 1929. The highest rate (28.5) was for New Mexico, and the lowest (14.1) was for Oregon. In 1930 the birth-registration area covered all of the United States except South Dakota and Texas and included 94.7 per cent of the total population. See *MATERNITY PROTECTION*.

The infant mortality rate of 64.2 was the lowest rate since the establishment of the birth-registration area in 1915. Thirty-seven States had lower infant mortality rates in 1930 than in 1929. The highest rates for 1930 were 144.9 for New Mexico and 116.2 for Arizona; the lowest were 48.4 for Washington, 49.2 for Nebraska, and 50 for Oregon. Of the 86 cities having 100,000 or more inhabitants only 21 had higher rates in 1930 than in 1929. The highest rates were 108.8 for Chattanooga, 102.9 for Nashville, and 101.2 for Memphis, and the lowest were 37.1 for Seattle and 39.8 for San Francisco.

The death rate in 1930 for the birth registration area (exclusive of Utah) was 11.3. This was 0.6 lower than the corresponding rate for 1929. When compared with 1929, 37 States had lower rates in the later year, 6 had higher rates, while the rates for 2 States did not change. The highest death rate (15.5) was for New Mexico and the lowest (7.9) was for North Dakota.

**VITAMINS.** From a practical standpoint probably the most important vitamin event of the year was the conference held in London in June under the auspices of the Permanent Standard Commission of the Health Organization of the League of Nations to consider the possibility of setting an international standard for each of the known vitamins, together with an arbitrary unit of activity in terms of which the potency of any food of vitamin preparation might be expressed. This conference, composed of leading investigators in vitamin research from several countries, recommended standards and units for vitamins

PROVISIONAL FIGURES OF BIRTH, DEATH, AND INFANT MORTALITY IN THE BIRTH REGISTRATION AREA OF THE UNITED STATES, 1930  
 [Division of Vital Statistics, U. S. Bureau of the Census]

Area	Number—1930			Rate per 1,000 estimated population				Infant mortality (deaths under 1 year per 1,000 births)	
	Births	Deaths All ages	Deaths Under 1 year	1930	1929	1930	1929	1930	1929
Birth registration area	2,190,047	1,816,447	140,518	18.9	18.8	11.3	11.9	64.2	67.6
Alabama	68,757	80,420	4,597	24.0	24.0	11.5	12.4	72.1	78.6
Arizona	10,376	6,678	1,206	23.7	22.4	15.2	15.9	116.2	133.8
Arkansas	41,093	18,959	2,115	22.1	20.2	10.2	10.5	51.5	58.1
California	84,204	66,257	4,927	14.7	14.8	11.6	11.9	58.5	63.2
Colorado	18,814	13,205	1,773	18.1	17.4	12.7	12.5	94.2	91.4
Connecticut	27,582	17,290	1,542	17.1	17.1	10.7	11.5	55.9	64.4
Delaware	4,474	3,256	351	18.7	18.1	13.6	13.2	78.5	81.2
Florida	26,993	18,261	1,734	18.2	18.8	12.3	12.7	64.2	65.5
Georgia	60,689	35,188	4,697	20.9	20.1	12.1	12.2	77.4	76.3
Idaho	9,177	4,179	525	20.6	19.8	9.4	9.2	57.2	55.3
Illinois	128,121	63,593	7,079	16.7	17.0	10.9	11.6	55.3	61.4
Indiana	59,278	39,196	3,413	18.3	18.3	12.1	12.7	57.6	63.6
Iowa	42,733	26,231	2,299	17.3	17.1	10.6	10.4	58.8	52.6
Kansas	33,707	19,503	1,754	17.9	17.4	10.4	10.4	52.0	57.6
Kentucky	59,261	29,544	3,870	22.6	21.7	11.3	12.0	65.3	70.9
Louisiana	42,890	24,724	3,363	20.3	20.3	11.7	11.9	78.4	74.0
Maine	16,199	11,082	1,225	20.3	20.0	13.9	14.3	75.6	77.4
Maryland	30,251	21,567	2,277	18.5	18.5	13.2	13.5	75.3	79.9
Massachusetts	73,551	49,340	4,296	17.3	17.5	11.6	12.3	58.4	61.8
Michigan	99,326	51,638	6,215	20.4	20.8	10.6	11.8	62.6	66.4
Minnesota	47,418	25,711	2,478	18.5	18.3	10.0	10.1	52.3	51.2
Mississippi	48,163	24,125	3,256	23.9	22.9	12.0	13.0	67.6	72.1
Missouri	62,165	43,080	3,647	17.1	16.9	11.9	12.3	58.7	62.1
Montana	9,971	5,441	582	18.5	18.7	10.1	10.7	58.4	64.0
Nebraska	27,004	13,289	1,828	19.6	19.4	9.6	9.8	49.2	51.7
Nevada	1,332	1,161	87	14.6	14.2	12.8	13.3	65.3	67.2
New Hampshire	8,340	6,322	508	17.9	17.6	13.6	14.1	60.9	68.2
New Jersey	68,321	43,598	3,858	16.8	17.2	10.7	11.6	56.5	60.1
New Mexico	12,116	6,576	1,756	28.5	27.1	15.5	15.4	144.9	145.5
New York	216,046	147,436	12,572	17.1	17.5	11.7	12.4	58.2	60.8
North Carolina	76,772	35,783	6,033	24.1	24.7	11.2	11.8	78.6	79.1
North Dakota	14,783	5,367	897	21.7	21.6	7.9	8.0	60.7	67.2
Ohio	117,526	76,232	7,173	17.6	17.7	11.4	12.4	61.0	68.8
Oklahoma	42,504	19,679	2,577	17.7	16.9	8.2	9.0	60.6	70.2
Oregon	13,468	10,545	674	14.1	14.1	11.0	11.3	50.0	47.9
Pennsylvania	189,458	111,616	12,243	19.6	19.8	11.6	12.3	64.6	70.5
Rhode Island	12,191	8,007	753	17.7	18.0	11.6	13.1	61.8	72.0
South Carolina	40,460	22,434	3,588	23.3	22.7	12.9	13.3	88.7	91.0
Tennessee	52,652	29,993	3,985	20.1	19.5	11.4	12.2	75.7	77.1
Vermont	6,934	4,687	448	19.3	18.7	13.0	14.7	64.6	65.8
Virginia	54,702	30,317	4,218	22.6	22.4	12.5	13.0	77.1	78.8
Washington	22,999	16,678	1,113	14.7	14.6	10.6	10.6	48.4	49.0
West Virginia	41,614	18,222	3,361	24.0	23.8	10.5	10.6	80.8	77.6
Wisconsin	56,788	30,558	3,153	19.3	19.0	10.4	10.7	55.5	59.6
Wyoming	4,471	2,080	309	19.8	19.8	9.2	9.0	69.1	70.3

A, B ( $B_1$ ), C, and D, and these were adopted by the Permanent Commission.

For vitamin A carotene was adopted tentatively with a selected sample of cod-liver oil as a second provisional standard. The carotene is to be prepared in certain specified laboratories by the Willstätter method and the unit is to be the vitamin A potency of 1 $\gamma$  (= 0.001 mg.) of a mixture of these several preparations.

For the antineuritic vitamin B ( $B_1$ ) the standard is a fuller's earth adsorption product of an extract of rice polishings prepared in the Medical Laboratory, Java, and the unit the antineuritic value of 10 mg. of this adsorption product.

Since the vitamin C potency of oranges and lemons has been found to be very constant, the juice of the lemon (*Citrus limonum*) was adopted as the standard for vitamin C and the activity of 0.1 cc. of fresh juice as the unit.

The standard for vitamin D is a solution of irradiated ergosterol which has already been in use as a standard in Great Britain for over a year. The unit of vitamin D is the activity of 1 mg. of this standard.

The standard preparations are to be kept at the National Institute of Medical Research, Hampstead, England, and will be issued to suitable individuals and institutions under certain conditions.

The universal adoption of these standards for comparison should make possible accurate com-

parisons of the vitamin values of foodstuffs and from them the vitamin content, in relative values, of human diets. Equally desirable is the universal standardization of vitamin concentrates and medicinal preparations.

**Vitamin A.**—The discovery announced in the 1930 report that carotene of plant materials is the precursor of vitamin A in the animal body was confirmed in several laboratories, but the mechanism of the transformation and the chemical nature of vitamin A had not been determined at the close of the year. It was concluded by Capper and associates (*Biochem. J.*, Vol. 25, p. 265) that fowls can utilize carotene as the source of vitamin A and that their liver oils are very rich in vitamin A. Further studies on rats by Moore (*Biochem. J.*, Vol. 25, p. 275), the first to point out convincingly the relationship between carotene and vitamin A, led him to conclude that the conversion of carotene into vitamin A probably takes place in the liver, which plays an important part in regulating the concentration of the vitamin in the remainder of the body. The

mechanism governing this distribution was found by Dann and Moore (*Biochem. J.*, Vol. 25, p. 914) to be entirely different from that governing the fat reserves, for rats which had been kept for a long time on a diet rich in carotene and then placed on a vitamin B-free diet showed no indication of a diminished power of transforming the excess carotene into vitamin A, or of a decrease in the vitamin A reserve of the liver, although the liver fat was almost exhausted.

Ahmad (*Biochem. J.*, Vol. 25, p. 1195) found that carotene was absorbed from the intestinal tract of rats much more completely when the diet contained fat than when it was fat-free. His attempts to convert carotene into vitamin A by the action of intestinal bacteria or by incubation with rat liver tissue were unsuccessful. Olcott and McCann, however (*J. Biol. Chem.*, Vol. 94, p. 185), announced the conversion of carotene into vitamin A by incubation of carotene with an extract prepared from the livers of rats which had ceased to grow on a vitamin A-free ration. In their opinion the extract contained a specific enzyme, carotenase, which converts carotene into vitamin A.

Evidence continued to accumulate concerning the importance of vitamin A as an anti-infective agent. Wolfe and Salter (*J. Nutrition*, Vol. 4, p. 185) noted in mice suffering from vitamin A deficiency the same degenerative changes in the mucous membranes throughout the body that had been noted previously in rats, guinea pigs, and chickens.

Success reported by Green and associates (*Brit. Med. J.*, No. 3691, p. 595) in the use of vitamin A concentrates for the prevention as well as treatment of puerperal septicemia in clinical practice also bears out the hypothesis of lowered resistance of mucous membranes in vitamin A deficiency in that puerperal sepsis was considered to be primarily an invasion of the epithelium of the generative organs by pathogenic bacteria. So convinced were these investigators in the efficacy of vitamin A in the prevention of puerperal septicemia that they urged all concerned with antenatal welfare to see that the diets recommended to pregnant women are rich in natural sources of vitamin A, such as milk, egg yolk, green vegetables, carrots, and butter—recommending the use of cod-liver oil or concentrates of vitamin A only when dietary measures can not be followed for economic or other reasons.

All of these observations were concerned with the breaking down of the defenses of the mucous membranes. In a significant study by Boynton and Bradford (*J. Nutrition*, Vol. 4, p. 323) it was demonstrated that rats which had been no longer than four weeks on a vitamin A-deficient diet and had not begun to show the outward symptoms of vitamin A deficiency succumbed more readily than controls on a normal diet to intraperitoneal inoculation of an organism of common occurrence in the suppurative lesions of the respiratory tract in vitamin A-deficient rats. This showed that vitamin A is capable of preventing infections that enter the blood stream as well as through the broken down mucous membranes, thus leading the *Journal of the American Medical Association* (Vol. 97, p. 1229) to comment again upon vitamin A as an anti-infective agent, with the conclusion that the "newer studies pave the way for the possibility that vitamin A may after all do more than maintain the physiologic defense of the mucous membranes."

The necessity of standardizing cod-liver oils and concentrates for vitamin A potency and of knowing more definitely the value of various food sources of this vitamin has led to continued efforts to improve the biological technique (applicable to all materials) and to establish the accuracy of the more rapid colorimetric and spectrographic method for analyzing liver oils. Valuable contributions on biological technique were reported by Marcus (*J. Biol. Chem.*, Vol. 90, p. 507), Sherman and Batchelder (*J. Biol. Chem.*, Vol. 91, p. 505), and Coward and associates (*Biochem. J.*, Vol. 25, p. 551). In the Sherman method the value of any material as a source of A is expressed in units representing the amount of the material required to produce a gain in weight of the experimental rat of 3 grams a week during the test period of from 4 to 8 weeks. This method is in rather general use in the United States and a sufficient number of foods have been tested by it to make possible estimates of the vitamin A content of dietaries considered to be adequate. As the result of such estimates, Gillett and Rice (see FOOD AND NUTRITION) recommended a daily allowance of from 5000 to 10,000 units of vitamin A and stated that "the lower concentration of vitamin A can be easily provided in low cost dietaries if the weekly grocery order contains the amounts of milk, eggs, and butter usually recommended plus either carrots, escarole, or spinach among the vegetables; or cheese or liver instead of some of the meat; or bananas or prunes among the fruits."

*Vitamins B (B<sub>1</sub>) and G (B<sub>2</sub>).* Attempts at isolating vitamin B (B<sub>1</sub>) were reported by Odake (*Proc. Imp. Acad. Japan*, Vol. 7, p. 102), Seidell and Birkner (*J. Am. Chem. Soc.*, Vol. 53, p. 2288), and Guha (*Biochem. J.*, Vol. 25, p. 931), all following more or less closely the method of Jansen and Donath, one stage of which is to be used in the preparation of the international standard for vitamin B. Although it is possible to produce crystalline substances of high vitamin B potency, it is generally considered that vitamin B has not yet been isolated as a chemically pure substance.

In attempts to separate vitamin B from G as they occur in food materials, use continued to be made of the fact that vitamin B is much more soluble in alcohol of high concentration than is vitamin G. Evans and Lepkovsky (*J. Nutrition*, Vol. 3, p. 353) obtained an extract very rich in vitamin B and practically devoid of vitamin G by extracting rice polishings with 25 per cent alcohol and fractionating this extract with 80 per cent alcohol. Sherman and Sandels (*J. Nutrition*, Vol. 3, p. 395) emphasized the fact that the nature of the material extracted and the conditions under which the solvent is applied may alter the apparent solubility of the B vitamins in alcohol, and stated that in the preparation from wheat of vitamin B extracts as free as possible from vitamin G alcohol of at least 80 per cent by weight or stronger should be used.

Evidence continued to accumulate in many laboratories that vitamin G, as originally differentiated from vitamin B, is itself composed of more than one factor, and that the factor essential for growth is not identical with the one required for the prevention of the pellagra-like symptoms in rats. No satisfactory conclusion had yet been reached concerning the identity or non-identity of these symptoms with human pellagra.

Particularly striking symptoms bearing a close

resemblance to those of human pellagra were produced by Parsons (*J. Biol. Chem.*, Vol. 90, p. 351) in rats on diets supposedly adequate in vitamins but containing excessive amounts (66 per cent) of egg white, and were cured by the administration of large amounts of dried beef liver (a food rich in vitamin G). This suggests the possibility that certain foods may contain antivitamins which must be neutralized by larger amounts of the corresponding vitamin than otherwise required for protection. This theory was originally proposed by Mellanby for vitamin D to account for the decalcifying properties of oatmeal and to a less degree of other cereals. Studies by Steenbock and associates at the Wisconsin Agricultural Experiment Station (Bul. 420, p. 77) supported the theory for vitamin D and also for vitamin E (*J. Nutrition*, Vol. 4, p. 79). In the latter case earlier studies by Evans and Burr had led them to conclude that the destructive effects of certain fats in vitamin E were due to the presence in the fats of an antivitamin.

**Vitamin C.**—In *Time* of Jan. 25, 1932 (Vol. 19, p. 20) the announcement was made of a report to the Norwegian Academy of Science by O. Rygh of the isolation from the juice of unripe oranges by vacuum distillation of a crystalline vitamin C precursor identical with the alkaloid narcotine. Success in stabilizing the crystals so that they could be stored without losing their potency was said to lie in treatment with ultra-violet light. The complete scientific report of this investigation was awaited with interest.

Lemon juice was used as the starting material for attempts by King and associates (*J. Biol. Chem.*, Vol. 94, pp. 438, 491) to isolate vitamin C. The most concentrated preparations thus far obtained were active in doses containing the equivalent of from 0.3 to 0.5 mg. of total solids per cubic centimeter of the original juice. Dry ice was found by them to furnish a particularly suitable storage medium for keeping the unstable purified preparation for two or three weeks.

Oranges and grapefruit were found by Bracewell and Zilva (*Biochem. J.*, Vol. 25, p. 1081) to be so constant in their vitamin C content under varying conditions of season, storage, and variety as to lead to the conclusion that "one may safely assume that oranges and grapefruit bought casually in the open market under normal conditions ought to possess full antiscorbutic value characteristic of these fruits."

**Vitamin D.**—The isolation of vitamin D in a state of approximate purity quite overshadowed all other research of the year on this vitamin, for the evidence seems most convincing that after many years of unsuccessful attempts at isolating one or another of the vitamins success has finally been achieved with vitamin D. As was the case with the discovery that many foods with no antirachitic potency can be rendered potent by irradiation, the successful isolation of vitamin D was announced almost simultaneously by two different groups of investigators, with at least two other groups coming fairly close to success. To Bourdillon and associates at the National Institute for Medical Research, London, and Windaus and associates at the University of Göttingen, Germany, belong the credit for the first successful isolation of vitamin D.

The rapid progress during the year in both laboratories was outlined briefly by Askew, Bourdillon, and associates in a paper submitted for

publication December 10 (*Proc. Roy. Soc. [London]*, Ser. B, Vol. 109, p. 488).

The isolation of vitamin D, interesting as it is from a chemical standpoint, does not immediately solve all questions concerning the behavior of vitamin D in the body and the best means of supplying it. The feasibility of fortifying cow's milk with vitamin D by feeding cows irradiated yeast was reported on favorably by Hess and associates at the annual meeting of the American Medical Association (*J. Am. Med. Assoc.*, Vol. 97, p. 370).

With vitamin D already incorporated in certain cereals and a well-known brand of bread, with vitamin D enriched milk available in some of the larger cities, and with the value of exposure to sunlight almost universally recognized there would seem to be no reason for a serious deficiency of this vitamin provided sufficient attention is paid to an abundance of calcium and phosphorus in the diet without which vitamin D is of little avail. See FOOD AND NUTRITION; MEDICINE, PROGRESS OF.

**VOLCANOS, VOLCANOLOGY.** See GEOLOGY.

**VOLSTEAD ACT.** See PROHIBITION.

**WAGES.** See STATISTICS.

**WAGNER BILLS.** See UNEMPLOYMENT; UNITED STATES under Congress.

**WAGNER MUSICAL FESTIVAL.** See MUSIC.

**WAILING WALL.** See PALESTINE.

**WALES.** A historical division of the United Kingdom. Area, 7466 square miles; population, according to the census of 1931, 2,044,244 (including Monmouthshire), compared with 2,106,866 in 1921. See GREAT BRITAIN.

**WALKER, JOHN BRISBEN.** American editor, publisher, and manufacturer, died in Brooklyn, N. Y., July 7, 1931. He was born on the Monongahela River, Pa., Sept. 10, 1847, and attended Georgetown College and the U. S. Military Academy. He resigned his cadetship at West Point in 1868 to enter the Chinese military service, where he served for two years. In 1870 he engaged in iron manufacturing in West Virginia, but his business was seriously disrupted by the Panic of 1873. He became managing editor of the *Washington Chronicle* in 1876. In 1879 he went to Colorado and engaged in alfalfa farming in that State for the next ten years. In 1889 he returned to New York City where he purchased the *Cosmopolitan Magazine*, which he edited until the sale of the publication to William Randolph Hearst during the year 1905.

**WALLACE, HUGH CAMPBELL.** An American banker and diplomat, died in Washington, D. C., Jan. 1, 1931. He was born in Lexington, Mo., Feb. 10, 1863, and was educated privately. After acting during 1885-87 as receiver of public moneys for Utah, he removed to Tacoma, Wash., where he became prominent in real estate and banking, organizing, with his brother, the Fidelity Trust Company which was later consolidated with the Bank of California. In 1897, following the discovery of gold in the Klondike, he formed the Washington and Alaska Steamship Company. He was appointed Ambassador to France in February, 1919, by President Wilson. Previous to his resignation in July, 1921, he represented the United States on the Supreme Allied Council.

**WALLACH, val'ao, OTTO.** A German chemist, died in Göttingen Mar. 1, 1931. He was born in Königsberg, Prussia, Mar. 27, 1847, and studied chemistry at the universities of Göttingen and



Berlin. He was professor of chemistry at the University of Bonn from 1876 to 1889, and professor in and director of the Chemical Institute at the University of Göttingen from 1889 to 1915. In 1910 he received the Nobel prize in chemistry for his researches on the constitution of organic compounds, especially of camphors and related substances. His studies on the constitution of ethereal oils and perfumes also resulted in important advances in the industries concerned with their artificial production.

**WALLOONS.** See **BELGIUM.**

**WALTERS, HENRY.** An American capitalist, died in New York City, Nov. 30, 1931. He was born in Baltimore, O., Sept. 26, 1848, and attended Loyola College, Georgetown University, and the Lawrence Scientific School at Harvard. He began his railroad service in 1873 with the engineering corps of the Valley Railroad of Virginia (later part of the Baltimore & Ohio system). Two years later he became connected with the Pittsburgh & Connellsville Railroad as assistant to the operating superintendent. Then entering the service of the Atlantic Coast Line Railroad Co., of which his father, William T. Walters, was one of the organizers, he was advanced in 1884 to general manager. In 1902 he was elected chairman of the board of directors of the Atlantic Coast Line Railroad, and the following year chairman of the board of the Louisville & Nashville Railroad. In 1918-20 he was a member of the staff of the Federal director general of railroads, representing the railroad interests.

**WALTERS COLLECTION.** See **ART MUSEUMS.**

**WAB, OUTLAWRY OF.** See **ARBITRATION, INTERNATIONAL; PEACE AND PEACE MOVEMENT.**

**WAR CLAIMS COMMISSION.** See **GERMANY under History.**

**WARD, ROBERT DE COURCY.** An American climatologist, died in Cambridge, Mass., Nov. 12, 1931. He was born in Boston, Mass., Nov. 29, 1867, and was graduated from Harvard University in 1889. He had taught at Harvard since 1890, being successively assistant in physical geography, assistant in meteorology, instructor, assistant professor, and, after 1910, professor of climatology. He was editor of the *Meteorological Journal* from 1892 to 1896, and was the author of *Practical Exercises in Elementary Meteorology* (1899); *Climate Considered Especially in Relation to Man* (1908); and *The Climates of the United States* (1925).

**WAR DEBTS.** See **REPARATIONS AND WAR DEBTS.**

**WARREN, FREDERICK MORRIS.** An American philologist, died in New Haven, Conn., Dec. 6, 1931. He was born in Durham, Me., June 9, 1859, and was graduated from Amherst College in 1880, later studying at the Sorbonne in Paris (1884-86) and at Johns Hopkins University from which he received the Ph.D. degree in 1887. After acting as associate in modern languages at Johns Hopkins until 1891 and as professor of Romance languages at Adelbert College, Western Reserve University, until 1901, he became Street professor of modern languages at Yale University, where he remained until 1926. He wrote *A History of the French Novel Previous to the Seventeenth Century* (1895); and *Ten Frenchmen of the Nineteenth Century* (1904).

**WARSHIPS.** See **NAVAL PROGRESS.**

**WARTHIN, ALFRED SCOTT.** An American pathologist, died in Ann Arbor, Mich., May 23,

1931. He was born in Greensburg, Ind., Oct. 21, 1866, and was graduated from Indiana University in 1888 and with the M.D. degree from the University of Michigan in 1891, later studying in Vienna and Freiburg. He was associated with the medical department of the University of Michigan as assistant and demonstrator in internal medicine (1891-95), demonstrator in pathology (1896), assistant professor (1899), and professor and director of the pathological laboratory (after 1903). His most important researches were on the anatomy and pathology of the hemolymph glands, the pathology of diseases of the blood and blood-forming organs, cardiac syphilis, latent syphilis, tuberculosis, goitre, and toxic action of mustard gas, fat embolism, action of X-rays, heart in diphtheria, thymus, and heredity in cancer.

In addition to more than 1000 articles in medical journals and text-books, he wrote *Practical Pathology* (1896); *Text-book of General Pathology* (1914); *Medical Aspects of Mustard Gas Poisoning* (1919); *Contributions from the Pathological Laboratory of the University of Michigan* (14 vols., 1896-1927); *Old Age—The Major Involution* (1929); *The Creed of a Biologist* (1930); *The Physician of the Dance of Death* (1931).

**WASHBURN COLLEGE.** A coeducational institution in Topeka, Kan., founded in 1865. The enrollment for the summer session of 1931 was 234 and for the autumn term, 761. There were 78 faculty members. The endowment amounted to \$1,351,957, and the income for the year was \$215,375. The library contained 37,051 volumes. President, Philip C. King, A.M., B.D.

**WASHINGTON. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 1,563,396; in 1920 it was 1,350,621. The native whites numbered 1,276,843 (1930), 1,069,722 (1920); the foreign-born whites, 244,256 (1930), 250,055 (1920). The chief of the other races in the population were Japanese, 17,837 (1930). There were also, in 1930, 11,253 Indians, 6840 Negroes, 3480 Filipinos, 2195 Chinese and 562 Mexicans. The urban population—those dwelling in communities of 2500 or over—rose in the decade to 884,539 (1930), from 748,735 (1920). The rural population rose to 678,587 (1930), from 607,886 (1920).

Of 664,813 persons reported in 1930 as in gainful occupations, 174,003 were in the manufacturing and mechanical industries, 40,220 of the group being in saw and planing mills and 37,541 in building. In agriculture were 104,294, including 63,336 farmers. In trade, 115,788; in transportation, 72,768; in domestic and personal service, 60,191; in professional service, 51,586; in forest industry, 30,560. Seattle, the most populous city, had 365,583 inhabitants (1930), 315,312 (1920); Spokane, 115,514 (1930), 104,437 (1920); Tacoma, 106,817 (1930), 96,965 (1920); Olympia, the capital, 11,733 (1930), 7795 (1920).

**AGRICULTURE.** The table on page 835 shows the acreage, production, and value of the principal crops in 1931 and 1930.

**MINERAL PRODUCTION.** The State's leading mineral products in 1929, named in the order of value obtained, were coal, clay products, sand and gravel, and stone. There were mined 2,300,000 short tons of coal in 1930, as against 2,521,327 tons in 1929; the total for 1929 was valued at \$8,647,000. Clay products amounted, in value, to \$2,566,891 for 1929 and to \$1,968,926 for 1928. The total value of all mineral production was \$22,435,358 for 1929; for 1928, \$22,119,541.

Crop	Year	Acreage	Prod. Bu.	Value
Wheat .....	1931	2,357,000	40,843,000	\$20,972,000
	1930	2,305,000	38,278,000	21,600,000
Apples ....	1931	.....	81,400,000	23,550,000
	1930	.....	37,850,000	35,958,000
Hay, tame ..	1931	845,000	1,788,000*	14,947,000
	1930	804,000	1,556,000*	20,695,000
Potatoes ...	1931	44,000	6,820,000	2,728,000
	1930	48,000	7,680,000	5,760,000
Oats .....	1931	158,000	7,742,000	2,477,000
	1930	156,000	7,566,000	2,724,000
Corn .....	1931	37,000	1,369,000	684,000
	1930	34,000	1,292,000	1,197,000
Barley .....	1931	59,000	1,888,000	793,000
	1930	58,000	1,827,000	859,000

\* Tons.

The value of gold, silver, copper, lead, and zinc produced from ore mined in the State of Washington in 1931 was about \$579,000 as compared with \$348,630 in 1930, according to estimates of the U. S. Bureau of Mines. There was a decided decrease in the output of copper resulting from the unusual drop in the price of the metal, and also decreases in the output of both gold and silver. Through the activity of the Pend Oreille Mines & Metals Co., operating near Metaline Falls, the production of both lead and zinc was materially increased over that of 1930 despite the decrease in the average sales prices of both metals. The production of gold decreased more than 30 per cent from \$87,748 in 1930 to about \$60,980 in 1931. The output of silver in the State decreased from 32,816 ounces in 1930 to 23,670 ounces in 1931, and the value decreased from \$12,634 to about \$6800. The output of copper decreased decidedly from 1,206,438 pounds in 1930 to about 82,000 pounds in 1931 and the value decreased from \$156,837 to about \$7520. The output of lead increased from 1,521,585 pounds, valued at \$57,629 in 1930, to about 2,822,000 pounds, valued at about \$107,160 in 1931.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 3665 (nearly 10 per cent more than their number for 1927). These establishments employed 114,591 wage earners (9.7 per cent more than the number employed in 1927). The wages paid them amounted to \$160,513,782 (exceeding the payments for 1927 by 10 per cent). Materials for manufacture, plus fuel and purchased electricity, cost \$426,842,332 (9.5 per cent more than these items had cost in 1927). The manufactured product was valued at \$794,142,726 (17.1 per cent in excess of the total for 1927). Value added by manufacture was placed at \$367,300,394. Seattle, the chief manufacturing centre accounted for roughly one-fourth of the totals. It had 1217 establishments, which employed 22,867 wage earners, paid them wages of \$33,329,630 and produced goods to the total of \$199,570,928. Tacoma had 329 establishments, 14,028 wage earners employed, a wage total of \$18,970,383, and a product of \$140,507,198.

**FINANCE.** State expenditures in the year ended Mar. 31, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$23,351,759 (of which \$9,004,404 was for local education); for interest on debt, \$732,132; for permanent improvements, \$11,655,439; total, \$35,739,330 (of which \$14,154,080 was for highways, \$3,684,399 being for maintenance and 10,469,681 for construction). Revenues were \$40,377,810. Of these, property and special taxes furnished 36.0 per cent; departmental earnings and compensation

to the State for officers' services, 6.0; sale of licenses, 41.7 (in which was included a gasoline sale tax that produced \$6,259,930). Funded debt outstanding on Mar. 31, 1930, totaled \$13,400,289. Net of sinking-fund assets, the debt was \$11,513,331. On an assessed valuation of \$1,253,051,064 the State collected in the year ad valorem taxes of \$13,873,785.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 5541.91. Additions of 44.38 miles to total under operation, made during the year preceding, had slightly exceeded withdrawals of 41.42 miles from operation.

**EDUCATION.** For the academic year ended June 30, 1931, the number of the State's inhabitants of school age was reckoned as 431,974. There were enrolled in the public schools 346,422 pupils. Of these, 3608 were in kindergartens, 252,306 in common schools or elementary grades, and 90,508 in high schools. The year's expenditures for public school education totaled \$33,546,029, of which \$28,067,304 was current expense. Salaries of teachers, by the year, averaged \$1547.

According to State Superintendent Showalter there occurred in 1931 a heavy increase of enrollment in the public secondary schools, bringing the number thus enrolled above previous record for the State. The requirement for the qualification of the elementary teacher was increased to three years of preliminary study, from two years; for the high school teacher a bachelor's degree was required, with time allowance of two years before full application.

**LEGISLATION.** The legislature in its regular biennial session enacted a measure redistricting the State in accordance with Washington's new Federal apportionment of Representatives. It submitted to popular vote, to be taken in 1932, a proposed amendment of the State constitution to alter the system of representation in the State Legislature itself; also a proposed amendment to increase the legislators' compensation. In support of the dairy interests was enacted a prohibitive tax of 15 cents a pound on butter substitutes. Among the tax measures enacted were those exempting intangibles from ad valorem taxation; reducing the rate of interest on delinquent taxes to 10 per cent, from 12; increasing the tax on sales of gasoline to 5 cents a gallon from 3 cents; setting a flat rate of \$3 for automobile licenses.

The Legislature passed a measure to create an income tax, but Governor Hartley vetoed it on the ground that it did nothing effectual to remove the burden of direct taxation on property, of which there had been much complaint. Statutes to regulate the party primaries and to establish a system of permanent registration of voters were enacted. Teachers were required to take an oath of allegiance to the United States. A uniform traffic code, closely conforming to that adopted by Oregon, California, and certain other States, was enacted. The general appropriation bill carried about \$46,000,000 for the needs of the State government for the ensuing two years.

**POLITICAL AND OTHER EVENTS.** Mayor Frank Edwards of Seattle came into disfavor by reason of the dismissal of a veteran civil service employee. He was accused of malfeasance. Upon petition for his recall a special municipal election was held on July 13. The vote was 35,637 for his recall and 21,836 in favor of his retaining office. He was thus removed. The City Council on July 14 elected its president, Robert Harlin, Mayor to

serve until the following June and restored to his position the dismissed civil servant, who had served for 25 years as employee or head of the municipal lighting department.

Late in July forest fires swept some 30,000 acres in the Pend Oreille and Kootenai forests. In March an international joint commission dealing with the claims of residents of the State for damage near the border, sustained from the sulphur fumes of the Consolidated Smelters plant at Trail, British Columbia, made award of \$350,000. The U. S. Reclamation Service announced on July 20 that the State hydraulic authorities had equalized the water rights for the different groups of holders in the Yakima Valley and that the Government would consequently proceed with the long delayed construction of the projected Cle Elum irrigation dam, to cost \$1,500,000 and furnish water to an extensive acreage.

**OFFICERS.** Governor, Roland H. Hartley; Lieutenant-Governor, John A. Gellatly; Secretary of State, J. Grant Hinkle; State Auditor, C. W. Clausen; State Treasurer, Charles W. Hinton; Attorney-General, John H. Dunbar; Superintendent of Public Instruction, N. D. Showalter.

**JUDICIARY.** Supreme Court: Chief Justice, Warren W. Tolman; Associate Justices, John R. Mitchell, John F. Main, Emmett N. Parker, Henry Herman, A. Fullerton, O. R. Holcomb, Walter B. Beals, W. J. Millard, Adam Beeler.

**WASHINGTON, STATE COLLEGE OF.** A co-educational institution for higher learning in Pullman, Wash., founded in 1890 by an act of the State Legislature. The enrollment for the autumn of 1931 was 3216. The summer session had an attendance of 905. There were 335 faculty members. The amount of income for the year, including appropriations made by the State Legislature (millage tax) and income from land grant and Federal funds, student fees, etc., was \$1,764,370. The library consisted of 200,000 volumes. President, Ernest O. Holland, Ph.D.

**WASHINGTON, UNIVERSITY OF.** A State institution of higher education in Seattle, Wash., founded in 1861. The enrollment for the autumn term of 1931 was 6924. The summer-school enrollment totaled 3686. The faculty numbered 465 members. The income from all sources for the scholastic year 1930-31 was \$3,021,718. The library contained 273,335 volumes. President, M. Lyle Spencer, Ph.D.

**WASHINGTON AND JEFFERSON COLLEGE.** A non-sectarian institution for the higher education of men in Washington, Pa., which had its origin in the Washington Academy, founded in 1787 and chartered as Washington College in 1802. Jefferson College at Canonsburg, Pa., was chartered in 1806, and in 1865 the two colleges were united to form Washington and Jefferson College. The enrollment for 1931-32 totaled 434 undergraduates and 14 graduate students. The 1931 summer session enrollment was 125. The faculty numbered 33. The productive funds of the college amounted to \$1,447,877, and the income from all sources was approximately \$208,000. The library contained 44,246 volumes. Acting President, Dean E. M. Weyer, Ph.D.

**WASHINGTON AND LEE UNIVERSITY.** A nonsectarian institution for the higher education of men in Lexington, La., founded in 1749. The enrollment for the autumn of 1931 was 864. There were 58 members on the faculty. The productive funds of the university amounted to \$1,489,536, and the income for the year was

\$338,424. The library contained 70,000 volumes. President, Francis Pendleton Gaines, Ph.D., Litt.D., LL.D.

**WASHINGTON BICENTENNIAL.** See CELEBRATIONS.

**WASHINGTON UNIVERSITY.** A nonsectarian institution of higher learning for men and women in St. Louis, Mo., founded in 1853. The enrollment on Nov. 1, 1931, was 7355, while the number enrolled in the summer session of 1931 was 1050. The faculty for 1931-32 numbered 604. The value of buildings, grounds, and equipment of the institution was estimated at \$12,870,936. The endowment amounted to \$18,697,120, while the income for the year was \$2,794,363. The library contained 318,488 volumes and 92,025 pamphlets. Chancellor, George R. Troop, Ph.D., LL.D.

**WATER POWER.** During 1931 over 900,000 horse power in hydro plants went into operation in the United States and 700,000 horse power in Canada. Construction had been initiated on most of these projects before the depression had set in. A number of projects were temporarily held up because of business conditions, and during 1931 contracts were let for only 150,000 horse power in new water wheels. Work was started on the Hoover Dam (see DAMS) which in addition to providing vast water supply and irrigation will ultimately develop about 1,000,000 horse power. Contracts for the power equipment had not been let up to the end of 1931. The Metropolitan Water Supply District of Southern California, alone, will take 1,000,000,000 gallons of water per day to supply a number of cities in Southern California and will require 400,000 horse power for pumping.

Renewed interest was being shown in development of power along the international section of the St. Lawrence River. More than a year ago New York State created a Power Authority to finance and develop the State's share of this potential power and the board appointed by Governor Roosevelt submitted a plan. Subsequently, negotiations were reopened between the Federal Government and the Dominion authorities for the purpose of formulating a treaty to permit development of the international section as a deep waterway as well as for power.

Of much importance to hydraulic engineers is the National Hydraulic Laboratory for making investigations and tests at the U. S. Bureau of Standards in Washington, D. C. which was begun in the summer of 1931. Although several American universities and water-wheel manufacturers were provided with facilities for hydraulic testing, a laboratory of this character was long needed for the purpose of carrying out fundamental studies.

Among the larger water-power projects that went into service during the year that at Safe Harbor on the Susquehanna River is outstanding. Construction was started in the spring of 1930 and the plant went into operation late in the fall of 1931. The initial installation consists of six 42,500 horse power Kaplan-type wheels operating on a comparatively low head. See POWER PLANTS for illustration.

Another important project was the Rock Island plant of the Puget Sound Power & Light Company on the Columbia River. This has an initial capacity aggregating 84,000 horse power in four propeller-type turbines each of 21,000 horse power, operating on a 50-foot head. Two units with the distinction of being the highest powered in the

United States were put into the Skagit Development for the city of Tacoma. These were Francis type wheels, each with a maximum rating of 90,000 horse power. The second unit went into the Oak Grove plant of the Portland General Electric Co. in Oregon. These were the highest head Francis type wheels operating on a head of 935 feet. They soon would be exceeded by a 56,000 horse power wheel to be installed by the Natchala Power & Light Co. in North Carolina to operate at 965 ft. head. Germany had a Francis type turbine installed at Binghousen to operate at over 1000 feet.

In Canada work was progressing on the Beauharnois development along the St. Lawrence. The 15-mile canal was about completed, the power house was ready and four of the 53,000-horse power units were being installed. The plans called for the installation of 12 units of this size, making a total of 636,000 horse power. Another Canadian project under construction was the Abitibi development of the Ontario Power Service Corp. which was to have five 66,000-horse-power units operating under a head of 150 feet. As in the United States, few new contracts for hydro equipment in Canada were let during 1931. The 700,000 horse power that went into service represented projects that had previously been started. See DYNAMO ELECTRIC MACHINERY; ELECTRIC LIGHT AND POWER; POWER PLANTS.

**WATER SUPPLY.** See AQUEDUCTS, WATERWORKS AND WATER PURIFICATION.

**WATERWAYS.** See CANALS.

**WATERWORKS AND WATER PURIFICATION.** Decisions of the U. S. Supreme Court in two important cases during the year not only cleared the way for two great metropolitan water supply developments but also established for the first time fundamental principles governing the utilization of interstate waters. The general import of the two decisions was the same: The riparian doctrine, which prevails throughout all the eastern and mid-western and some of the far western States, cannot be invoked successfully by a State so as to make its consent necessary before municipalities in another State can take water for public purposes from a stream whose waters are common to both States.

This, in effect, was a principle that the State of Connecticut sought to employ against the State of Massachusetts and specifically the Boston Metropolitan Water District to prevent the District named from diverting for its use waters from tributaries of the Connecticut river. Connecticut tried to prove that the Commonwealth and its citizens and riparian owners, would be materially injured by the diversion, and therefore were entitled to an injunction to prevent the diversion. Connecticut sought also to get a ruling to the effect that the Massachusetts communities needing water had a plentiful supply much closer at hand than the Connecticut River that could be utilized.

The court ruled against all these contentions, holding that Massachusetts was entitled to equitable division of the interstate waters of the Connecticut River; that the damages of the proposed diversion would be immaterial; and that the Massachusetts communities forming the Metropolitan Water District had a right to decide for themselves what water they prefer, especially in view of the fact that the nearby sources are subject to pollution and even though they might be made safe by treatment, yet the Massachusetts

municipalities should not be forced to take them.

In the other case the State of New Jersey sought to prevent New York City from impounding and diverting tributaries of the Delaware River for the use of New York City. In both cases the impounding reservoirs were to be located in the States for the benefit of whose municipalities the water was to be taken. In the Delaware River case the court decided as flatly as in the Connecticut River case that the riparian doctrine could not be invoked as already indicated. In the Delaware River case the court ruled against the full amount of diversion proposed by New York City. Pennsylvania was permitted to intervene in the Delaware River case to protect its own interests.

In both these proposed water supply developments, water was to be stored for use only in times of high stream flow. Interest was added to the Delaware River case through the fact that attempts had been made to obtain the adoption of treaties between New York, New Jersey, and Pennsylvania allocating the rights to the river between the three States. A proposed treaty was agreed upon by the joint commission representing each State and was subsequently modified to meet some of the objections of New Jersey. This treaty was approved by New York State only; was not acted upon by the Pennsylvania Legislature; and was bitterly opposed by New Jersey. The modifications by the Supreme Court in the Delaware River case covered some of the contentions of New Jersey as to amount of water that should be let down the river in times of low flow.

The Boston Metropolitan Commission had already built the easterly part of a tunnel for the enlargement of its water supply, this tunnel extending to one of the Connecticut tributaries. Following the decision it awarded a contract for continuing the tunnel westward to another tributary. New York City had plans ready at the close of the year for beginning the proposed development of an additional water supply from tributaries of the Delaware by building storage reservoirs and a large aqueduct. Albany completed an additional water supply from highland streams making it possible to abandon its supply taken for years from the Hudson River, a highly polluted stream. The Hudson supply, although filtered and chlorinated, no longer met standards of water supply as to quality and had to be pumped. Across the continent the voters in the Metropolitan Water District of Southern California approved a \$220,000,000 bond issue on September 29 to finance the construction of an aqueduct and accessories to bring in a water supply from the Colorado River (see earlier YEAR BOOKS). The possibilities of so treating sewage as to make its reuse for various purposes feasible is discussed under SEWERAGE AND SEWAGE TREATMENT.

**BIBLIOGRAPHY.** New books in this field are Dixey, *A Practical Handbook on Water Supply* (London); Gross, *Handbuch der Wasserversorgung* (Munich and Berlin); Wolman and Gorman, *Significance of Waterborne Typhoid Outbreaks*, 1920-30 (Baltimore). See AQUEDUCTS.

**WEATHER.** See METEOROLOGY.

**WEEVIL.** See ENTOMOLOGY, ECONOMIC.

**WEGENER**, vâgen-ër, ALFRED LOTHAR. A German meteorologist and geophysicist, died in Greenland, November, 1930. He was born in Berlin, Nov. 1, 1880, and was educated at the universities of Heidelberg, Innsbruck, and Berlin.

During 1906-08 he took part in the Danish expedition to Greenland organized by Mylius-Ericksen, and on his return was appointed lecturer at the University of Marburg. In 1912 he joined a second expedition to Greenland, conducted by Colonel Koch. He served with the German Army during the World War.

After 1919 he held a post at the Marine Meteorological Station in Hamburg, and after 1924 was professor of meteorology and geophysics at the University of Graz. He took part in a third Greenland expedition in 1929, and the following year was made chief of the German expedition exploring central Greenland. He met his death while attempting to save the lives of two members of the party who were marooned, but his body was not discovered until May, 1931. He was the originator of the provocative theory of continental drift, according to which the continents were not firmly embedded in the earth's crust but were in continuous but infinitely slow movement, floating on a semiliquid intervening layer. See POLAR RESEARCH.

**WELDING, ELECTRIC.** See ELECTRIC INDUSTRIES.

**WELFARE WORK. INADEQUACY OF PRIVATE CHARITY.** The increasing severity of the depression of 1930 and after plainly indicated the inability of private charity to cope with the extraordinary problems of relief being presented. Social workers themselves tardily confessed that the social consequences of unemployment were too great for private agencies to cope with.

**COMMUNITY CHESTS.** To cooperate with President Hoover in his programme of relief through private and local public charity, there was launched, under the direction of the Association of Community Chests and Councils, in October, a series of local welfare campaigns calling for contributions of \$170,090,000. These campaigns were to take place in 314 cities. It was estimated that of the total fund of \$170,090,000, fully 61.9 per cent had to come from city and county treasuries; 37.6 per cent from private funds; and the remaining 1.5 per cent from miscellaneous sources. The Association of Community Chests and Councils pointed out that these campaigns, however, did not include smaller towns and rural communities. Most of these campaigns were comparatively successful.

**COST OF FAMILY RELIEF IN THE UNITED STATES.** To care for families in distress during 1930, in 100 American cities, cost the American public more than \$40,000,000, on the basis of figures prepared by the U. S. Children's Bureau. This reported expenditure for the same group of cities was almost double that for the year 1929. It is important to understand that this gross figure does not represent expenditures by missions, municipal lodging houses, or other agencies providing individuals with temporary shelter or food, nor does it include relief in the form of "made work" provided by emergency committees and charitable agencies, nor mothers' pensions nor mothers' allowances.

This report, as did the one for the previous year, pointed clearly to the fact that public authority was bearing an increasing share of the burden of relief. In 1930, in the 75 out of the 100 cities in question, 72 per cent of the total expenditure for family relief came from the public treasuries. In 1929, 60 per cent was borne by public agencies.

It is significant to note, too, that not only did the figure increase proportionately but absolutely

as well, with the cities expending 150 per cent more on relief in 1930 than they had in 1929. The following figures show the per cent of total family relief given by public agencies during 1930 in 24 large cities: In Detroit, Mich., 98 per cent of the total money raised for relief came from public departments; in Springfield, Mass., the proportion was 84 per cent; in Newark, N. J., it was 84 per cent; in Grand Rapids, Mich., it was 82 per cent; in Buffalo, N. Y., it was 82 per cent; in Wichita, Kan., it was 77 per cent; in Akron, O., it was 71 per cent; in Columbus, O., it was 69 per cent; in Hartford, Conn., it was 63 per cent; in St. Paul, Minn., it was 60 per cent; in Denver, Col., it was 59 per cent; in New Haven, Conn., it was 49 per cent; in Minneapolis, Minn., it was 45 per cent; in Omaha, Neb., it was 33 per cent; in St. Louis, Mo., it was 30 per cent; in Kansas City, Mo., it was 29 per cent; in Richmond, Va., it was 28 per cent; in Canton, O., it was 19 per cent; in Cincinnati, O., it was 19 per cent; in Louisville, Ky., it was 15 per cent; in Dayton, O., it was 10 per cent; in Cleveland, O., it was 5 per cent; in New Orleans, La., it was nothing as well as in Washington, D. C.

**GIFTS TO PHILANTHROPY.** According to the John Price Jones Corporation, gifts and bequests to philanthropy in New York, Washington, Chicago, Philadelphia, and Baltimore, during the entire year 1931, totaled \$343,834,977, of which \$62,094,287 was given for organized charity. New York City headed the list with a total of \$185,331,299 for various philanthropies. Of the total amount, \$124,356,286 was given through bequests and \$63,698,788 came as a result of direct contributions. The accompanying table indicating the various purposes for which gifts were to be applied shows that organized charity and relief received the largest proportion. On the other hand, the chief beneficiaries of bequests were health and medical organizations.

	Gifts	Bequests
Education . . . . .	\$ 24,131,394	\$ 57,001,155
Organized relief . . . . .	62,094,287	8,822,854
Health . . . . .	12,044,087	57,739,621
Play and recreation . . . . .	1,397,942	614,000
Fine arts . . . . .	15,578,248	5,251,847
Miscellaneous reform . . . . .	6,733,011	49,635,405
Religious purposes . . . . .	6,115,814	36,037,212
Foreign relief . . . . .	528,100	110,000
<b>Total . . . . .</b>	<b>\$128,622,883</b>	<b>\$215,212,094</b>

**EXPENDITURES BY FOUNDATIONS.** According to a study made by the Twentieth Century Fund, organized to administer a trust provided by Edward A. Filene of Boston, there was spent during 1930, by 91 foundations, a total of \$52,500,000. The study pointed out that the foundations in question had capital resources totaling \$800,000,000. Of these, the Rockefeller organizations had \$250,700,000 and the Carnegie organizations had resources of \$237,000,000. The Rockefeller group, through the Rockefeller Foundation, the General Education Board and the Spellman Fund, in 1930, made grants of \$26,400,000; the Carnegie organizations, through the Carnegie Corporation of New York, the Carnegie Institute of Washington and the Endowment for International Peace in the same period made grants totaling \$6,600,000; the Duke Endowment gave away \$2,500,000; the Julius Rosenwald Fund, \$2,400,000; the Commonwealth Fund, \$2,000,000; the Cranbrook Foundation, \$1,900,000; the Milbank



Memorial Fund, \$1,160,000; the M. and L. Guggenheim Foundation, \$700,000; the Russell Sage Foundation, \$660,000; the Juilliard Musical Foundation, \$600,000. More than one-third of the funds given away annually by the foundations examined went for the purpose of supporting medical and public health activities.

**THE NATION'S HEALTH BILL.** According to the Committee on the Costs of Medical Care, the total annual cost of medical care in the United States was \$3,106,000,000. This sum was distributed among the following groups: physicians, \$1,000,000,000; medicines and supplies, \$700,000,000; hospitals, including out-patient departments, \$550,000,000; dentists, \$400,000,000; extra household help, \$123,000,000; nurses (except hospital) \$112,000,000; public health, \$86,000,000; optometrists and opticians, \$50,000,000; chiropractors and naturopaths, \$30,000,000; osteopaths, \$20,000,000; midwives, \$15,000,000; chiropodists, \$15,000,000; dispensaries (not hospital) \$5,000,000.

This Committee, after conducting its inquiries over a period of four years, was able to report that the principal causes of illness among Americans, in their order of occurrence, were the following: epidemic and endemic and infectious diseases, 92.5 per 1000 persons; teeth and gums, 57.5 per 1000 persons; external causes, 54; child birth, 47.2; women's disorders, 31.9; general diseases (including cancer, rheumatism, and diabetes), 21.4; heart and circulatory system, 20.2; ear and mastoid process, 15; skin diseases, 14.8; kidneys, 14.4; lumbago and kindred ailments, 11.2; eyes, 8.5; boils and carbuncles, 5.1; bones and joints, 1.8; men's disorders, 1.5.

**NATIONAL CONFERENCE OF SOCIAL WORK.** The fifty-eighth annual meeting of the National Conference of Social Work met in Minneapolis from June 14 to June 20, and the chief problem before the conferees was the inability of social work to cope with the problems arising out of the economic depression. A significant step taken by the American Association of Social Workers, which met with the conference, was a resolution calling upon its members to study local and State needs and resources in order to effect coöperation with local welfare departments and other State and local organizations for the purpose of developing comprehensive programmes including both public and private activities. The newly elected president of the National Conference of Social Workers was C. M. Bookman, executive director of the Community Chest of Cincinnati, O.

**AMERICAN ASSOCIATION OF PUBLIC WELFARE OFFICIALS.** Organized in 1930 to act as a central clearing house of information relating to special problems of public agencies in the public welfare field, this organization met for the second time in June at Minneapolis during the sessions of the National Conference of Social Work. The purposes of the American Association of Public Welfare Officials were as follows: (1) To promote fuller knowledge and better understanding among public officials and among the public in general about public welfare work in the various governmental units; (2) To develop high standards of public welfare legislation and administrative practice; (3) To standardize and define those positions in public welfare work that require professional training and to assist in the establishment of procedures that will assure the appointment of qualified personnel. As an indication of the nature of the programme of this group, may be found the

existence of three major committees, as follows: The committee on developing and protecting professional standards in public welfare work; the committee on reports and statistics; the committee on uniform settlement laws and interstate problems to develop uniform procedure throughout the country. At the 1931 meeting the following officers were elected: President, William J. Ellis, commissioner of Institutions and Agencies of the State of New Jersey; vice president, Fred K. Hoehler, director, Cincinnati Department of Public Welfare; secretary, Marietta Stevenson, U. S. Children's Bureau; treasurer, Frank Bane, commissioner, State Department of Public Welfare, Virginia. The membership of the organization included public welfare officials employed by the Federal Government, States, counties, and municipalities.

**WELLESLEY COLLEGE.** A nonsectarian institution for the higher education of women in Wellesley, Mass., chartered in 1870 and opened in 1875. The enrollment for the academic year 1931-32 was 1559, which included 51 candidates for the Master's degree. The teaching staff numbered 158. The trust funds as of June 30, 1931, amounted to \$9,389,244, and the income for the year 1930-31 was \$1,221,103 (including dormitories net and exclusive of gifts). An administration building and a zoological laboratory were completed in September, 1931. The library contained about 144,000 volumes. President, Ellen Fitz Pendleton, Litt.D. LL.D.

**WELLS COLLEGE.** An institution of higher learning for women in Aurora, N. Y., founded in 1868. The enrollment for the autumn of 1931 was 260. The faculty numbered 44 members. The endowment amounted to \$1,500,000, and the income for the year from invested funds, tuition, etc., was \$356,232. There were approximately 70,000 volumes in the library. President, Kerr Duncan Macmillan, S.T.D.

**WESLEYAN METHODIST CHURCH.** WESLEYAN REFORM UNION. See METHODISTS.

**WESLEYAN UNIVERSITY.** An institution for the higher education of men in Middletown, Conn., founded in 1831. The 1931 autumn enrollment was 637. The faculty for 1931-32 numbered 77. The productive funds of the university amounted to \$5,133,479, and the income for the year was \$588,207. The library contained more than 170,000 volumes. The centennial anniversary of Wesleyan University was observed Oct. 10-12, 1931. The alumni athletic building also was dedicated, and announcement was made of the raising of more than \$1,000,000 for the centennial fund. President, James L. McConaughy, Ph.D.

**WESTERN AUSTRALIA.** A state of the Australian Commonwealth, occupying the western third of the continent. Area, 975,920 square miles; population, estimated at 420,606 on Jan. 1, 1931, as compared with 332,732 at the census of 1921. Full-blooded aborigines were estimated at 22,898 in 1929. The capital, Perth, had 204,780 inhabitants on Jan. 1, 1931, or nearly half of the total population. The estimated population increase during 1930 was 3843, compared with 10,890 in 1929. In 1928, there were 852 state elementary schools, with an enrollment of 56,994 and 118 private schools, with 12,051 pupils.

The value of Western Australian production in 1929-30, calculated on the basis of value less cost of goods consumed in the process of production, totaled £21,801,704 (£24,003,112 in 1928-29). The 1929-30 total was distributed as



follows: Manufacturing, £7,488,060; agricultural, £5,764,345; pastoral, £4,806,531; mining, £1,506,383; forestry and fisheries, £928,291. The wheat crop for 1930-31 was estimated at 53,000,000 bushels (39,081,183 bushels in 1929-30).

The value of direct overseas imports in 1929-30 was £8,879,171 (£4,061,255 in 1930-31) and of direct overseas exports £16,004,694 (£15,543,178 in 1930-31). Revenue of the state in 1929-30 amounted to £9,750,515 and expenditure £10,268,519, as compared with £9,947,951 and £10,223,919, respectively, in the preceding year. For the 1931-32 budget, see AUSTRALIA under *Finance*. The net loan expenditure during 1929-30 was £3,693,052 and the net state debt at June 30, 1930, stood at £70,970,166. On June 30, 1930, the state had 4111 miles of state-owned and 450 miles of Commonwealth-owned railway lines.

Executive power is vested in a governor, acting through a responsible ministry, and legislative power in a parliament of two houses—the Legislative Council of 30 members elected for six years by electors with property qualifications and the Legislative Assembly of 50 members elected for three years by full male and female suffrage. Governor in 1931, Col. Sir William Robert Campion. Premier and Treasurer, Sir James Mitchell, head of a Nationalist-Country party coalition government. In August, 1931, the State Legislative Assembly passed a private member's motion calling for a referendum on secession from the Australian Commonwealth and directing the Government to introduce the necessary legislation. Cabinet action on the motion was withheld for lack of funds. See AUSTRALIA under *History* for significance of this move.

**WESTERN RESERVE UNIVERSITY.** A nonsectarian institution for the higher education of men and women in Cleveland, O., chartered in 1826. The enrollment for the autumn of 1931 in the regular day curricula was 4408, including Adelbert College, for men, 1064; Flora Stone Mather College, for women, 842; Cleveland College, 289. The enrollment in Cleveland College, the evening school of the university, was 3606, and the enrollment in the courses for teachers in service was 1024. The registration for the 1931 summer session was 1803. The faculty numbered 452. The endowment amounted to \$11,421,525, and the income for the year was \$2,438,838. President, Robert E. Vinson, D.D., LL.D., L.H.D.

**WESTINGHOUSE BRIDGE AT PITTSBURGH, PA.** See BRIDGES.

**WESTMINSTER, STATUTE OF.** See GREAT BRITAIN under *History*.

**WEST POINT.** See UNITED STATES MILITARY ACADEMY.

**WEST VIRGINIA. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 1,729,205, in 1920 it was 1,463,701. The native whites numbered 1,562,414 (1930), 1,315,329 (1920); foreign-born whites, 51,520 (1930), 61,906 (1920); Negroes, 114,893 (1930), 86,345 (1920). Of 570,452 persons reported in 1930 as in gainful occupations, 69,862 were farmers; 29,926, workers for pay on farms; 97,521 coal-mine operatives; 15,541 retail dealers; 26,071 factory operatives. Huntington, the most populous city, had 75,572 inhabitants (1930), 50,177 (1920); Wheeling, 61,659 (1930), 56,208 (1920); Charleston, the capital, 60,408 (1930), 39,608 (1920).

**AGRICULTURE.** The accompanying table shows

the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ...	1931	648,000	650,000*	\$8,060,000
	1930	620,000	817,000*	7,891,000
Corn .....	1931	446,000	12,984,000	6,726,000
	1930	421,000	5,052,000	5,507,000
Potatoes .....	1931	40,000	8,200,000	2,560,000
	1930	38,000	2,394,000	3,112,000
Apples .....	1931	.....	12,954,000	5,182,000
	1930	.....	4,306,000	4,737,000
Oats .....	1931	148,000	8,552,000	1,243,000
	1930	140,000	2,660,000	1,569,000
Wheat .....	1931	113,000	2,373,000	1,448,000
	1930	105,000	1,838,000	1,875,000

\* Tons.

**MINERAL PRODUCTION.** Coal mines, which had furnished some 60 per cent of the State's mineral production, by value, in 1929, were less active in 1930. There were mined, in 1930, 121,472,638 net tons of coal; in 1929, 131,518,855. The value of coal mined was \$181,722,000 for 1930 and \$215,110,000 for 1929. More miners were employed in 1930, and their work averaged a fraction of a ton a day more to the man; but they worked an average of but 204 days in 1930, as against 247 in 1929. The State's output of coke, 1,901,161 short tons, chiefly from by-product ovens, in 1930, as against 1,928,583 in 1929, was fairly maintained as to quantity; it declined slightly in value to \$5,061,759 (1930), from \$5,286,427 (1929). Natural-gas production for 1929 (the latest reported year) was 167,333,000 M cubic feet; for 1928, 163,018,000 M; in value it was \$73,793,000 for 1929 and \$72,265,000 for 1928. There were extracted from natural gas 63,000,000 gallons of gasoline in 1930 and 72,994,000 in 1929; in value, \$3,900,000 (1930, estimated), and \$6,285,000 (1929). The yield of petroleum fell to 5,092,000 barrels for 1930, from 5,574,000 for 1929; and to \$11,700,000 (1930), from \$20,070,000 (1929). Clay products attained a value of \$20,490,255 for 1929; for 1928, of \$19,027,545. Stone, mostly of the cheaper grades, and sand and gravel were each obtained in 1929 to the total value of about \$3,000,000. The total value of the State's mineral production, with allowance for duplications, was \$346,564,746 for 1929; for 1928, \$336,930,948.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments at 1487 (13 per cent more than the number for 1927). These establishments employed 84,460 wage earners (more by 8.8 per cent than had been employed in 1927). The wages paid these earners amounted to \$114,130,578 (an excess over the total for 1927 of 10.4 per cent). Materials for manufacture, plus fuel and purchased electricity, cost \$253,609,031 (exceeding only slightly the total of 1927). The manufactured product attained the value of \$500,393,174 (9.9 per cent in excess of that of 1927). Value added by manufacture was placed at \$246,784,143. Wheeling, the most important manufacturing centre, had in 1929, 112 establishments, which employed 7472 wage earners, paid them wages of \$10,100,213 and produced goods to the total of \$53,389,126.

**FINANCE.** State expenditures of the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$15,288,902 (of which \$2,167,021 was for local educa-

tion); for interest on debt, \$3,043,071; for permanent improvements, \$14,134,128; total \$32,466,101 (of which \$16,242,210 was for highways, \$3,475,399 being for maintenance and \$12,766,811 for construction). Revenues were \$24,700,064. Of these, property and special taxes formed 20.8 per cent; departmental earnings and remuneration to the State for officers' services, 7.8; sale of licenses, 62.3 (including gasoline sale taxes amounting to \$5,408,984). The State's funded debt outstanding on June 30, 1930, was \$74,561,600, of which \$69,078,000 was for highways. Net of sinking-fund assets, it was \$72,537,000. On a property valuation of \$2,033,992,789 were levied in the year taxes of \$2,847,590.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 4045.91. Additions of 42.97 miles had been made during the year preceding to total under operation, and 2.83 miles had been abandoned. In 1931 were built 20.49 miles of new first track.

**EDUCATION.** For the academic year 1930-31 the number of the State's inhabitants of school age was reckoned as 537,408. There were enrolled in the public schools 417,535 pupils. Of these, 355,671 were in common schools or elementary grades, and 59,864 were in high schools. The year's expenditures for public-school education totaled \$26,857,280. Salaries of teachers, by the year, averaged \$918 in the elementary and \$1540 in the high school branch.

**LEGISLATION.** The regular session of the Legislature, which would have terminated on March 14, was repeatedly extended by proclamations of Governor Conley, because of failure to pass the budget bill, carrying the required State appropriations. The two houses were unable to agree on the budget. Behind this disagreement lay an opposition on the subject of the general fiscal policy. The House sought to set up an income tax and other revenue measures that were to lighten direct property taxation and increase the contributions of public utilities. The Senate opposed this plan on the ground that there would result no general reduction of the tax burden, but only a shift. In order to protect the credit of all State subdivisions, the Legislature inserted in the budget bill a provision allowing the State Sinking Fund Commission, the State organization administering the bond service of State subdivisions, to obtain from the Board of Public Works such sums as it might need for payments on local bonds when these were not forthcoming from the debtors. See **OLD AGE PENSIONS.**

**OFFICERS.** Governor, William G. Conley; Secretary of State, George W. Sharp; Treasurer, W. S. Johnson; Auditor, Edgar C. Lawson; Attorney-General, Howard B. Lee; State Superintendent of Free Schools, W. C. Cook; Commissioner of Agriculture, Howard M. Gore.

**JUDICIARY.** Supreme Court: President, Frank Lively; Associate Judges, John H. Hatcher, Homer B. Woods, Raymond Maxwell.

**WEST VIRGINIA UNIVERSITY.** An institution for the higher education of men and women in Morgantown, W. Va., founded in 1867. In the autumn of 1931 the enrollment was 2600. There were 1700 registered in the summer school of the same year. The faculty numbered more than 300. The libraries contained 120,000 volumes. President, John Roscoe Turner, Ph.D.

**WETTERLE, ABBÉ EMILE.** An Alsatian political leader and journalist, died in Ouchy, Switzerland, July 24, 1931. He was born in Colmar Apr.

2, 1861, and in 1889 was ordained a priest in the Roman Catholic Church. Entering on his political career in 1893 as one of the leaders of the pro-French movement, he founded the *Alsatian Courier*, and from 1898 to 1914 was a member of the Reichstag for Alsace. In 1910 he founded the Alsatian National Party, although he had been previously condemned to imprisonment by the German authorities for his political activities. On the outbreak of the World War he entered the service of France, and from 1919 to 1924 was a member of the Chamber of Deputies, representing the Upper Rhine. After 1924 he served as canonie counselor to the French Embassy at the Vatican.

**WHEAT.** As in the preceding year the world's wheat situation in 1931 was characterized by large supplies and generally low prices. The U. S. Department of Agriculture pointed out that on July 1, 1931 the surplus producing countries generally had on hand larger stocks than they had July 1, 1930. Stocks in importing countries were regarded as smaller than the year before. Nearly all European importing countries restricted imports and France, Germany, and Italy advanced their domestic wheat milling requirements to improve the home market for the 1931 crop. A reduced rye crop in Europe, it was thought, would affect wheat requirements to some extent. The International Institute of Agriculture placed the world wheat supplies available for export during the commercial year 1931-1932 at 1,260,000,000 bushels and the import demands at 880,000,000 bushels.

The total production in 1931 of 39 countries reporting to the International Institute of Agriculture was estimated at 3,575,912,000 bushels as compared with 3,657,783,000 bushels in 1930 and 3,487,449,000 bushels the annual average for the five years 1925-1929. The 1931 area, 236,022,000 acres, was 4.4 per cent below the area of the preceding year and 2.4 per cent above the average area for the five-year period. The yields for the leading countries other than the United States were reported as follows: India, 347,275,000 bushels; Canada, 298,000,000 bushels; Italy, 247,933,000 bushels; Germany, 155,545,000 bushels; Spain, 134,426,000 bushels; Rumania, 127,866,000 bushels and Yugoslavia, 98,789,000 bushels. The total production in 1931 of 22 European countries not including France and the Soviet Republics was given as 1,405,789,000 bushels, and the area as 73,833,000 acres.

The French yield was estimated provisionally at 269,630,000 bushels and the area at 12,494,000 acres. The yield of the Soviet Republics in 1930 was reported as 1,083,921,000 bushels on an area of 83,795,000 acres and the area for 1931 as 92,369,000 acres. The data on the world's production given above include an estimate of 170,000,000 bushels as the Australian production in the crop year 1931-1932. The yield of Argentina, the leading wheat producing country south of the equator, in the crop year 1930-1931 was reported as 235,958,000 bushels and the estimate for 1931-1932 as 218,621,000 bushels.

The total wheat production of the United States in 1931 as estimated by the Department of Agriculture was 892,271,000 bushels which was 34,111,000 bushels or 4 per cent greater than the 1930 crop and 79,698,000 bushels or 9.8 per cent greater than the crop of 1929. The total area harvested in 1931 was placed at 54,949,000 acres, or 6,189,000 acres less than in 1930 and 7,722,000 acres less than in 1929. The

average yield per acre in 1931 was 16.2 bushels. The average farm price on Dec. 1, 1931, 44.3 cents per bushel or the lowest on record, gave the crop a total value of only \$395,600,000, the lowest since 1900.

During the fiscal year ended June 30, 1931, the United States exported 76,365,000 bushels of wheat, 11,728,000 barrels of flour, and 2,019,000 pounds of wheat products for table use. The imports for the year were 19,053,000 bushels of wheat and 228,000 pounds of flour. See *AGRICULTURE*; CANADA under *Production, Business Conditions, and History*; UNITED STATES under *Administration*.

**WHITE HOUSE CONFERENCE ON CHILD HEALTH AND PROTECTION.** See *CHILD LABOR*; *CHILD WELFARE*.

**WHITNEY MUSEUM OF ART.** See *ART MUSEUMS*.

**WICKERSHAM LAW ENFORCEMENT COMMISSION.** See *CRIME*; *LAW, PROGRESS AND DEVELOPMENTS*; *PROHIBITION*.

**WIGGIN REPORT.** See *REPARATIONS AND WAR DEBTS*; GERMANY under *History*.

**WILEY, ANDREW J.** An American engineer, died in Monrovia, Calif., Oct. 8, 1931. He was born in New Castle Co., Del., July 15, 1862, and was graduated from Delaware University, Newark, in 1882.

He designed the Don Pedro dam and power plant for the Turlock and Modesto irrigation districts in California during 1918-23 and was consulting engineer for a number of other water and power projects in California. After 1925 he was engaged as construction engineer on dam design to the U. S. Department of the Interior, being a consultant on the Hoover Dam project, and in 1927-28 was employed by the British Government on bridge and irrigation work in India. At the time of his death he was a consultant on the Colorado River aqueduct project of the Metropolitan Water District of Southern California.

**WILKINS' POLAR EXPEDITION.** See *POLAR RESEARCH*.

**WILLIAM AND MARY, COLLEGE OF.** An institution for the higher education of men and women in Williamsburg, Va., founded in 1693. The enrollment for the autumn of 1931 was 1612; there was also an enrollment of 1732 students in extension classes in Norfolk, Richmond, and Newport News. The registration for the 1931 summer session was 772. There were 75 members on the faculty. The endowment amounted to \$659,733, and the income for the year was \$1,383,259. The library contained 75,000 volumes. In 1931 three new departments were added: Aviation, library science, and secretarial science. In connection with the Williamsburg restoration, the main building and President's home had been restored and the Brafferton building was in process of restoration, thus completing the three original college buildings. President, Julian A. C. Chandler, Ph.D.

**WILLIAMS, GARDNER STEWART.** An American hydraulic engineer, died in Ann Arbor, Mich., Dec. 12, 1931. Born in Saginaw, Mich., in 1866, he was graduated from the University of Michigan in 1889. After acting as engineer of water-works construction at several cities, he became in 1893 civil engineer to the board of water commissioners of Detroit. From 1899 to 1904 he was professor of experimental hydraulics at Cornell University, where he also was engineer in charge of the hydraulic laboratory. He was then called to

the University of Michigan as professor of civil, hydraulic, and sanitary engineering, and in 1911 became a consulting engineer, specializing in hydraulics and water power. He was an early advocate of the development of the St. Lawrence waterway and was a member of the International Waterways Commission during 1903-05.

**WILLIAMS COLLEGE.** A nonsectarian college for men in Williamstown, Mass., founded in 1793. The enrollment for the autumn of 1931 totaled 809. There were 85 members on the faculty, of whom 16 were new appointees. The productive funds of the college amounted to \$7,610,986, and the income for the year ending June 30, 1931, was \$832,540. The library contained approximately 135,000 volumes. President, Harry Augustus Garfield, LL.D. See *POLITICS*, *INSTITUTE OF*.

**WILLY.** See *GAUTHIER-VILLARS, HENRY*.

**WINDWARD ISLANDS.** A group of British-owned islands in the West Indies, comprising Grenada, St. Vincent, and St. Lucia, together with the Grenadines (which are one-half under Grenada and one-half under St. Vincent); forming the eastern limit of the Caribbean Sea between Martinique and Trinidad. (See articles on the islands mentioned above.) Each of the islands is under its own government, but they are united for certain common purposes and have a court of appeals. Governor in 1931, Sir Thomas Vans Best. See *BRITISH WEST INDIES*.

**WIRELESS TELEGRAPHY AND TELEPHONY.** See *RADIO COMMUNICATION*.

**WISCONSIN. POPULATION.** According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 2,939,006, in 1920 it was 2,632,067; native whites numbered 2,527,646 (1930), 2,156,810 (1920); foreign-born whites, 386,213 (1930), 460,128 (1920). Among those of other races in the population were Negroes, 10,739 (1930), 5201 (1920); Indians, 11,548 (1930); Mexicans, 2396 (1930). The urban population—dwellers in communities of at least 2500—rose to 1,553,843 (1930), from 1,244,568 (1920). The rural population diminished to 1,385,163 (1930), from 1,387,499 (1920).

Of 1,129,546 persons reported in 1930 as having gainful occupations, 290,134 were in agriculture, 177,287 of them being farmers; in manufacturing and mechanical industries were 375,852, including 59,460 in the building industry; in trade were 157,478; in transportation, 87,576; in domestic or personal service, 81,360; in professional service, 77,160. Milwaukee, the most populous city, had 578,249 inhabitants (1930), 457,147 (1920); Racine, 67,542 (1930), 58,593 (1920); Madison, the capital, 57,892 (1930), 38,378 (1920); Kenosha, 50,262 (1930), 40,472 (1920).

**AGRICULTURE.** The table on page 843 shows the acreage, production, and value of the principal crops in 1931 and 1930.

**MINERAL PRODUCTION.** The most substantial single element of the State's mineral industry was the production of stone, which amounted to 4,004,200 short tons for 1929 and 3,313,740 tons for 1928; in value to \$6,166,708 (1929) and \$5,516,017 (1928). The iron mines sold 1,148,277 long tons of iron ore in 1930 and 1,789,721 tons in 1929; in value these quantities came to \$3,179,175 (1930) and \$4,848,978 (1929). Clay products amounted in value to \$2,801,309 for 1929 and \$1,007,826 (exclusive of pottery) for 1928. Sand and gravel were dug to the value of \$4,574,182 in 1929 and formed a considerable

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ..	1931	3,180,000	3,883,000*	\$42,980,000
	1930	3,860,000	4,992,000*	53,998,000
Corn .....	1931	2,080,000	58,240,000	27,373,000
	1930	1,981,000	67,854,000	48,495,000
Oats .....	1931	2,459,000	68,852,000	18,590,000
	1930	2,435,000	97,400,000	32,142,000
Potatoes ...	1931	268,000	24,924,000	7,477,000
	1930	239,000	18,164,000	14,531,000
Barley .....	1931	781,000	19,006,000	8,173,000
	1930	708,000	23,902,000	12,190,000
Tobacco ...	1931	40,000	47,200,000*	3,776,000
	1930	43,000	52,890,000*	5,289,000
Rye .....	1931	175,000	2,188,000	963,000
	1930	194,000	2,425,000	1,091,000
Wheat .....	1931	88,000	1,544,000	891,000
	1930	99,000	2,063,000	1,499,000

\* Tons.    \* Pounds.

part of the year's mineral total. The total value of the State's native mineral production was \$24,222,229 for 1929; for 1928, \$20,938,179.

MANUFACTURES. Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 7430 (slightly below the number for 1927). These establishments employed 264,061 wage earners (some 6.6 per cent more than the number employed in 1927). The wages paid these earners amounted to \$352,813,581 (9.4 per cent more than the wage payments of 1927). Materials for manufacture, plus fuel and purchased electricity, cost \$1,205,139,221 (nearly 5 per cent more than these had cost for 1927). The year's product was valued at \$2,158,400,172 (an excess over 1927 of 9.4 per cent). Value added by manufacture was placed at \$953,260,951. More than one-third of the manufacturing activity was concentrated in Milwaukee, which had, in 1929, 1767 establishments, employing 94,868 wage earners, to whom were paid wages of \$136,768,016, while the manufactured product attained \$700,730,158. Racine had 184 establishments, 12,893 wage earners, a wage total of \$19,000,885, and a product of \$132,739,836.

FINANCE. State expenditures in the year ended June 30, 1930, as reported by the U. S. Department of Commerce, were: for maintaining and operating governmental departments, \$35,672,622 (of which \$7,824,100 was for local education); for interest on debt \$102,459; for permanent improvements, \$17,479,989; total, \$53,255,070 (of which \$20,500,657 was for highways, \$4,648,931 being for maintenance and \$15,851,726 for construction). Revenues were \$61,093,819. Of these, property and special taxes furnished 40.5 per cent; departmental earnings and compensation to the State for officers' services, 9.8; sale of licenses, 38.7 (in which was included a gasoline sale tax that produced \$7,979,235). Funded debt outstanding on June 30, 1930, totaled \$1,363,700, both gross and net. On an assessed valuation of \$6,688,448,315 the State levied in the year ad valorem taxes of \$12,668,821.

TRANSPORTATION. The total number of miles of railroad line under operation on Jan. 1, 1931, was 7288.13. Only 0.06 mile had been added to total under operation during 1930 while operation of 45.08 miles had been given up.

EDUCATION. For the academic year 1929-30, the number of the State's inhabitants of school age (from 4 to 20 years) was reckoned as 880,661. There were enrolled in the public schools 528,130 pupils. Of these, 409,879 were in common schools or elementary grades, and 118,251 were in high schools. The year's expenditures for education totaled \$56,050,376. Salaries of teachers, by the year, amounted to an average of \$1450.

CHARITIES AND CORRECTIONS. Under the laws applying in 1931 the State Board of Control, the central body dealing with persons in institutional care or custody, exercised fairly full administrative powers. It was composed of three members and had charge of 17 institutions, with 8628 persons registered as inmates. Their aggregate rated capacity was 6848. About half of the excess over this capacity was in the State prison.

LEGISLATION. One of the chief enactments of the year's regular session of the Legislature was a labor code characterized in Wisconsin as the most advanced ever enacted in any State Legislature. This code gave legal standing to strikes, forbade "yellow dog" or strike-renouncing contracts of employee with employer, and severely restricted the resort to injunctions in the course of labor disputes. Another measure designed to benefit social groups at the disadvantage of capital was that enabling municipalities, subject to necessary amendment of the State constitution, to enter unhindered into the power industry, save for observing regulations applying to private companies. These regulations were extensively revised.

The State tax on the sale of gasoline was increased to the rate of 4 cents a gallon, from 2 cents, and part of the expected proceeds was assigned to the elimination of some 90 grade crossings. The remainder of a programme of public works for the relief of unemployment was left to a possible later session. Provision was made for more thorough protection of the State forests from fire and for the purchase of additional land for forestation by the State. Taxes on motor trucks, telephone companies, and insurance companies were increased, and the State income tax was raised to a point where it was to bring in an additional \$800,000 a year. The three-year average as the base of income for taxation was abolished and provision was made for basing tax on one year's income. Despite the opposition of Governor LaFollette, resident fishermen were required to have a license, to cost 50 cents a year; the Governor later vetoed the fishing license. Per contra, property and millage taxes yielding some \$4,400,000 a year were repealed. While the State's direct taxation of property was not absolutely abolished, the administration announced its intention not to collect any such tax for the two years to follow.

The regular session failed to redistrict the State for the election of Federal Representatives and to reapportion representation in the Legislature itself. It did not pass a measure recommended by Governor LaFollette for the special taxation of dividends. In common with a number of other dairy States, Wisconsin put almost prohibitive restrictions on commerce in oleomargarine. A system of licenses was enacted, exacting \$50 a year from boarding houses and lumber camps using oleomargarine, \$100 from restaurants and small retailers handling it, and so on up to \$500 from wholesalers and \$1000 from manufacturers; infractions were made punishable by heavy fines and by jail sentences.

POLITICAL AND OTHER EVENTS. At his inauguration as Governor in January, Philip F. LaFollette enunciated policies that were regarded by the conservative opinion in the State as highly radical. Much of his programme, which would have obligated the State to substantial increase of expenditure, was killed in the Legislature. He somewhat curtailed his own power by supporting and signing a bill creating a Governor's Council

of 20 members. This council, which came into being in May, was designed to investigate and to render advisory reports on any matters submitted to it either by the Governor or by the Legislature. Its membership was designed to include representatives of both labor and capital, as well as of other groups. The theory was that it would on the one hand furnish non-political consideration of public problems and, on the other, would afford the Governor the means, if he so desired, of escaping plenary responsibility for his acts.

**OFFICERS.** Governor, Philip F. La Follette; Lieutenant-Governor, Henry A. Huber; Secretary of State, Theodore Dammann; State Treasurer, Scott Levitan; Attorney-General, John W. Reynolds; State Superintendent of Schools, John Callahan.

**JUDICIARY.** Supreme Court: Justices, Marvin B. Rosenberry, Walter C. Owen, Chester A. Fowler, Oscar M. Fritz, John D. Wickhem, George B. Nelson, Edward T. Fairchild.

**WISCONSIN, THE UNIVERSITY OF.** A State institution of higher education in Madison, Wis., founded in 1848. The enrollment for the autumn of 1931 was reported at 8765. For the 1931 summer session the enrollment totaled 5088. The faculty numbered 1401, including 254 new members. The endowment as of June 30, 1931, was \$1,341,660, while the income for 1930-31 was \$9,669,299. The library contained approximately 874,000 volumes and 415,000 pamphlets. President, Glenn Frank, Litt.D., L.H.D., LL.D.

**WOMAN'S CHRISTIAN TEMPERANCE UNION, NATIONAL.** An all-partisan and all-sectarian movement which has as its purpose the protection of the home through the abolition of the liquor traffic. It is comprised of 10,000 local unions with an approximate membership of 600,000, and is organized in every State, territory, and dependency of the United States. The Young People's Branch for both young men and women who are united for total abstinence and law observance, and the Loyal Temperance Legion for children are under its supervision. The official organ is the *Union Signal*. The *Young Crusader* is published for boys and girls.

In June, 1931, an international gathering was held in Toronto, Canada, by the World's W. C. T. U., with an attendance of about 1400 delegates representing 50 nations, more than 1000 of whom were from the United States. At this convention Mrs. Ella A. Boole, president of the United States organization, was elected president. During the closing months of 1931 the National W. C. T. U. launched a series of 25 regional conferences in the interest of law observance, beginning at Washington, D. C., and covering all sections of the United States. The officers for 1931-32 were: President, Mrs. Ella A. Boole; vice-president-at-large, Mrs. Ida B. Wise Smith; corresponding secretary, Mrs. Anna Marden DeYo; treasurer, Mrs. Margaret C. Munns; recording secretary, Mrs. Sara H. Hoge; assistant recording secretary, Mrs. Nelle G. Burger. A legislative headquarters is maintained at the Hotel Driscoll, Washington, D. C.; national headquarters and administrative offices are in Evanston, Ill. See **PROHIBITION**.

**WOMAN SUFFRAGE.** See **SPAIN, JAPAN, TURKEY, and SOUTH AFRICA** under *History*.

**WOMEN, NATIONALITY OF.** See **INTERNATIONAL LAW**.

**WOMEN IN INDUSTRY.** The Women's Bureau of the U. S. Department of Labor, headed by Miss Mary Anderson, continued its policy of

not only agitating in the interests of women employed in industry for the improvement of their industrial conditions, but also seeking to secure and publish on a scientific basis information on the wage, hours, and conditions of labor of America's working women. Two studies completed during the year throw interesting light on the status of women in the modern mechanical age, the first relating to women in the cigar and cigarette industries where the introduction of machinery has led definitely to technological unemployment, and the second a study of the fluctuation of employment in the radio industry.

The study of women employed in the cigar and cigarette industries was made during 1929 and 1930 and was conducted with a view toward ascertaining the effects of the change from hand to machine labor. In the cigar study, 11 States and 96 plants came under consideration. To determine whether the women who had lost their jobs in cigar factories were reemployed in the same industry or were being absorbed into others, visits were made to the homes of 1150 such dispossessed workers. One-half of the women reporting on the length of time on their employment in the cigar industry indicated that they had been associated with it for 10 years or longer; one-fifth had been associated with it for 20 years or more. Of the 1150 dispossessed workers, one-eighth had found no other employment. Of the seven-eighths who obtained subsequent jobs, almost all reported loss of time, one-third declaring a loss of 50 per cent.

As regards the employment of women in cigarette factories, data were obtained for 5798 of whom three-fifths were white and two-fifths Negro. Concerning the dispossessed workers, it was found that one-fifth had not been employed in any work at all since their separation from the industry; while three-fourths of the total number who had been employed had worked only part time since the separation. Of those who reported the time lost due to industrial reasons, more than two-fifths had lost 50 per cent or more of the time that had elapsed since they were dispossessed from their jobs.

Another important study was concerned with the employment of women in slaughtering and meat packing, where fluctuations in employment were very marked. Data were collected for 34 plants in 13 cities in 9 States, involving 5101 women. The median of an actual week's earnings taken from the payrolls of 5093 women was \$16.85. One in three of the women was paid less than \$15 and one-tenth received less than \$12. The median of the year's earnings of 2003 women was \$899. In two large cities, over 80 per cent of the women reported that they had some break in employment during the year, more than 30 per cent being off the payroll for 27 weeks or more. In both cities, one-half of the women were off the payroll because of layoffs.

Another study completed by the Bureau was the investigation of women in the power laundry industry made with the cooperation of the Laundry Owners National Association. The survey covered 20,000 women working in 290 laundries. More than four-fifths of the women whose nativity was reported were native born; Negroes made up one-fourth of the total. Women who were or who had been married constituted about two-thirds of the white and seven-tenths of the Negro employees. Less than 9 per cent of the women worked a 10-hour day while three-tenths worked 8 hours or less. About one-half of these workers were em-



played for 48 hours or less a week. For the white women reported as working full time, the median of the weekly earnings was \$17.80; for the Negro women it was \$10.25.

The Women's Bureau reported that while State legislatures met in all but four States in 1931, little positive action resulted. The most important legislative achievements to be noted were the following: In North Carolina, a new law was enacted establishing a 11-hour day but reducing weekly hours to a maximum of 55. Seasonal industries and agriculture were exempted. In New York, an amendment to the overtime provision of the law applying to women's hours in mercantile establishments was passed. The amount of overtime allowed was reduced and flexibility was introduced in permitting one 10-hour day in the 48-hour week and by allowing a limited amount of overtime with the 48-hour week, providing an equal amount of time off was given. In Louisiana, a law was passed reducing women's hours from a 10-hour day, 60-hour week, to a 9-hour day, 54-hour week. In Massachusetts, an act was carried authorizing the appointment of an unpaid commission to investigate the operation of the minimum wage law.

**WOMEN'S CLUBS, GENERAL FEDERATION OF.** An organization founded in 1889 and chartered by act of Congress in 1901 for "the promotion of movements looking toward the betterment of life." In 1931 the general federation was composed of approximately 14,500 clubs in the United States and 70 clubs outside the United States; affiliated with it were 15 national and international organizations. The work, as outlined by the general federation, is conducted through State federations which, in turn, are composed of district and county federations made up of individual clubs. The official publication is *The Clubwoman*. A convention was held in Denver, Colo., June, 1930, at which Mrs. John F. Sippel was re-elected president for the ensuing biennial period. Headquarters are at 1734 N Street, N. W., Washington, D.C.

**WOOD, WOOD PULP.** See **FORESTRY.**

**WOOL.** Despite the low prices prevailing during the past few years the world's wool production continues to be large. The combined 1931 clips of seven countries, which usually produce about four-fifths of the total wool, was about 5 per cent larger than in 1930. Exclusive of Russia and China, the 1931 total was almost as large as the record clip of 1928. In the United States the wool clip was 368,000,000 pounds in 1931, an increase of 7 per cent over the preceding year.

Heavy production and reduced demands during the last few years had created a large surplus of wool. It was estimated that the stocks of foreign and colonial wool in the United Kingdom were about 130,000,000 pounds larger at the end of September, 1931, than they were a year before. Foreign wool prices continued the decline begun in 1928, but in February, 1931, recovered and moved upward until the middle of March, after which they declined again. However, following the October sales in London, prices in the markets of Australia and the Union of South Africa improved and the year closed with stronger markets. In the United States the price of domestic wool declined more slowly than foreign prices.

Wool consumption in the United States increased markedly during 1931 and in July con-

sumption by manufacturers was highest for any month since May, 1923.

The imports of wool into the United States continued to decline during 1931. The amount of carpet wool brought in increased from 93,494,521 pounds during the calendar year 1930 to 120,501,682 pounds for the same period in 1931. On the other hand clothing wool decreased from 14,702,891 in 1930 to 6,343,838 pounds in 1931, and combing wool imports decreased from 54,363,170 pounds to 30,954,314 in the respective years. See **AGRICULTURE** under *Coöperative Marketing*; **TEXTILE INDUSTRY.**

**WORCESTER POLYTECHNIC INSTITUTE.** A nonsectarian institution for the technical education of men in Worcester, Mass., founded in 1865. The enrollment for the autumn semester of 1931 totaled 704. The faculty numbered 74. The productive funds of the institute amounted to \$3,145,651, and the income for the year was \$333,485. There were 23,500 volumes in the library. President, Ralph Earle, D.Sc., D.Eng., LL.D., Rear Admiral, U. S. N., ret.

**WORKERS IN THE UNITED STATES.** See **STATISTICS.**

**WORKMEN'S COMPENSATION.** ACCIDENTS IN SELECTED MANUFACTURING INDUSTRIES, 1926-29. Figures gathered by the Federal Bureau of Labor Statistics indicated that for the combined group in 29 industries during 1929, for every 1,000,000 man-hours worked there occurred 26.94 accidents. In 1928, the rate was 26.13; in 1927, it was 25.92; in 1926, it was 31.17. The severity rate in 1929, was 2.42; in 1928, it was 2.52; in 1927, it was 2.70; in 1926, it was 3.31. The severity rate was defined as the number of days lost per 1000 man-hours worked, including allowances for death and permanent disabilities. In the 29 manufacturing industries covered by this survey in 1929, in which 1,276,103 workers were included, there occurred 610 deaths, 4801 cases of permanent disability, and 92,733 cases of temporary disability.

**ACCIDENT EXPERIENCE OF ESTABLISHMENTS REPORTING TO THE NATIONAL SAFETY COUNCIL, 1929.** The accident experience in 1929 of 3603 industrial establishments is shown in the table on page 846, published by the Council.

**QUARRY ACCIDENTS IN THE UNITED STATES IN 1929.** A report made by the U. S. Bureau of Mines on quarry accidents in the United States during the calendar year 1929 showed an increase of 13 per cent in the fatality rate, as compared with 1928, but a decrease of 1.4 per cent in the non-fatal injury rate. The average number of men employed in and around quarries in 1929 was 85,561, for an aggregate volume of employment equal to 22,967,579 man-days. Accidents during the year resulted in 126 fatalities and 9810 non-fatal injuries.

**DEPENDENTS OF VICTIMS OF FATAL INDUSTRIAL ACCIDENTS IN PENNSYLVANIA IN 1929.** In order to ascertain the number of persons directly affected by industrial fatalities in this State, the director of the Bureau of Statistics of the Pennsylvania Department of Labor and Industry analyzed the dependency involved in 1798 fatalities for which compensation was paid in 1929. Only 6 of the 1798 persons killed were women and 5 of these had no dependents. Of the 1792 male wage earners killed, 434 or 24.2 per cent were single, 1233 or 68.8 per cent were married, 76 or 4.3 per cent were widowed, and 49 or 2.7 per cent were divorced. Only 275 out of the 559 single, widowed,



## ESTABLISHMENTS, EXPOSURE, AND ACCIDENT RATES, BY INDUSTRIES, 1929

[Arranged in order of frequency rates, from high to low]

Industry	Number of establishments	Hours of exposure	Accident frequency rates (per 1,000,000 hours' exposure)	Accident severity rates (per 1,000 hours' exposure)
Mining .....	162	82,095,942	74.48	9.99
Meat packing .....	18	102,832,500	55.94	1.47
Construction .....	397	127,344,489	50.41	4.62
Refrigeration .....	44	20,255,495	43.85	3.04
Woodworking and lumbering .....	222	160,257,172	42.83	3.59
Tanning and leather .....	34	28,552,020	31.35	1.60
Foundry .....	229	409,795,710	30.30	1.73
Electric railways .....	46	78,445,722	29.75	1.98
Metal forming .....	347	324,732,946	29.71	1.67
Ceramic .....	42	19,301,791	28.98	1.07
Paper and pulp .....	215	196,881,082	28.48	1.77
Petroleum .....	79	565,701,537	26.78	2.49
Quarry .....	125	18,011,588	26.71	6.11
Nonferrous metallurgical .....	26	37,515,661	23.16	2.71
Public utility .....	403	589,150,210	22.58	3.18
Automobile .....	67	346,572,374	22.17	.97
Railway car and equipment .....	37	69,096,822	21.88	2.20
Food .....	171	137,278,278	21.07	1.50
Rubber .....	42	175,157,500	19.25	1.24
Machinery .....	212	448,621,236	18.91	1.11
Steel .....	128	567,248,244	18.13	2.75
Glass products .....	17	20,452,053	17.70	.86
Chemical .....	172	206,489,640	17.50	1.72
Laundry .....	34	10,174,088	12.78	1.53
Printing and publishing .....	20	14,059,889	12.23	.07
Textile .....	153	199,749,575	11.82	.58
Cement .....	138	75,739,429	9.55	3.64
Total * .....	3,603	5,058,942,837	25.53	2.23

\* Includes also miscellaneous industries.

and divorced male wage earners had dependents. For the total of 1233 married men, there were left 3762 dependent persons. In addition, the deaths of 64 widowers left 122 children under 16 orphaned. In all, in the 1798 fatal cases, 284 of the victims had no dependents while 1514 left 4213 persons who had been dependent upon them. According to this analysis, for every 2 of the 1798 persons killed in industrial accidents, 5 persons became dependent on the State compensation system.

**OCCUPATIONAL DISEASES IN MASSACHUSETTS IN 1930.** In Massachusetts, the State Department of Labor for the year 1930 found that there had occurred 389 cases of industrial disease, including 4 fatalities, divided as follows: dermatitis, 223; gas and fume poisoning, 77; lead poisoning, 46; anthrax, 9; pneumoconiosis, 8; other dust poisoning, 8; tuberculosis, 6; chrome poisoning, 5; all other, 7. One fatality each occurred among the anthrax, pneumoconiosis, tuberculosis, and "all other" groups.

**PENNSYLVANIA.** The annual report of the Pennsylvania Bureau of Workmen's Compensation showed a decided decrease in the number of industrial accidents in 1930 as compared with 1929. The total number of accidents, causing a time loss of two days or more for 1930, was 144,679, including 1762 fatalities. This represented a reduction of 11.9 per cent in fatal accidents and 13.2 per cent in non-fatal accidents in 1929. Undoubtedly, the continued depression of 1930 was to a considerable extent responsible for this reduction, though an intensive safety campaign conducted by the Department of Labor and Industry played an important part.

**FRANCE.** In January, 1931, a law was passed amending the law of 1919 for the purpose of extending the provisions of the workmen's compensation law to certain occupational diseases. The earlier law made provision for the payment of compensation only for cases of poisoning from lead or mercury. The 1931 law adds to the com-

pensable diseases, cases of occupational poisoning from tetrachlorethane, white phosphorus, and benzol, and the toxic conditions resulting from the action of X-rays or the following radio-active substances: Uranium and its salts, uranium X, ionium, radium and its salts, radon, polonium, thorium, mesothorium, radiothorium, thorium X, thoron, and actinium.

**GREAT BRITAIN.** In 1929, in the seven great industrial groups of shipping, factories, railways, docks, mines, quarries, and construction work, a total of £6,570,000 was paid out in compensation during the year. In the industries in question there were employed 7,450,112 workers. Among these in 1929 there occurred a total of 481,421 compensation cases of which 2819 were fatal and 478,602 non-fatal. Ten years earlier in 1920 in the same industries there were 8,348,150 workers among whom there had occurred 385,517 compensation cases, of which 3531 were fatal and 381,986 were non-fatal. In brief, while in 1929 the average number of workers, as compared with the earlier year, had decreased by almost 900,000, and the number of fatal cases by one-fifth, the number of non-fatal cases had increased by one-fourth.

In regard to cases of industrial accidents, it was reported that compensation was paid in 50 fatal cases to the amount of £11,520 and 18,611 disablement cases to the amount of £562,203. The 50 fatal cases included 19 of lead poisoning, 6 of anthrax, and 18 of epitheliomatous cancer and scrotal epithelioma.

See INSURANCE; LABOR LEGISLATION; LABOR LEGISLATION, AMERICAN ASSOCIATION FOR; UNEMPLOYMENT.

**WORLD ALLIANCE FOR INTERNATIONAL FRIENDSHIP THROUGH THE CHURCHES.** See INTERNATIONALISM.

**WORLD COURT.** AUSTRO-GERMAN CUSTOMS UNION DECISION. Under pressure of her financial troubles and the need of placating France, Austria on Sept. 3, 1931, announced at Geneva her

abandonment of the proposal for a Customs Union with Germany, which had been made public on March 21 and which had given rise to much acrimonious discussion in the European press. Austria did not wait for the publication of the advisory opinion of the World Court, issued two days later. Germany likewise abandoned the proposal. (See GERMANY, AUSTRIA, and FRANCE under *History*).

The World Court rendered its decision on the issue September 5. It held, by a vote of eight to seven, that the proposed Customs Union was incompatible with the First Geneva Protocol of 1922, under which Austria was given a loan under the auspices of the League of Nations. Seven of the 15 judges also held that it was incompatible as well with Article 88 of the Treaty of St. Germain. As the loan conditions expire in 1942, Germany and Austria might conceivably then be free, as a result of the Court's decision, to go ahead with their plan. The manner in which the court divided was by some considered significant. With the exception of the Belgian vote, the judges appeared to have followed the political attitude of the countries which they represented. The eight judges giving the majority opinion were: Fromageot (France), Rostworowski (Poland), Negulesco (Rumania), Altamira (Spain), Anzilotti (Italy), Urrutia (Colombia), Bustamante (Cuba), and Guerrero (Salvador). The dissenting minority were: Kellogg (United States), Hurst (Great Britain), Schücking (Germany), Van Eysinga (Holland), Chung-Hui (China), Adachi (Japan), and Rolin-Jaquemyns (Belgium). Some papers suggested that the decision would have been different if the votes had been "weighed" instead of counted. For an authoritative discussion of the legal questions involved, consult John W. Davis, "The World Court Settles the Question," *Atlantic Monthly*, January, 1932 (reprinted in *International Conciliation*, No. 277, February, 1932).

**ADVISORY OPINION ON MINORITIES.** At a public sitting held on May 15, 1931, the Court gave the advisory opinion for which it had been asked on the question: "Can the children who were excluded from the German minority schools (in Poland) on the basis of the language tests provided for in the Council's resolution of Mar. 12, 1927, be now, by reason of this circumstance, refused access to these schools." By eleven votes to one the Court answered this question in the negative.

Article 69 of the convention of May 15, 1922, between Germany and Poland concerning Upper Silesia, granted to the German minority in Polish Upper Silesia adequate facilities for insuring that in the primary schools instruction should be given to their children through the medium of their own language. Under Article 74 of the same convention, the question whether a person does or does not belong to a minority may not be verified or disputed by the authorities. Article 131 added that in order to determine the language of a child, account should be taken of the verbal or written declaration of the person legally responsible for the education of such child.

In 1926 difficulties arose between the *Deutscher Volksbund*, representing the German minority, and the Polish authorities, following numerous applications for the admission of children to German schools for the school year 1926-27, and as the result of an administrative inquiry held by the Polish authorities into the regularity of

these applications and the rejection of a large number of them by those authorities on the ground that they were irregular or that the children did not belong to the German minority. On Apr. 26, 1928, the Court held that declarations must be in accordance with the facts, but any verification or dispute on the part of the authorities with reference to membership of the minority was prohibited.

In May, 1928, requests for admission to German schools were submitted on behalf of 172 children who, at the time when entries for the minority schools were being made for the year 1928-29, had just undergone the language test provided for by the Council's resolutions and had been found not to possess an adequate knowledge of German. These applications, like the preceding ones, were rejected by the Polish authorities. Once more, in November-December, 1929, the same question arose with regard to 60 children who had been excluded as a result of the language tests undertaken in 1927-28. Accordingly the *Deutscher Volksbund* once more appealed to the Council, which, by a resolution of Jan. 24, 1931, decided to submit the question to the Court for an advisory opinion.

The Court held that to admit that the result of the tests made in 1927 could subsequently be invoked to invalidate a declaration made under the convention, would be to admit the possibility of adducing evidence against such a declaration; but this is prohibited by the convention. To attach such an effect to the language tests would modify both the convention and the Council resolution itself, and the resolution expressly disavowed any idea of doing this.

**DANZIG-POLAND CASE.** On Dec. 11, 1931, the Court, by a vote of 11 to 3, rendered an advisory opinion to the effect that neither the Treaty of Versailles, the Danzig-Polish treaty of 1920, nor relevant decisions of the Council of the League of Nations, authorized access to the port of the Free City of Danzig by Polish war vessels.

**EAST GREENLAND CONTROVERSY SUBMITTED.** The controversy between Denmark and Norway involving their rival claims to a part of the eastern coast of Greenland was formally submitted to the World Court by Denmark on July 13, 1931. No decision had been issued by the end of the year. For the background of the dispute, in which Iceland also intervened, see GREENLAND.

**OTHER DEVELOPMENTS.** Mineitiro Adachi of Japan, on Jan. 16, 1931, was elected president of the Permanent Court of International Justice for a period expiring Dec. 31, 1933. On the following day Gustavo Guerrero of Salvador was elected vice president. Both were among the new members elected to the panel of World Court judges by the Council and Assembly in September, 1930. The Court divides into a number of special groups known as "Chambers" for the consideration of technical subjects on its agenda. As part of the organization of the new Court, Frank B. Kellogg, the American judge, was elected a member of the Chamber for Labor Cases.

A vigorous campaign in behalf of American adherence to the World Court was carried forward during 1931, largely under the auspices of The American Foundation. A delegation representing the National World Court Committee visited President Hoover in the autumn to urge a special session of the Senate in November to take action before the opening of the regular session. This was not successful. At the beginning of the regular

session in December, the Foreign Affairs Committee decided to postpone consideration of the resolution of adherence until important domestic issues were out of the way.

The American Bar Association placed itself on record as believing that the Permanent Court of International Justice is the greatest of international instrumentalities for the preservation of peace and of justice between nations. Consult Edward Lindsey, *The International Court* (New York, 1931).

**WORLD FAIRS.** See EXPOSITIONS.

**WORLD FEDERATION OF EDUCATION ASSOCIATIONS.** See INTERNATIONALISM.

**WORLD LEAGUE AGAINST ALCOHOLISM.** An organization originated in a conference of the Anti-Saloon League of America in Columbus, O., in 1916 and formally launched in a joint conference of the Canadian Temperance Alliance and the Anti-Saloon League in Washington in 1919.

The official league membership in 1931 comprised 60 national temperance organizations in 34 of the leading countries of the world. The work is carried on by executive, legal, publicity, and service departments, with offices in Westerville, O.; the research department in New York City; the Scientific Temperance Federation in Boston; and the Intercollegiate Prohibition Association in Washington. A branch office is maintained in London, England. In 1931 the presidents of the league were: Miss Anna A. Gordon (q.v.), Evanston, Ill.; Dr. Robert Herod, Lausanne, Switzerland; the Rt. Hon. Lief Jones, London, England; and Dr. Howard H. Russell, Westerville, O. The general secretary was Dr. Ernest H. Cherrington.

**WORMS.** See ZOOLOGY.

**WORTHINGTON-EVANS, SIR LAMING.** A British public official, died Feb. 14, 1931, in London where he was born Aug. 23, 1868. He attended Eastbourne College, and in 1890 was article as a solicitor's clerk, ultimately becoming head of the firm of Worthington-Evans, Dauney & Co. In 1910 he entered Parliament as a Conservative for Colchester; from 1918 to 1929 he represented the Colchester division of Essex and after 1929, St. George's division of Westminster. He became Controller of the Foreign Trade Department of the Foreign Office (1916), Parliamentary Secretary to the Ministry of Munitions (1916-18), Minister of Blockade (1918), Minister of Pensions (1919-20), Minister without Portfolio (1920-21), and Postmaster General (1923-24). His greatest service was rendered as Secretary of State for War during 1921-22 and again during 1924-29, when as an economy measure he effected important changes in army organization.

**WRECKS.** See SAFETY AT SEA.

**WRESTLING.** Professional wrestling reached a climax in 1931, and at the end of the year three men were recognized as world's heavyweight champion—by different boards of bodies. Jim Londos, the champion according to the New York State Commission, was probably the most popular. Londos, a native of Greece, conquered all rivals, and wrestled three times a week in defense of his title. He broke all records for indoor attendance when he wrestled Ferenc Holuban, Jim McMillen, and Ray Steele in Madison Square Garden, New York City, and attracted a crowd of 30,000 persons when he grappled with Steele at the Yankee Stadium, in June, for the Milk Fund. Strangler Lewis, veteran, was also recognized as champion of the world by the Illinois Commission, and

the National Boxing Association considered Henri de Glane, French Canadian, champion. De Glane won whatever honors he holds in Montreal when Lewis bit him and was disqualified. This happened in February.

As professional wrestling drew huge crowds in every part of the country, so did amateur and collegiate wrestling gain favor. In the Eastern Intercollegiate Association, Lehigh won first honors, for the third time since 1927. Individual laurels were distributed as follows: 118-pound, Davis Bigwood, Yale; 126-pounds, Powell Begland, Cornell; 135-pounds, Frank Shaw, Lehigh; 155-pounds, Orrin Clark, Columbia; 165-pounds, Peter Peck, Lehigh; 175-pounds, Wilford Penny, Cornell; Unlimited, Ed Rotan, Yale.

The Oklahoma A. and M. wrestlers captured the National Collegiate A. A. honors for the fourth consecutive year, when they won at Providence. The title was fictitious, however, as the team championship was abolished in order to foster greater individual efforts. Winners in the classes were: 118-pounds, John A. Engle, Lehigh; 126-pounds, Robert Pearce, Oklahoma A. and M.; 135-pounds, Richard Cole, Iowa State; 145-pounds, William Doyle, Kansas College of Agriculture and Applied Science; 155-pounds, Leroy McGuirk, Oklahoma A. and M.; 165-pounds, Jack Van Bebber, Oklahoma A. and M.; 175-pounds, Conrad Caldwell, Oklahoma A. and M.; Unlimited, Jack Riley, Northwestern University. Riley was a star tackle on the Northwestern football team.

Pearce, Caldwell and Van Bebber of Oklahoma A. and M. also captured National A. A. U. championships. The winners of the national titles were: 115-pound class, Joseph Sepora, New York Athletic Club; 125-pound class, Robert Pearce, Oklahoma A. and M.; 135-pound class, Lyle Morford, Cornell College, Iowa; 145-pound class, Arlie Tomlinson, Oklahoma A. and M.; 155-pound class, Oswald Kapp, New York Athletic Club; 165-pound class, Jack Van Bebber, Oklahoma A. and M.; 175-pound class, Conrad Caldwell, Oklahoma A. and M.; Unlimited, Robert Jones, University of Indiana.

**WÜRTEMBERG**, wurt'tēm-bĕrk. A constituent state of the German Reich. See GERMANY.

**WYLLIE, WILLIAM LIONEL.** A British watercolor painter and etcher, died Apr. 6, 1931, in London where he was born July 6, 1851. He attended the Royal Academy Schools, gaining fame as a marine painter in 1869 when "After a Storm: Time, Dawn" won the Turner medal. He was elected an associate of the Royal Academy in 1889 and an academician in 1907. His principal works through which he proved that there is still beauty and poetry in shipping despite the advent of steam and iron, include "The Winding Midway"; "Barry Dock"; "The Liner's Escort"; "Port of Scarborough"; "Towing Past the City"; "London's Water Gate"; "Commerce and Sea Power"; "London Bridge"; "The Port of London"; "The Spanish Armada"; "Trafalgar"; "Crippled but Unconquered"; "The Battle of the Nile"; and "Toil, Glitter, Grime, and Wealth on a Flowing Tide," the latter two hung in the Tate Gallery.

**WYOMING.** POPULATION. According to the Fifteenth Census the population of the State on Apr. 1, 1930, was 225,565; in 1920 it was 194,402. The native whites numbered 194,409 (1930), 164,891 (1920); foreign-born whites, 19,658 (1930), 25,255 (1920). Mexicans numbered 7174 in 1930; they had previously been classed with foreign-born

whites. There were also, in 1930, 1250 Negroes, 1845 Indians, 1020 Japanese and others of divers Pacific origins. The urban population—those living in communities of at least 2500—rose to 70,097 (1930), from 57,848 (1920). The rural, to 155,468 (1920), from 137,054 (1920).

Of 92,451 persons reported in 1930 to have gainful occupations, 30,827 were in agriculture; 11,099 in manufacturing and mechanical industries; 12,161, in transportation; 8916, in trade; 7947 in coal mines, gas and petroleum extraction and other mines or quarries. Cheyenne, the capital, had 17,361 inhabitants in 1930; in 1920, 13,829; Casper had 16,619 (1930), 11,447 (1920).

**AGRICULTURE.** The accompanying table shows the acreage, production, and value of the principal crops in 1931 and 1930:

Crop	Year	Acreage	Prod. Bu.	Value
Hay, tame ...	1931	789,000	775,000*	\$7,130,000
	1930	756,000	936,000*	8,518,000
Sugar beets ..	1931	49,000	556,000*	.....
	1930	46,000	646,000*	4,644,000
Wheat .....	1931	243,000	2,148,000	980,000
	1930	343,000	4,014,000	1,987,000
Corn .....	1931	186,000	1,953,000	879,000
	1930	192,000	3,552,000	2,380,000
Potatoes .....	1931	32,000	3,360,000	1,512,000
	1930	23,000	3,450,000	2,588,000
Barley .....	1931	98,000	1,568,000	627,000
	1930	130,000	2,600,000	1,144,000
Oats .....	1931	98,000	1,764,000	564,000
	1930	140,000	3,150,000	1,134,000

\* Tons.

**MINERAL PRODUCTION.** Nearly one-half of the State's total mineral production of 1929, by value, was derived from petroleum and about one-third from coal. Petroleum production fell thereafter, by quantity, to 17,846,000 barrels for 1930, from 19,314,000 for 1929; and by value, to \$21,200,000 (1930, estimated) from \$24,700,000 (1929). Coal production, 5,631,000 short tons for 1930, was not at the same level as the 6,704,790 tons of 1929; the total for 1929, by value, was \$17,052,000. The output of natural gas was, in quantity, 44,648,000 M cubic feet for 1929 and 47,490,000 M for 1928; in value, \$3,850,000 for 1929 and \$3,527,000 for 1928. Extraction of gasoline from natural gas yielded 51,100,000 gallons in 1930 and 44,544,000 in 1929; by value \$3,300,000 (1930, estimated) and \$3,241,000 (1929). The total value of the State's mineral production was \$51,237,407 for 1929; for 1928, \$52,950,875.

**MANUFACTURES.** Federal Census data gathered in 1930 and covering the year 1929 gave the number of the State's manufacturing establishments as 251 (about 9 per cent more than the number for 1927). These establishments employed 6288 wage earners (more by 12.7 per cent than had been employed in 1927). Wages paid to these earners amounted to \$10,306,294 (exceeding those of 1927 by about 11.4 per cent). Materials for manufacture, plus fuel and purchased electricity, cost \$63,516,935 (falling slightly below the corresponding cost for 1927). The manufactured product of 1929 totaled \$96,466,461 (exceeding that of 1927 by 13 per cent). Value added by manufacture was placed at \$32,949,526.

**FINANCE.** State expenditures of the year ended Sept. 30, 1930, as reported by the U. S. Department of Commerce, were: for maintenance and operation of governmental departments, \$5,959,965 (of which \$1,943,252 was for local education); for interest on debt, \$78,616; for permanent improvements, \$2,506,226; total \$8,544,807 (of which \$3,518,835 was for highways, \$1,297,634

being for maintenance and \$2,221,201 for construction). Revenues were \$9,000,741. Of these, property and special taxes formed 21.4 per cent; departmental earnings and remuneration to the State for officers' services, 7.3; sale of licenses, 22.9 (including gasoline sale taxes amounting to \$1,066,245). The State's funded debt outstanding on Sept. 30, 1930, was \$1,790,000, all for highways. Net of sinking-fund assets, it was \$1,587,005. On a property valuation of \$436,828,811 were levied in the year taxes of \$1,613,558.

**TRANSPORTATION.** The total number of miles of railroad line under operation on Jan. 1, 1931, was 2035.74. No additional line had been put in operation during the year preceding; the operation of 7.75 miles had been given up. In 1931 were built 3.17 miles of new first track.

**EDUCATION.** For the academic year 1930-31, the number of the State's inhabitants of school age was reckoned as 69,238, of whom 49,002 were between the ages of 7 and 16 years. Of the school population, 1753 were listed as attending other than public schools. Those enrolled in the public schools numbered 55,412. Of these, 12,193 were in high schools, and 14,272 in rural schools. School districts owned or, in some cases, rented, 1474 school buildings; ungraded one-teacher schools numbered 1038; accredited high schools, 117. The year's expenditure for public-school education was \$6,338,792.

**LEGISLATION.** The Legislature in its regular biennial session enacted a law defining motor trucks and motor busses operating for hire on main highways thrice a week or more as common carriers; it subjected such carriers to a tax of 2 mills on every ton-mile for trucks and of ½ mill on every passenger-seat-mile for busses. A series of ten statutes relating to insurance law were passed; the jurisdiction of the Insurance Commissioner was extended over companies as well as agents, and life insurance companies were prohibited from offering or issuing certificates or agreements promising returns as an inducement to the insurer. The Legislature adopted a resolution calling for a State-wide referendum, to be held at the general election in November of 1932, on the question: "Do you favor repeal of the Eighteenth Amendment?" A measure to render it lawful to wager on horse races under the pari-mutuel system was passed but was vetoed by Acting Governor Clark.

**POLITICAL AND OTHER EVENTS.** Governor Frank C. Emerson died February 18. Secretary of State A. M. Clark, became Acting Governor on February 19, to serve until the regular State election of 1932. A boundary dispute with Idaho was submitted to negotiators of the two States and to Robert Follansbee of the U. S. Geological Survey as Federal representative. A plan was broached, on behalf of John D. Rockefeller, Jr., to purchase and donate to the Federal Government for a National park, many thousand acres in the Jackson Hole country. But the scheme was locally opposed as likely to wreck Teton County by withdrawal of property from the tax list.

**OFFICERS.** Governor, Frank C. Emerson (died February 18); Secretary of State and Acting Governor, A. M. Clark; Treasurer, H. R. Weston; Auditor, Roscoe Alcorn; Attorney-General, James A. Greenwood; Superintendent of Public Instruction, Katharine A. Morton.

**JUDICIARY.** Supreme Court: Chief Justice, Ralph Kimball; Associate Justices, Fred H. Blume and W. A. Riner.

**WYOMING, UNIVERSITY OF.** A State institution of higher education in Laramie, founded in 1886. The enrollment for the summer session of 1931 was 1060 and for the autumn term was 1247. The faculty numbered 150. The income for the year from State and local funds was \$1,437,929, and from Federal and State grants for agricultural extension, \$132,659. The library contained 77,098 volumes. President, Arthur Griswold Crane, Ph.D.

**X-RAY DIAGNOSIS.** See SURGERY, PROGRESS OF.

**X-RAYS.** See CHEMISTRY; PHYSICS.

**YACHTING.** When *Dorade* dropped anchor at Plymouth, England, July 21, the biggest event of the 1931 yachting season had come to pass. The little yawl out of Larchmont, N. Y., sailed by her designer, Olin J. Stephens, Jr., and his father and brother, had beaten yachts three and four times her tonnage across the Atlantic in the international ocean race that started July 4 from Newport, R. I. She arrived at Plymouth, England, two full days ahead of the first of her rivals and made the dangerous passage across the North Atlantic in 17 days. The young skipper took the Great Circle course, steering north from Newport, while most of the rival boats were taken over the less dangerous southern Gulf Stream route. The voyage of *Dorade* constituted a record for small boat crossing of the Atlantic and is very liable to withstand assault for many years. *Skal*, owned by Richard F. Lawrence, took second place in the race, with the aid of her time allowance, and Dudley Wolf's *Highland Light* was third.

To show that the victory in the long sail across the Western ocean was not lucky, *Dorade* then won the 600-mile Fastnet race from England to the Irish coast and back.

The deciding factor that made 1931 the greatest year on record for American ocean racing was the placing of two other United States boats in this Fastnet race. W. B. McMillan's *Water Gypsy* finished second and George E. Roosevelt's *Mistress* completed the rout of the British. Both *Water Gypsy* and *Mistress* also trailed *Dorade* in the Atlantic Ocean race.

In the North Atlantic Fisherman's Schooner Championship race, sailed off Halifax, N. S., Oct. 19 and 20, 1931, the defending schooner *Bluenose* of Lunenburg, N. S., retained its title by defeating the challenger *Gertrude Thebaud*, of Gloucester, Mass., in two straight races. The *Achilles*, sailed by Eldon Trimmingham, won the Royal Bermuda Yacht Club trophy on April 17, retaining the cup in home waters.

In another important ocean race, in June, Charles W. Atwater's *Duckling*, beat a fleet of 40 yachts on the New London to Cape May run and captured the Cape May Trophy as well as the Class B prize. George W. Mixer's *Teragram*, a schooner, made the best time among the larger boats and won the Class A prize, and Alfred F. Loomis's little sloop, *Hotspur*, and Russell Grinnell's *Rugosa*, a yawl, garnered the smallest boat and racing boat class prizes respectively.

The International Star Class races, sailed on Long Island Sound in September under the auspices of the Manhasset Bay Yacht Club, also resulted in a triumph for American boats. A record number of yachts (26) turned out for the races, representing England, Hawaii, France, Venezuela, Cuba, and all parts of the United States. After five races, studded by arguments,

disqualifications, and wrangling, *Colleen*, from Southport, Conn., sailed by J. F. Watkins and William J. McHugh, won.

**YAKUTSK REPUBLIC.** See SIBERIA.

**YALE UNIVERSITY.** A nonsectarian institution of higher education in New Haven, Conn., founded in 1701. The enrollment for the autumn of 1931 was 5815, including 552 who were not candidates for degrees or certificates. Of those working for degrees or certificates, 888 were in the graduate school, 1658 in Yale College, 630 in the Sheffield Scientific School. The faculty numbered 1470.

The total endowment amounted to \$93,795,551, and the income for the year was \$8,532,824. The permanent endowment funds were increased by \$10,938,710 during the year, and \$12,088,878 was received for buildings and income for special purposes. Gifts received during the year included: \$1,500,000 for the Sterling Memorial Professorship Funds, establishing five additional professorships; \$1,750,321 as a bequest of Mary F. Hawley; and an additional \$1,021,022 from the estate of the late Chauncey M. Depew. The university completed and occupied during the year the Sterling Law Buildings, the dormitory sections of Pierson College and Davenport College, and the addition to the Sterling Hall of Medicine. Buildings which were under construction at the close of 1931 included residential quadrangles, Payne Whitney Gymnasium, Graduate School Sterling Quadrangle, and Sterling Divinity Quadrangle. The library, including departmental libraries, contained more than 1,900,000 volumes and pamphlets. President, James Rowland Angell, Ph.D., Litt.D., LL.D.

**YANSON.** See FRENCH INDIA.

**YAP.** See CAROLINE ISLANDS.

**YEMEN.** See ARABIA.

**YESHIVA COLLEGE.** The first and only college of liberal arts and science in the United States under Jewish auspices, for men only, founded in New York City in 1896. The enrollment in 1931 was 789. The faculty numbered 54. The income for the year was \$176,000. The library contained 25,000 volumes and a collection of manuscripts. President of the faculty, Bernard Revel.

**YORKTOWN ANNIVERSARY.** See CELEBRATIONS; PARKS, NATIONAL.

**YOUNG MEN'S CHRISTIAN ASSOCIATION.** An educational, social, physical, and spiritual movement for men and boys, which originated in London in 1844 under the leadership of George Williams. In 1931, there were 10,266 local associations, unions, or fellowships with a membership of 1,581,291 young men and boys in 54 countries of the world. Thirty-six national movements of federated local associations are formally brought together in a World Alliance of Young Men's Christian Associations, with headquarters at 2 Rue de Montchoisy, Geneva, Switzerland. Dr. John R. Mott of New York City is the president of this alliance and W. W. Gethman of Geneva, Switzerland, its general secretary.

These associations own and occupy 2074 buildings, the net property value of which is \$1,354,347,501, and are supervised by 7179 employed officers. The largest number of Y. M. C. A.'s are found in Germany where there were in 1931 over 3500 associations, but the largest number of Y. M. C. A. members are in the United States where there were in the same year 1,011,144 members. There are also in the United States the largest number of Y. M. C. A. buildings, with the

highest net property value of \$239,114,000. The local associations in the United States in 1931 numbered 1435, with 4530 employed officers and 76,478 directors and committeemen.

The headquarters of the associations in the United States is The National Council of the Young Men's Christian Associations of the United States of America, at 347 Madison Avenue, New York City. The officers in 1931 were: President, Dr. George B. Cutten; chairman of the general board, Adrian Lyon; and general secretary, Fred W. Ramsey.

**YOUNG PLAN.** See GERMANY under *History*; REPARATIONS AND WAR DEBTS.

**YOUNG WOMEN'S CHRISTIAN ASSOCIATION.** An organization and movement of which the purpose is to advance the physical, social, intellectual, and spiritual interests of young women. The national executive organization is known as the National Board of the Young Women's Christian Associations.

In 1930 there were 1109 associations in the United States. There were also 65 branches for colored girls and women and 56 International Institutes, centres for foreign-born girls and women. The total Y. W. C. A. membership in the United States was 518,892. This figure does not include an approximate number of 100,000 student members. The largest single membership was 290,280 Girl Reserves, the junior organization. There were listed 65,414 members in business and the professions and 57,556 in industrial ranks or employed in domestic service, while 116,290 individual contacts were made through the International Institutes. There were in January, 1931, 3788 professional workers employed in the movement; 3490 were in local work, 205 were on the national staff, and 93 were in foreign countries.

The value of real estate owned by the Y. W. C. A. in the United States was \$70,081,395; 167 Associations reported a total endowment of \$12,168,576. The National Board received in 1930, from contribution sources and quota payments, \$962,072; from income on endowment, \$243,446; and from income-producing sources, \$949,960. Gross expenditures were \$2,284,402. The endowment fund as of Dec. 31, 1930, amounted to \$4,521,911; the approximate value of the National Board's property was given as \$4,317,320.

The officers of the National Board in 1931 were: Mrs. Robert E. Speer, New York City, president; Miss Katharine Lambert, New York City, secretary; Mrs. Samuel Murland, New York City, treasurer. Headquarters are at 600 Lexington Avenue, New York City.

**YSAYE, ézà'ye, EUGÈNE.** A Belgian violinist, died in Brussels May 12, 1931. Born in Liège July 16, 1858, he received his early instruction from his father, a successful conductor and violinist, and later studied at the Liège Conservatory and under Wieniawski in Brussels and Vieuxtemps in Paris. His first important engagement was as leader of Bille's orchestra in Berlin, which appointment he resigned in 1881 so as to tour Europe in concert. In 1886 he became professor and director of the violin department at the Brussels Conservatory, where he also organized the celebrated Ysaye quartet and Société de Concerts Ysaye. After his retirement from the conservatory in 1898, he devoted most of his time to extensive tours in Europe and America, and occasionally conducted orchestras, including the Cincinnati Symphony Orchestra during 1918-22. He composed six violin concertos, variations on

a theme by Paganini, three mazurkas for violin, *Poème élégiaque*, *Chant d'Hiver*, *Estase*, and *Divertimento* for violin with orchestra, and *Exit* for a string trio. In 1931 his opera, *Peter the Miner*, was produced in Liège.

**YUGOSLAVIA.** The official name attached by royal decree on Oct. 3, 1929, to the Balkan state formerly known as the Kingdom of the Serbs, Croats, and Slovenes. Capital, Belgrade; reigning King in 1931, Alexander I.

**AREA AND POPULATION.** According to the preliminary census of 1931, the kingdom had an area of 96,737 square miles and a population of 13,929,988, compared with 12,017,323 at the census of 1921. Serbian and Croatian are the principal languages, the minor linguistic groups comprising Slovenes, Germans, Rumanians, Hungarians, and Albanians. The chief cities, with the estimated 1930 populations, are: Belgrade (Beograd), 242,000 (111,740 in 1921); Zagreb (Agram), 185,000 (108,338); Subotica, 100,000 (101,857); Sarajevo, 72,800 (66,317); Skoplje, 65,000 (41,006); Novi Sad, 63,900 (39,147); and Ljubljana, 60,000 (53,306).

**EDUCATION.** Elementary education is compulsory and those primary schools under the Ministry of Education are free. During 1929-30 there were about 1,066,767 pupils in elementary schools, 113,587 in secondary schools, and 13,544 in the universities at Belgrade, Zagreb, and Ljubljana.

**PRODUCTION.** About 85 per cent of the population are engaged in agriculture; lumbering and cattle raising are the other chief occupations. The chief crops in 1930, in bushels except as indicated, were: Wheat, 80,353,000; rye, 7,825,000; barley, 18,574,000; oats, 19,634,000; corn, 136,395,000; potatoes, 53,466,000; sugar beets, 745,000 metric tons; beet sugar, 91,000 metric tons; tobacco, 31,390,000 pounds; wine, 105,668,000 gallons; hemp fibre, 72,983,000 pounds; flax fibre, 24,275,000 pounds. A continued agricultural depression resulted in an estimated decrease in the farmers' annual purchasing power from about \$317,000,000 in 1925 to about \$264,000,000 in 1931.

The value of mineral production was 1,073,843,000 dinars (\$34,740,000) in 1929 and 1,596,017,000 dinars (\$28,090,000) in 1928. Output, in metric tons, of the chief minerals in 1930 was: Lignite, 5,292,000; copper (smelter), 24,463; lead (smelter), 10,050; zinc (smelter), 5441; bauxite, 93,706; and iron ore, 430,658. Textiles, cement, paper, leather, flour, sugar, pottery, and carpets are leading manufactured products.

**COMMERCE.** Imports for consumption were valued at \$123,194,000 in 1930 (\$133,668,000 in 1929) and exports of Yugoslav products at \$120,007,000 (\$139,422,000 in 1929). Imports in 1930 declined 7.8 per cent and exports 14 per cent, as compared with 1929. Czechoslovakia, Germany, Austria, Italy, and the United Kingdom were the chief sources of imports, while exports went principally to Italy, Austria, Germany, and Czechoslovakia, in the order named. Imports from the United States in 1930 were \$5,052,000 and exports to that country \$1,023,000. Cotton manufactures, iron and steel, wool manufactures, and machinery were the leading imports, in order of value; wood for building, corn, eggs, crude copper, and wheat were the principal exports. Exports (preliminary) for 1931 were valued at 4,800,964,000 dinars; imports, 4,780,280,000 dinars (1 dinar equaled \$0.0176).

**FINANCE.** Budget estimates for the fiscal years ended Mar. 31, 1931, and Mar. 31, 1932, balanced



at 13,348,000,000 dinars (\$235,000,000) and 13,210,000,000 dinars (\$232,000,000), respectively. A surplus was indicated for 1930-31. Declining revenues in 1931-32 were offset by increased taxation, salary cuts, and the curtailment of public works, calculated to save more than 1,000,000,000 dinars. The public debt on July 1, 1930, was estimated at 41,921,511,500 dinars (about \$737,818,800), compared with 31,289,382,000 dinars (\$550,693,100) on July 1, 1929. On May 8, 1931, the Yugoslav government secured a 7 per cent 40-year loan of 1,025,000,000 French francs (\$40,180,000) from a foreign banking group in which French interests predominated. The loan was employed in part to stabilize the dinar at \$0.01761, effective June 28, 1931.

**COMMUNICATIONS.** In 1930 there were 6431 miles of railway line, practically all under state administration; in 1931 an additional 195 miles were under construction. The new Pančevo bridge over the Sava connecting Belgrade with the Banat was completed late in 1931. Highways in 1930 extended 24,314 miles, of which about half were reported passable for motor cars. There were four main air lines, aggregating 1153 miles, and connecting Belgrade, Zagreb, Saloniki, Skopje, Sarajevo, Pedgoritza, Susak, and Split (Spalato).

**GOVERNMENT.** Under the Constitution adopted June 28, 1921, executive power was vested in the King and a Cabinet responsible to a single legislative chamber, called Narodna Skupština (National Assembly). By an executive decree issued Jan. 6, 1929, the King abolished the Constitution, dissolved the Skupština, and assumed all executive powers, which he exercised through a cabinet appointed the following day. On Feb. 17, 1929, another royal decree established a supreme legislative council of 17 nominated members (11 Serbs, 4 Croats, and 2 Slovenes). The administrative structure of the country was completely reorganized in October, 1929 (see 1929 YEAR BOOK). The Cabinet appointed Jan. 7, 1929, included: Premier and Minister of the Interior, Gen. Pera Zivkovich; Foreign Affairs, Dr. Voyislav Marinkovich; Defense, General Stevan Hajitch; Finance, Stanko Shverljuga. Gen. Dragomir Stojanovich succeeded General Hajitch as Minister of War Apr. 6, 1931.

**HISTORY.** The dictatorship proclaimed by King Alexander on Jan. 6, 1929, was ostensibly ended in 1931. On September 3, King Alexander promulgated a new constitution, under which elections for a new bicameral Parliament were held November 8, and the new Parliament convened in Belgrade December 7. However, provisions of the Constitution and the regulations governing the elections gave rise to widespread charges that the new parliamentary régime was merely a screen for the continuation of the dictatorship.

The Constitution was based on King Alexander's concept of a unified nation forged from the diverse and mutually hostile elements in his kingdom. It recognized three official languages—Serb, Croat, and Slovene—and guaranteed individual liberty, freedom of religion, of association, and of the press. However, it prohibited political parties based on racial rather than national interests, such as the Croat Peasant party, and sports organizations like the *sokols*, which had encouraged political antagonism between Serbs and Croats. The new Parliament consisted of a senate, half of whose members were elected for six years and half appointed by the King for the same period, and a chamber of deputies

elected for four years by universal direct suffrage. The Constitution empowered the King to dissolve Parliament at will and to issue emergency decrees without parliamentary sanction.

The electoral law, promulgated September 12, insured the victory of the Government candidates. It was designed primarily to promote the establishment of a national Yugoslav party, corresponding somewhat to the Italian Fascist party. Voting was made public and the voter, if unknown to the local electoral committee, was first to be photographed, and his finger-prints taken. He was then required to state the party he wished to support, the party leader, and his local candidate, before his vote was recorded. Moreover only national lists were submitted to the voters, and lists failing to secure 50,000 votes received no mandates. The party securing the largest number of votes automatically secured two-thirds of the seats in the Chamber of Deputies. Opposition to these provisions and to the Government's restrictions on political meetings and election propaganda caused the opposition parties in Croatia and Serbia to boycott the elections. The Government, on the other hand, sought to force all those eligible to vote.

Except for rioting by university students in Belgrade, the elections were fairly orderly. The Government parties won the election by default, but according to the Central Electoral Board a total of 2,324,645 votes were cast, comprising 42 per cent of the electorate in Zagreb, 50 per cent in Dalmatia, and 70 per cent in Bosnia and Slovenia. The assembling of the new Parliament on December 7 was marked by a demonstration of homage to King Alexander. Among its members were many leading figures in the old parties banned by the dictatorship. However, the development of a parliamentary opposition seemed precluded by a provision of the electoral law providing for the expulsion of any deputy who failed to support the party on whose list he had been elected.

In a statement published in Paris May 5 by the League for the Rights of Man, Prof. Albert Einstein and Heinrich Mann, German novelist, charged the Yugoslav government with responsibility for the murder in Zagreb February 18 of Prof. Milan Suflyay, a professor of history in Zagreb University and a leader of the Croatian autonomist movement. The Yugoslav delegation to the International Chamber of Commerce meeting in Washington on May 9 issued a blanket denial of the charge.

Like its neighboring countries, Yugoslavia experienced difficulty in acquiring foreign exchange to meet its external obligations following the crisis in Great Britain, Germany, and Austria, and on October 8 all foreign-exchange transactions were placed under the control of the National Bank. Up to the end of 1931, the Yugoslav government had not accepted the Hoover moratorium proposal (see REPARATIONS AND WAR DEBTS). For Yugoslav participation in the second Balkan Conference, see TURKEY under *History*; see NAVAL PROGRESS, *LITTLE ENTENTE*, *UNEMPLOYMENT*.

**YUKON**, yook'ón. A territory of the Dominion of Canada; bounded on the west by Alaska and stretching from British Columbia to the Arctic Ocean; constituted a separate political unit in 1898. Area, 207,076 square miles; the population at the 1931 census was 4230 (preliminary), compared with 4157 in 1921, or an increase of 1.35 per cent. Dawson, the capital and largest

town, had 817 inhabitants at the 1931 census. Mining is the principal occupation, and the chief minerals are gold, copper, silver, lead, and coal. The output of gold in the year ending Mar. 31, 1930, was \$660,229. Silver production for the calendar year 1929 totaled \$2,250,000. Revenue for 1930 amounted to \$257,615; expenditure to \$256,004. At the head of the government is a gold commissioner and a territorial council of three elected members. Gold Commissioner in 1931, G. I. MacLean.

**ZANZIBAR PROTECTORATE.** A British protectorate off the coast of Tanganyika in East Africa, comprising the islands of Zanzibar, Pemba, and adjacent small islands. The area of the island of Zanzibar is 640 square miles and of Pemba, 380 square miles; their respective populations, at the census of 1924, were 128,099 and 88,691. In 1921 the protectorate contained 270 Europeans, mostly English, and 12,000 British Indian subjects, who controlled most of the trade of East Africa. Zanzibar, the capital, had 38,700 inhabitants. The protectorate is the world's chief source of cloves, the annual production approximating 19,343,000 lbs. Preliminary figures for 1930 placed imports at \$6,049,000 and exports at \$9,069,000.

Government revenue for the year 1929 totaled £494,000 and expenditure £507,000. The public debt at the beginning of 1930 stood at £100,000; the sinking fund at £107,998. The nominal ruler in 1931 was Sultan Seyyid Khalifa bin Harub. Actual control rested with the British Resident. Resident in 1931, R. S. D. Rankine.

**ZINC.** The world's production of zinc in 1931 was estimated at 1,131,000 short tons, an average daily output of 3096 tons, as compared with 1,563,049 tons, an average daily output of 4282 tons in 1930. The United States, as usual, led in production in 1931 with an estimated output of 300,000 tons, followed by Poland with 155,000 tons; Belgium, 153,000 tons; Canada, 120,000 tons; France, 69,000 tons; Australia, 60,000 tons; Germany, 51,500 tons; Mexico, 38,000 tons; Great Britain, 22,000 tons; and Rhodesia, 7700 tons.

According to the U. S. Bureau of Mines, the output of primary metallic zinc from domestic ores in the United States was 40 per cent lower than in 1930 and was the lowest production on record since 1921, following a decline of 20 per cent in output in 1930.

The average monthly price of prime western zinc at St. Louis was 4.03 cents a pound in January. From this figure the average declined steadily to 3.31 cents a pound in May, rose to 3.90 cents in July, held fairly well in July and August and dropped steadily again to a low for the year of 3.15 cents in December. The average quoted price for 1930 was 4.56 cents a pound. The average selling price of all grades of zinc in 1930, as reported to the U. S. Bureau of Mines, was 4.8 cents a pound. See METALLURGY.

**ZIONISM.** See JEWS; PALESTINE.

**ZOG I.** King of Albania. See ALBANIA.

**ZONING.** See CITY AND REGIONAL PLANNING.

**ZOOLOGY, GENERAL.** The American Society of Zoologists under the presidency of Fernandus Payne, met at New Orleans during Convocation week of 1931-32 with the American Association for the Advancement of Science. Meetings were held in cooperation with Section F (Zoology) of the A. A. A. S., of which R. W. Hegner as Vice President, was Chairman. In September the British Association for the Advancement of

Science held its centennial celebration in London. E. B. Poulton as President of the Zoology section gave, as his presidential address, "One Hundred Years of Evolution" in which he reiterated his well known views on the subject of mimicry and natural selection. Instead of the reading of general papers, symposia on special topics were held each day by the Zoology section. Two popularly written but authoritative works covering the greater part of the field of Biology are *The Science of Life* by H. G. and G. P. Wells, and J. Huxley; and *Life* by P. Geddes and J. A. Thomson. The latter attempts to cover less ground than the former, but goes rather more deeply into each subject treated.

As a direct continuation of the Bermuda Biological Station which had been in operation for a long time, the Bermuda Biological Station for Research was incorporated a few years ago and in 1931, with the cooperation of the Bermuda Government and the Rockefeller Institute purchased for a permanent laboratory the property formerly known as the Shore Hills Hotel at St. Georges, Bermuda. This insures the Corporation an adequate laboratory for all-the-year-round research. The laboratory was open for a part of the summer of 1931. In the early fall the Trustees announced that Dr. J. F. G. Wheeler of London, England, had been elected Director of the Station.

The Daniel Giraud Elliot medal for the most meritorious work of the year in Zoology or Paleontology was awarded by the National Academy of Sciences to Professor H. F. Osborn for his researches on "Titanotheres of Ancient Wyoming, Dakota, and Nebraska."

No biologist would claim that with our present knowledge we could produce living matter in the laboratory. In this connection, however, some experiments by Crile are of interest (*Science Suppl.*). Lipoids from brain tissue, proteins and mineral salts were brought together on glass slides and in a few minutes masses of material formed which gave startling resemblances to the appearance and behavior of living matter. These resemblances lay along the lines of electric potential, stainability, movement, etc. In appearance these bodies were so similar to protozoa that in many cases it would not have seemed impossible to arrange them in their appropriate taxonomic position. A much debated question is whether the central bodies or centrosomes are really permanent cell organs or are artifacts of only temporary interest and existence. Wilson and Huettnner (*Science*, 73, p. 447), reported on a study of the cells of *Drosophila* and found that their centrosomes are permanent cell organs, responsible for the formation of the asters and continuous from generation to generation. They considered that this is not limited to this particular insect but applies to all animals.

It is generally believed that "vestigial" organs represent structures which once were functional but have degenerated in correlation with loss of function. Brommann (*Anat. Anz.*, 72, p. 330), with especial reference to a vestigial marsupium in the human embryo, argued that this is not a degenerated organ but is due to the presence in the germ plasm of genes which are not strong enough to bring it to full development and hence is small and soon disappears in the developing embryo. It is generally held that sex in animals is determined by the chromosomal condition of the fertilized egg. Geddes and Thomson (*Life*, see above), adhere to the position taken by them

over 40 years ago (*Evolution of Sex*, 1889), that sex is determined by the metabolic condition of the embryo. If this metabolism is preponderantly constructive (anabolic), the individual will be female, if destructive (katabolic), it will be male. Sex determination is therefore physiological rather than cytological, and it might be reasonable to expect eventually to be able to determine in advance the sex of any given embryo.

**GENETICS.** In genetics the usual amount of research was carried on, though as is natural, the problems now being attacked are so technical that it is difficult to summarize their results in any popular fashion. None have in any way modified the general principles involved in earlier statements concerning Mendelism. In these experiments it is customary to isolate a mutation and to breed this with other mutations or with the original race. Since in either case the two are recognizably different it is possible to determine the laws of transmission of these characters through later generations. A mutation may be defined as a variation from the original form which has suddenly appeared, which is heritable in later generations and which breeds true when inbred.

In crossbreeding the hybrid of the first generation may or may not resemble one parent, but in later generations a definite proportion of each will resemble each of the original ancestors. Exceptionally a "permanent hybrid" appears which breeds completely true to its hybrid character for an indefinite number of generations, but may, under exceptional conditions break up into one or the other of the ancestral forms. It is obvious that if the history of the race were unknown, this might appear to be a mutation but that it really would be something quite different and not good material for experimentation. In a number of publications Jeffries has asserted that *Drosophila* is really a hybrid and therefore conclusions drawn from experiments with it are inaccurate. According to Jeffries who is a botanist, plant hybrids may easily be differentiated from pure bred by the peculiar behavior of certain chromosomes during the reducing divisions and he asserted (*Am. Nat.*, 65, p. 19), that since precisely similar phenomena appear in *Drosophila* the latter must also be hybrid. He found further support for this belief (*Am. Nat.*, 65, p. 481), in a study of reduction in the Liver Fluke *Fasciola*.

In human society it has been thought that lead poisoning of the parent as happens to workers in certain industries, produces abnormal or diseased conditions in the offspring. Experimentally determined evidence along this line was reported by Colin (*Jour. Exp. Zool.*, 60, p. 427), who fed weighed amounts of lead acetate to 58 male and 5 female guinea pigs, the experiments extending over a period of four years. In none of these cases was there any evidence of transmission of the effects of the poison to the offspring of the treated individuals. Identical twins (i.e., twins resembling one another so closely that it is difficult to tell them apart and always of the same sex), have been shown to arise from the division of a single egg, this mode of origin being responsible for their resemblances since they arise from the same combination of parental germ plasma. It is obvious that "Siamese" twins must have come from the division of an egg, but a puzzling feature from the standpoint of the above theory is that they generally are more or less different from one another in most characteristics.

Newman, who has made an especial study of twinning, explains the discrepancy (*Jour. Hered.*, 22, p. 201) on the ground that identical twins arose at an early stage of the developing egg, when bilateral symmetry had not appeared and each half of the egg had not begun to form its appropriate portion of the embryo, while in the case of the Siamese twins this division came much later, at a time when the two halves had differentiated much farther and become more unlike.

Among insects a condition known as gynandromorphism sometimes occurs in which one side of the body has the appearance of one sex, the other side of the other. Here this condition is explained by the assumption that the chromosomes which determine sex are separated during the early development so that one side gets those for one, the other for the opposite, sex. Lillie (*Science*, 74, p. 387) described similar gynandromorphs in birds in which, because the sex is determined by hormones, the above explanation would not hold. If a female determining hormone is present, the bird will be a female, if absent, a male, and the former would be true even if one side of the animal had the male determining chromosomes. Basing his conclusions on the results obtained after injecting this female hormone into birds, Lillie concluded that the gynandromorphs were due to a combination of ovarian deficiency resulting in feeble hormones and a rapid growth of one side which because of this rapid growth was not affected by the hormone. The more rapidly growing portion which in the birds under discussion resulted in an hypertrophy of that side, became male, the other female.

Goldschmidt, who had worked for years on the problem of intersexuality in insects, summarized his results in *Quarterly Review of Biology* 6, p. 125.

**EVOLUTION.** The question as to the validity of the Lamarckian factor in evolution has been called a "perennial problem" in earlier YEAR BOOKS. McBride, an English zoologist, in 1931 was one of the leading advocates of Lamarckism. In an address (*Nature Supplement*, June, 1931) he discussed some of the generally accepted "proofs" of evolution and argued that all of these indicate that "habit is the driving force in evolution." In his opinion to say that species survive through selection is merely to state a truism, the real problem being hidden in the word "variation" or "change," and the way these changes arise. He cited several cases in insects to sustain his position that habit is the cause of change, the most striking one being experiments by Metalnikoff on *Galleria*, a moth whose caterpillars feed on beeswax. This insect is susceptible to cholera attacks but may be made immune by the use of serum. Metalnikoff treated one-half of a brood with serum and infected all with the cholera germ. None of the unprotected members survived, but in subsequent generations treated in this same fashion there was an increase in the number of survivors of the unprotected forms from 30 per cent in the third filial generation to 42 per cent in the sixth and 75 per cent in the ninth.

McBride assumed that every action has an effect on some nuclei, and made the further assertion that any cell of the embryo may become a germ cell. Thus the affected cell may be in a position to pass its acquired characters on to its descendants. If an activity is continued over many generations the new influences will be exerted on all of the cells until eventually the new-

character appears without needing an external stimulus.

Basing his conclusions on his researches on Titanotheres and Proboscideans (see above), Osborn (*Science*, 73, p. 548 and 74, p. 557) declared that evolution could never have progressed through the agencies of sudden changes in genes as is assumed by the modern mutationists, but that both "biochemical and biophysical evolution is along continuously adaptive and creative lines." Continuous hard work along the lines of maximum resistance is essential to setting an organism in evolutionary motion or acceleration. It becomes static when resistance diminishes and retrogressive when resistance disappears.

The study of fossils which cover millions of years reveals which organs are static and which are dynamic and only by this sort of study can we get evidence as to the methods of evolution. Mutations in such animals as the fruit fly are too evanescent to be of any value in explaining the process. An important part of Osborn's theory is the concept of a creational force not to be confused with "entelechy," "holism," or any of the other internal perfecting principles which are metaphysical anticipations of the order of nature, but is purely inductive or post-observational. The word "aistogenesis" is suggested for use as the designation of this principle until a better single term signifying "the creative origin of the adaptive" can be found.

**CeLENTERATES.** On the assumption that reef building corals cannot grow at greater depths than about 20 fathoms, theories of the mode of formation of coral reefs have had difficulty in explaining how these reefs could have been built in deep water. Setchell (See YEAR BOOK for 1928), from the standpoint of a botanist, claimed that the limestone-depositing algae which grow at greater depths than corals, are responsible for the necessary building up of the reef base. A similar position was taken by Gardiner (*Nature*, 127, p. 857) who considered that limestone-depositing sea weeds and algae are of most importance in reef formation. The greatest depth at which this formation of reefs can start is that at which photosynthesis ceases, which is 60 fathoms for plants and 40 for animals. The zooxanthellae or algae which live in the tissues of corals absorb  $\text{CO}_2$  and N and give off O, though Gardiner considers the  $\text{CO}_2$  absorption is negligible in amount. On the other hand, boring algae are important agents in the disintegration of coral reefs.

**FLATWORMS.** *Paragonimus*, a lung fluke, has been known since 1894 to infest cats, dogs, and pigs in North America but its life history has been unknown. The finding of it in a mink led to the assumption that the intermediate host is an aquatic animal and Wallace (*Science*, 73, p. 481) found what were suspected to be intermediate stages in the crayfish *Cambarus imitator spinirostris* from a small creek near Minneapolis, Minn. The suspicion was verified by feeding cysts of the fluke to cats in which the characteristic *Paragonimus* later developed.

**NEMATODES.** Students of the hookworm have been puzzled to account for the amount of anemia which appears in patients attacked by this disease for while the worms suck the blood of the host, it was not thought that the amount drawn in this fashion could be enough to account for the serious anemic condition. Wells (*Science*, 73, p. 16), first by a chance observa-

tion and later by experiments on anesthetized dogs, demonstrated that when feeding, blood is passed through the alimentary canal of the worm and discharged as blood from its intestine. Under the conditions of the experiment it was estimated that if there were 1000 worms present in the dog's intestine, as much as 360 mm of blood per day might be drawn off in this fashion, in addition to what was digested by the worm. While this does not prove that a similar condition exists in man, it does indicate that this possibility should be considered in dealing with this disease.

**ANNELIDS.** Lieber. (*Zool. Anz.*, 96, p. 255) described a polychaetous annelid of the genus *Lycastopsis* living in the crevices of bark and in the soil underneath coconut trees in Ambonia in the Malay Archipelago. These occur at a distance of over 2 kilometers from salt water and will live in fresh water but die very quickly in salt.

**INSECTS.** L. O. Howard, the eminent entomologist and former Head of the U. S. Bureau of Entomology, stated in *The Insect Menace*, the reasons for the pessimistic stand taken by most entomologists concerning the relation of insects to human welfare. He estimated that in the United States alone, the annual loss to agriculture to be \$2,200,000,000, with large additions to be made to this sum from other injurious activities especially as related to the transmission of diseases. Like most entomologists he was not inclined to give as much credit to birds as defense agents against insects as the ornithologists demand, largely because it is generally recognized that the most efficient control of injurious insects is by means of other insects which prey upon them and insect-feeding birds do not discriminate between the two.

An interesting solution of an insect problem was worked out in Fiji and reported in a government publication. (*Coconut Moth in Fiji*. Tothill, Taylor, and Paine.) A moth, *Levuana iridescens* was eating the leaves of the coconut to such an extent as to kill the trees and no enemy was known for the insect. It was discovered that a related moth, *Artora catorantha* was parasitized by a fly *Ptychomia remota* and experiments showed that the fly would attack the *Levuana* with equal success. The importation and acclimatization of the parasite was followed by a very complete control of the pest.

While it would seem the most reasonable assumption to suppose that sense organs of insects are located on the antennae, various observers have placed them on the bases of the wings or on the legs. Minnich (*Jour. Exp. Zool.*, 60, p. 121) decided that in the blowfly *Calliphora*, the outer marginal hairs of the oral lobes are gustatory in function. As compared with other sense organs located on the legs, these are less sensitive to saccharose and more sensitive to lactose. Valentine (*Jour. Exp. Zool.*, 58, p. 165) decided that the organs for sex discrimination in the meal worm *Tenebrio*, are located on the antennae. In this insect the males react very decidedly to the sex odor of the female and this reaction follows after the removal of sense organs located on the legs but will not do so if the antennae are cut away. The organs in question lie in the terminal four segments of the antenna. If these segments are removed from the antenna the male will react by circus movements toward the female.

Clark (*Sci. Mon.*, Aug., p. 178) stated that in the vicinity of Washington, D. C. the western orange clover-butterfly *Colias philodice* is driving out the local yellow clover-butterfly *O. eurytheme*. This is accomplished by the aggressiveness of the former species which annoys both sexes of the latter and drives the males away from the breeding places. Schmucker (*Biol. Zent.*, 51, p. 15) described a peculiar asymmetry in the punctures made by bumble bees in the flowers of *Salvia*, when gathering nectar. All of the individuals of one colony will puncture either the right or left side of the flower and apparently rarely or never attack both sides. A relationship between butterflies and rabbits similar to the one described many years ago by Darwin and Huxley between bees and old maids in England was described by Harrison (*Vasculum*, May, p. 68). The small copper butterflies depend for their food on sorrels which thrive best among the scrapings and burrows of rabbits. Thus the insects are most abundant where there are rabbits. Hertweck (*Zeit. f. Wiss. Zool.*, 139, p. 559) noted that in spite of the amount of attention given to the genetics of the fruit fly *Drosophila* little is known of its internal anatomy. In this publication he gave an account of its nervous system and sense organs.

**ARACHNIDS.** Gudger (*Nat. Hist.*, Jan.-Feb., p. 58) recorded further cases where spiders caught and ate fish, in the case of the one photographed in this article, the fish being much longer than the spider. In one case cited the disappearance of some pigmy sun-fish from an aquarium was explained by the presence of spiders on a plant leaf which overhung the aquarium. Bonnet (*Bull. Soc. Nat. Hist. Toulouse*, 59, p. 237) found that in spiders there are from four to twenty-two moults, the number depending on the size of the spiders. The time between moults depends on the temperature and food supply. Spiders have a complex mechanism for autotomy.

**FISHERIES.** An important innovation in the technique of fisheries investigation has been inaugurated by the University College of Hull, England, whose Department of Zoology has been expanded to cover Oceanography (*Nature*, 127, p. 911). Instead of sending out a single vessel to cruise for the collection of data relating to fisheries it is proposed to equip commercial vessels with the apparatus necessary to secure plankton and other measurements and thus to secure data more or less contemporaneously over a wide range of sea.

Fish in a brook where there is a definite current orient themselves so as to head upstream, keeping up enough of a fin movement to counteract the effect of the current; thus holding their position with reference to the bed of the stream. That this is a response to visual stimuli has been claimed and was corroborated by Clausen (*Ecology*, 12, p. 541), who moved a paper painted in alternate black and white stripes, along the bottom and back of a glass aquarium in which the fish were kept. Although there could be no current in the aquarium, the fish oriented themselves with reference to the movement of the stripes and moved with them, definitely prov-

ing that this is a case of orientation through optical stimulation.

**BIRDS.** Muller (*Univ. of California Pub. in Zoology*, 38, p. 2) gave a revision of the shrikes of the genus *Lanius*, with accounts of their natural history. Earlier students of birds have reported that at the approach of the breeding season the male bird preëmpts a "territory" within which he will tolerate no other bird and into which he will attract the female for nest building and care of the young. Muller stated that in the shrike this attempt at control of a territory does not cease after the young birds are reared but that each bird tries to control a definite area for its own feeding ground. The female is the more active in courtship and apparently does all of the work of building a nest as well as of incubating. In the latter process she is fed by the male, though she may take short flights for food collecting.

In the matter of food, shrikes will follow the line of least resistance, taking whatever they can find that is most abundant and will show more interest in moving objects than in quiet ones. The habit of impaling food on thorns arose because the claws of the bird are too weak to hold food while eating and the thorns give it proper support. No element of "cruelty" is involved in catching and impaling food that the bird does not want, but simply an uncompleted instinctive action started by the sight of food, but not finished because the bird is not hungry. Neu (*Biol. Zent.*, 51, p. 18) discussed whether birds who swim under water make any use of their wings in swimming. His own observations on two species of *Podiceps* failed to show any use of the wings in this process.

The subject of bird migrations was discussed by Grinnell (*Auk*, 48, p. 22) in which he called attention to the constant activities of even the most sedentary birds and compared the Arctic tern with Foster's tern, two rather closely related species. The former in its migrations makes an annual circuit of 22,000 miles while the latter does not migrate.

**MAMMALS.** The American Gray Squirrel has been introduced into England with the same result that has followed introduction of new species in other places. Middleton (*Proc. Zool. Soc.*, London, 1930, p. 3) recorded that it had become a great pest in the localities where it has become acclimated and bids fair to spread to the whole country. It robs birds nests and does much damage in woodlands by biting plant shoots and by girdling limbs. Whitney (*Jour. Mammal.*, 12, p. 29) corrected the popular notion that raccoons wash their food before eating it, with the definite statement that this does not happen. They will catch fish at the water's edge, but will not carry other food there.

**ZUIDER ZEE.** See NETHERLANDS, THE.

**ZULULAND**, zoʊ-lʊ-land. A portion of the Province of Natal in the Union of South Africa, to which it was annexed Dec. 30, 1897. Area, 10,427 square miles; population in 1911, 219,606; in 1921, 3985 Europeans and 254,371 non-Europeans; in 1926, 5214 Europeans. There are extensive sugar and tea plantations. See SOUTH AFRICA, UNION OF, for statistics on Natal.













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